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<td>West Godawari-Processed Shrimps</td>
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Dairy Products, Begusarai, Bihar

In India, dairying is recognized as an instrument for social and economic development. The nation's milk supply comes from millions of small producers, dispersed throughout the rural areas. These farmers maintain an average herd of one or two milch animals, comprising cows and/or buffaloes. The animals’ nutritional requirements are largely met by agricultural waste and byproducts. Ample labour and a small land base encourage farmers to practice dairying as an occupation subsidiary to agriculture. While income from crop production is seasonal, dairying provides a stable, year-round income, which is an important economic incentive for the small farmer to take to dairying.

The milk production in Bihar mainly consists of cow milk and buffalo milk. Cow milk dominates the total milk production, accounting for majority of the market share. Dairy market in the state reached a volume of 5.32 Million Tons in 2021. Looking forward, the market is expected to reach 7.01 Million Tons by 2027, exhibiting at a CAGR of 4.5% during 2022-2027.

Begusarai milk products include, milk, ghee, ice-cream, lassi, butter, misti-dahi, peda, paneer, plain curd and Indian sweets like, kalakand, rasgulla, gulabjamun, etc.

Problems

1. *Dairy farmers have to face problems due to unavailability of veterinary facilities in time.*

   **Proposed Interventions**
   
a. State government and the central government should provide funds to set up veterinary schools in the district.
b. There is general reluctance among the general public to pursue a career in veterinary sciences, so the government should completely subsidize education of the students.
c. Government should also start a talent hunt program for identifying people in the age group of 18-30 who have good knowledge of livestock body mechanics and then train them to pursue a career in veterinary science.
d. Government can open up more veterinary hospitals and cattle medical stores in the district and provide subsidy on medicine.

2. *Cattle feed is not very affordable for small dairy farmers and is largely unavailable in the summer season.*

   **Proposed Interventions**
   
a. Government can give subsidy to small dairy farmers for purchasing cattle fodder.
b. In the peak season, government can make arrangements to import fodder from other states and then sell those through regulated markets at no-profit no-loss basis.
c. Central government can give funds to various research institutes for research and development of artificial fodder.
d. Government lands lying vacant can be repurposed as grazing field for farmers’ livestock.
3. *Dairy farmers face problems in getting fair price for their produce.*

**Proposed Interventions**

a. Government can start regulated markets for dairy products, and try to ensure that dairy farmers are able to secure a good margin for their produce.

b. Small farmers can be encouraged to pool-in their resource and start a cooperative.

c. Sudha Dairy (earlier known as Barauni Dairy)-a cooperative just like Amul- was started to help dairy farmers get a fair share for their produce. But as of now, if a small dairy farmer sells his produce to the cooperative, leave alone profit, he is not able to cover his cost as well. Therefore, the cooperative requires internal restructuring.

d. Unlike Amul, Sudha Dairy controls a large part of market share in Bihar and Jharkhand, only. In other parts of the country, it is either not present or if present, it controls only a small portion of market share. So if the Bihar government promotes Sudha products, then it would surely benefit dairy farmers.

e. Government can give loans at low interest rates to the dairy farmers so that they mechanize cattle stable, which helps in reducing labour cost which is already very high.

f. Government can make public stables, which, farmers from low income background can use after paying a nominal upkeep fees. This will help them in earning extra income, while keeping the cost of production. This would be of immense help to farmers who are from low-income background and own 2-3 cows.

4. *Farmers use only traditional methods of animal husbandry and not scientific management methods.*

**Proposed Interventions**

a. Dairy farmers can be given practical classes, teaching them how to build and operate a stable in a more efficient way.

b. Farmers can also be taught about various symptoms to look for in cattle and also about precautionary measures to avoid certain diseases.

c. Government can partner with various livestock research institutes that publish quarterly journals about various aspects of dairy farming and how to increase productivity of cattle.

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<th>Agency</th>
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<td>Infrastructure &amp; Manufacturin g</td>
<td>State government and the central government should provide funds to set up veterinary schools in the district.</td>
<td>Government of India, Government of Bihar, Department of Animal Husbandry and Dairying</td>
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<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>The government should completely subsidize education of veterinary sciences students.</td>
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<td>3</td>
<td>Training and Development</td>
<td>Government should also start a talent hunt program</td>
<td>Department of Animal Husbandry</td>
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<td>(Upskilling)</td>
<td>for identifying people in the age group of 18-30 who have good knowledge of livestock body mechanics</td>
<td>and Dairying</td>
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<td>4</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Government can open up more veterinary hospitals and cattle medical stores in the district and provide subsidy on medicine</td>
<td>Government of India, Government of Bihar</td>
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<td>5</td>
<td>Government can give subsidy to small dairy farmers for purchasing cattle fodder</td>
<td>Ministry of Animal Husbandry and Fisheries</td>
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<td>6</td>
<td>Distribution</td>
<td>In the peak season, government can make arrangements to import fodder from other states</td>
<td>Government of Bihar with government of other states</td>
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<td>7</td>
<td>Research and Development</td>
<td>Central government can give funds to various research institutes for research and development of artificial fodder.</td>
<td>Government of India, various livestock research institutes</td>
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<td>8</td>
<td>Government lands lying vacant can be repurposed as grazing field for farmers’ livestock.</td>
<td>Ministry of Rural Development, Bihar, Revenue and Land Reforms Department, Government of Bihar</td>
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<td>9</td>
<td>Regulatory</td>
<td>Government can start regulated markets for dairy products, and try to ensure that dairy farmers are able to secure a good margin for their produce.</td>
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<td>Small farmers can be encouraged to pool-in their resource and start a cooperative.</td>
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<td>11</td>
<td>Credit</td>
<td>Government can give loans at low interest rates to the dairy farmers so that they mechanize cattle stable.</td>
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<td>12</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Government can make public stables, which, farmers from low income background can use after paying a nominal upkeep fee.</td>
<td>Ministry of Rural Development, Bihar, Department of Animal Husbandry and Dairying</td>
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### Reference

- [https://www.fao.org/3/t3080t/t3080t07.htm](https://www.fao.org/3/t3080t/t3080t07.htm)
- [https://www.imarcgroup.com/dairy-industry-bihar](https://www.imarcgroup.com/dairy-industry-bihar)
- [https://www.researchgate.net/publication/349519018_Constraint_faced_by_dairy_farmers_in_different_state_of_India_An_overview](https://www.researchgate.net/publication/349519018_Constraint_faced_by_dairy_farmers_in_different_state_of_India_An_overview)
Problems

*Quality of raw materials*

With materials the most important feature of footwear, it’s unsurprising that raw materials can account for up to 50% of the root cause of quality issues.

The most common materials used to make shoes are imported leather hides and skins, textiles, plastic polymers, and rubber.

Defects found during inspections by footwear technicians often includes:

- Bubbling in the sole from poor-quality polymers.
- Color variations within the same material batches.
- Dirt stains, and abrasion marks.
- Uneven dyeing, printing, and dye marks.
- Leather-specific defects, such as scratches, veins, growth marks, and looseness.

Cheaper materials can also mean inferior quality, which can negatively impact the production process.

**Proposed Intervention**

a. Fabric and Raw Material Inspection

**Main Checks Performed**

- Visual assessment of 10%, 20%, 50%, or more, of the produced quantities.
- Usage of 4 or 6 demerit point system or any other system agreed with our customers.
  - 100% assessments for expensive fabrics and leather hides.
  - Check on A, B, C grading of tanneries.
  - Conformity check: dimensions, colors, weaving, knitting, shading, tanning, finishing, coatings.
  - Control of quality.
  - Picking of samples for laboratory testing.

**Benefits of Fabric and Raw Material Inspection**

- Identification of defects and major causes of Non-Compliance and Quality Problems.
- Replacement or Correction before Shipping or before start of Production.
- Saving of Time and Reduction of Costs Linked to Problems with Quality of Supplies.

1. *Poor workmanship and time pressures*

Defects frequently discovered by textile technicians are:

- Excess of adhesives: glue, wax, or oil
- Abrasion marks
- Degumming or weak cementing
- Asymmetry
- Sharp protruding objects (e.g. nails).

There are several reasons why these issues occur. Producing footwear is heavily labor-intensive, leading to human errors. Some factories lack the expertise to manufacture footwear, with certain constructions not yet mastered by the factory. The production may also have been rushed to meet tight shipping deadlines.

**Proposed Interventions**

**“Shoe me some money”**

a. Process more footwear units.
   - There are 10,000 footwear artisans in the district.
   - More tanneries & footwear units are required to be set up in the private sector.
   - Central Council of Leather Exports should process of preparing project report.

**“Good shoes take you good places”** a famous quote is something most shoemakers learn at a very young age.

b. Emphasize on art of Shoe Making.
   - India has many institutes that offer courses in shoemaking. Central Footwear Training Institute (CFTI) and National Institute of fashion Technology (NIFT) are the most sought after colleges.
   - These colleges have rigorous courses that offer short-term, bachelors and master courses in shoemaking and designing.
   - With support CCLE and Government of India encourage Shoe Making among new generation in the District.

c. Establishment of Institutional Facilities.
   - Similarly, under the 'Establishment of Institutional Facilities' component, support could be provided for setting up of new infrastructure and up-gradation of requisite infra of the existing campuses of Footwear Design and Development Institute (FDDI).

3. **Meeting consumers’ multifaceted expectations**

- In the competitive footwear market, brands must offer the highest value to consumers. Style, fit, and comfort remain top-of-mind purchasing decisions, but longevity, function, and versatility also play a role. In the last several years, the hybrid style of at-leisure has continued to gain traction in this market.
- Creating the right fit is vital, with customers expecting to receive shoes that are identically sized and with the correct dimensions. More than desiring comfort, buyers have become aware that incorrectly fitted footwear can lead to painful foot pathologies and disorders. But ensuring a good fit has become more challenging than ever in the e-commerce era, with increasing numbers of shoes being ordered online.

**Proposed Interventions**
a. Mega Leather Footwear and Accessories Cluster Development

- Under the 'Mega Leather Footwear and Accessories Cluster Development' sub-scheme, graded assistance is proposed for land development, social infrastructure, production facilities, and R&D (research and development) support.
- For brand promotion, support could be provided to promote at least 10 Indian brands in the international market.
- Further, under the component of Development of Design Studios'
- "The studios will promote design innovation, promote market and export linkages, facilitate buyer-seller meets, display designs to international buyers and work as Industry Speak Jobs & Career Feature Data & Analytics.

b. IFLADP (Indian Footwear Leather and Accessories Development Program)

- Government is likely to extend incentive scheme IFLADP for leather, footwear industry till 2025-26.
- ET Retail Fashion Footwear leather industry Indian brands IFLADP exports interfaces for the trade fairs.
- "These studios would provide services such as technical support, and quality control.
- Earlier, the IFLADP was announced with an expenditure of Rs 2,600 crore for three financial years 2017-18 to 2019-20.
- It was also aimed at development of infrastructure and facilitates additional investments,
- increasing production and employment generation.

4. The environmental footprint of making shoes

The rise of eco-conscious consumerism has placed the clothing industry under public scrutiny for its energy-intensive processes.

Some of the environmental impacts of manufacturing shoes are:

Machinery and chemicals requiring large quantities of fossil fuels that produce greenhouse gases when burned. According to research from MIT, the production of a single shoe produces 30 pounds of carbon dioxide on average (its equivalent to keeping a 100-watt light bulb on for one week.) Numerous chemical adhesives and tanning chemicals that are used to process different shoe components. These are easily leaked into water sources and the environment when discharged from factories. The production of solid waste, mostly from cutting. This is commonly seen with leather, a natural product susceptible to flaws with no uniform properties, making it more prone to waste than synthetic materials.

Proposed Interventions

a. Sustainable Technology and Environmental Promotion

- Under the 'Sustainable Technology and Environmental Promotion' component, assistance could be provided for setting up a common effluent treatment plant.
- This support could be extended for modernization/capacity expansion/ technology up-gradation under the 'Integrated Development of Leather Sector' component.
b. IFLADP Sub Plan

- The Leather Technology, Innovation and Environmental Issues sub-scheme under IFLADP provides financial support at 70% of the project cost to leather clusters to meet the prescribed pollution control discharge norms.
- This covers establishment, expansion, up-gradation of CETPs, developing secure landfills, common recovery units, management of sludge and any other techniques for hazardous waste management.

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<td>Quality Assurance</td>
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<td>Ministry of Commerce &amp; Industry</td>
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<td>2.</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Process more footwear units</td>
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<td>Government of Bihar</td>
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<td>3.</td>
<td>Training &amp; Development (up-Skilling)</td>
<td>Emphasize on art of Shoe Making</td>
<td>CCIL</td>
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<td>Government of Bihar</td>
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<td>4.</td>
<td>Training &amp; Development (up-Skilling)</td>
<td>Establishment of Institutional Facilities</td>
<td>Footwear Design and Development Institute (FDDI)</td>
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<td>5.</td>
<td>Product Development &amp; Quality Assurance</td>
<td>Mega Leather Footwear and Accessories Cluster Development</td>
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<td>7.</td>
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<td>Sustainable Technology and</td>
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<td>8.</td>
<td>Value Addition &amp; training &amp; up-skilling</td>
<td>IFLADP Sub Plan</td>
<td>Ministry of Commerce &amp; Industry</td>
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Sugar, Nawada, Bihar

Nawada district is situated in the southern part of Bihar and is one of the thirty-eight districts of Bihar State. The climate of the district is sub-tropical to sub-humid in nature. The district experiences severe cold during winter whereas in the summer it is very hot. Agriculture is the mainstay of livelihood and 78% of people depend upon agriculture. The principal occupations of the people are rainfed agriculture, animal husbandry, and casual labor work. During the Kharif period, most parts of the work mass engaged themselves for about 4 months. Nawada has no functional large industries and only some small and medium enterprises (SME) that are located in the city in addition to a few stone chips factories and rice mills. There are great possibilities for Agro-industries in this district. That includes Rice Mill, Sugar industry, Oilseed industry, Corn Flakes industry, and agricultural machinery industry.

Problems:

1) *Reduction in yield per hectare from 71 ton/ha in 2010 to 54 ton/ha in 2014*

**Proposed Solutions**

a) As of 2014-15 data, with 400 hectares of land under cultivation of sugarcane, Nawada is ranked 25th in the state in terms of crop yield (54 ton/ha) which is very less than the average of a state which is 67.3 ton/ha. The unprecedented use of fertilizers, limited irrigation facility, and limited use of technology are some of the major reasons.

b) Agriculture department of state should promote the use of organic manure for sustainable farming practices. This manure will improve the nutrition diversity of soil as well as nutrition retention capability. Farmers should be provided knowledge about the side effects of rampant fertilizer usage.

c) Crop rotation and inter-cropping are farming techniques that can improve soil fertility and provide additional income sources to farmers during the harvesting period.

d) Sugarcane cultivation requires an ample amount of water at every stage. Uninterrupted and monitored water supply with the promotion of irrigation technology is required to solve the water crisis during the summer season. The state irrigation department should drive awareness campaigns regarding the promotion of irrigation facilities and information regarding water availability.

2) *Revival of Sugar mills in the district*

**Proposed Solution**
a) Nawada had 3 sugar factories that were decommissioned in the early 2000s due to supply problems. The supply of sugarcane is one of the major issues in sugar mills due to the high operating cost for private mills. Cooperative sugar mills are not much efficient in Utter Pradesh and Bihar due to several social and geopolitical reasons.

b) Ensuring a constant supply of sugarcane by promoting FPOs in the region to unite the farmers for selling sugarcane to mills in the area only. FPO formation can ensure a constant supply of sugar to private mills. Apart from this, technological upgrade in existing mills and reconstruction of dilapidated mills is required. Sugarcane Industry Department can take responsibility for this initiative under Sugar Mill Project.

c) Ensuring transparent pricing to ensure trust in farmers about their return is required to incentivize farmers to sell their produce to private mills.

3) **Heavily Interrupted Power supply which hampers machinery used in farm and sugar mills**

**Proposed Solutions**

a) As per a news report in 2018, many villages in Nawada district receive power supply for 4-5 hours with an interruption for 5-10 times in between. This type of broken supply reduces the efficiency of farm machinery as well as reduces the adoption rate.

b) State agriculture department and energy department and rural development department should take joint responsibility for providing uninterrupted electricity supply. This program should also provide information about power cuts in advance so that farmers can plan their operations accordingly.

4) **Artificial Supply crunch created by fertilizer distributors**

**Proposed Solutions**

a) This is a rampant issue in the state of Bihar. Recently, farmers protested for the same. Distributors were blamed for stock fertilizers and other input during the peak season to charge more price during the season. As per one evidence, the distributor was selling fertilizer at Rs. 390 per bag instead of a subsidy price of Rs. 250.
b) Strict monitoring from the agriculture department is required for controlling the pricing according to regulations. A block-level monitoring team can be deployed during peak season which can perform regular visits to distribution and retail points to monitor the prices. Agriculture Department should incorporate complaint helpline such issues and ensure that monitoring can be done within 24 hrs of a complaint.

**Implementation Responsibilities:**

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<tr>
<th>Sr No.</th>
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<th>Type of Intervention</th>
<th>Implementation Partner</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Agriculture</td>
<td>Promotion of Sustainable Farming</td>
<td>Agriculture Department, Sugarcane Department</td>
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<tr>
<td>2.</td>
<td>Agriculture</td>
<td>Irrigation and Water Supply</td>
<td>Agriculture Department, Water Department</td>
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<td>3.</td>
<td>Infrastructure</td>
<td>Revival of Sugar Mills</td>
<td>Sugarcane Industry Department, Rural Development Department</td>
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<td>4.</td>
<td>Electricity</td>
<td>Sufficient Power Supply</td>
<td>Agriculture Department, Energy Department, Rural Development Department</td>
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<td>5.</td>
<td>Price Monitoring</td>
<td>Complaint Helpline Regular PoS Monitoring</td>
<td>Agriculture Department, Bihar Police Department</td>
</tr>
</tbody>
</table>

**References:**

Sugar Industry – Udyog Mitra (udyogmitrabihar.in)

Bihar farmers block roads over fertilizer shortage (downtoearth.org.in)

Ahead of Bihar polls, this village wants its lifeline back | India News - Times of India (indiatimes.com)

Sugarcane Industries Department (bihar.gov.in)

Sugarcane Industries Department - Incentive Package (bihar.gov.in)
Chandigarh: The most striking thing about the city is the expanse of resplendent blue sky with the mountains in the backdrop. When you are approaching the city, you would see the jagged skyline of the Shivalik Hills looming large over the city and the faint image of an old temple dedicated to Goddess Chandi (15 km from Chandigarh) from which the city got its name.

Chandigarh may appear oddly familiar to Western visitors and idiosyncratic to the rest of India. Because of this, Chandigarh is a good place to visit if you need a break from the constant flow of which is often said to assault the senses, and can be overwhelming to foreign travelers.

Chandigarh is the best-planned city in India, with architecture which is world-renowned, and a quality of life, which is unparalleled. As the capital of the states of Punjab and Haryana, and the Union Territory of Chandigarh it is a prestigious city. The face of modern India, Chandigarh, is the manifestation of a dream that Pt. Jawahar Lal Nehru envisaged and Le Corbusier executed.

Serenity and a city are two diametrically opposite concepts, which however, get belied in the 'City Beautiful'. Chandigarh is a rare epitome of modernization co-existing with nature's preservation. It is here that the trees and plants are as much a part of the construction plans as the buildings and the roads. India’s first planned city is a rich, prosperous, spic and span, green city rightly called “THE CITY BEAUTIFUL”.

Chandigarh was one of the early planned cities in post-independence India and is internationally known for its architecture and urban design. The master plan of the city was prepared by Swiss-French architect Le Corbusier, which transformed from earlier plans created by the Polish architect Maciej Nowicki and the American planner Albert Mayer. Most of the government buildings and housing in the city were designed by the Chandigarh Capital Project Team headed by Le Corbusier, Jane Drew and Maxwell Fry. In 2015, an article published by BBC named Chandigarh as one of the few master-planned cities in the world to have succeeded in terms of combining monumental architecture, cultural growth, and modernisation.

Chandigarh's Capitol Complex was in July 2016 declared by UNESCO as World Heritage at the 40th session of World Heritage Conference held in Istanbul. UNESCO inscription was under "The Architectural Work of Le Corbusier an outstanding contribution to the Modern Movement". The Capitol Complex buildings include the Punjab and Haryana High Court, Punjab and Haryana Secretariat and Punjab and Haryana Assembly along with monuments Open hand, Martyrs Memorial, Geometric Hill and Tower of Shadow and the Rock Garden.

Thirteen best places to visit in Chandigarh:

1. The Rock Garden of Chandigarh
2. Elante Mall
3. Sukhna Lake
4. Chandigarh Rose Garden
5. Mahendra Cahudhary Zoological park
6. Timber Trail
7. Japanese Garden
8. Urban Theka
9. Musical Fountain
10. Le Corbusler Center
11. Leisure Valley
12. Garden of Fragrance
13. International Doll Museum
14. Shanti Kunj
15. Chandigarh Botanical Garden & National Park

Problems:

1. *Lack of Infrastructure*
   - It is a major challenge for the Indian tourism sector.
   - This includes hotels, connectivity with other cities, health facilities, and transportation etc. The major reason for this unconcern is a poor allocation of money in the budget.

Proposed Intervention

a. Mission Approach through Rajiv Gandhi Mission
   - Setting up a system of coordination between departments through “Mission Approach” on the lines of Rajasthan’s Rajiv Gandhi Mission on Tourism Development.
   - Coordination between Chandigarh Tourism/ Chandigarh Hotels/ Town Planning/ PWD (B&R)/ PHD/ Police/ Trade Associations/ NHAI/ Indian Railways
   - The Mission should have a mission statement, a manageable number of objectives and specific activity milestones for effective review.

2. *Safety and Security*
   - Safety & security of tourists is the most important factor which governs whether people will come to that destination or not.
   - Attacks on foreign tourists, especially on the woman tourists have raised this question. India is placed at 114th position in terms of safety.
   - The tourism sector should become strict and should pass laws against those criminals who cheat the innocent tourists.

Proposed Interventions

a. Tourism Police outposts
   - Tourism Police outposts for Safety and security are a major concern of travelers. a. We have suggested Tourism Police outposts be set up in the proposed “Tourist Centres” in Chandigarh.
   - The list of locations can be expanded over the Plan period.

b. Accreditisation of Shops and transporters
   - These are two areas where most tourists feel most insecure in terms of being cheated.
   - For shops, we suggest accreditising shops that have price tagged items and a reasonable return/ refund policy.
   - Shops should carry a Chandigarh Tourism plaque and be advertised in an official map.
   - For Taxis/ auto rickshaws must be metered and carry tariff cards.
   - These will be identified with a plaque
3. **Inaccessibility**
   - There are many tourist destinations in the country, which are not accessible to poor, women and elderly because of the high cost of transportation, poor connectivity with cities and around 2% of the tourist cannot access many of the tourist spots in the country.
   
   - Tourism is the only sector which not only creates jobs but also provides jobs in the tertiary sector. It is now high time for us to work for the betterment of this sector so that from the upcoming years the number of foreign tourists may increase, and more people will be able to know about our culture.

**Proposed Interventions**

a. Cultural/ Tourism Information Centre.
   - This should showcase Chandigarh and be a cross between Dilli-Haat and The National Crafts Museum.
   - This center should provide information and reservation capabilities for potential tourists to Chandigarh and neighbouring States.
   - These will provide employment to artisans/ performing artists
   - We recommend arts/ crafts, State cuisine and performing arts be showcased.
   - We recommend some permanent stalls backed by open spaces for stall for celebrating State festivals

b. Incorporated into “Recreation & Leisure Centres”
   - Promoting Traditional Cuisines
   - Chandigarh has eight neighbouring States each with a rich cultural tradition.
   - We propose that food and cultural festivals be held on a regular basis.
   
   - Horse Race Track & Club.
   - There is no good Horse Race track in North India. North India is also home to about 10 stud farms.
   - The Race Club can have other facilities to attract a permanent membership.
   
   - Promotion of Amusement park.
   - The Rock Garden/ Sukhna Lake/ Golf Course area is already one hub of tourist activity.
   - Areas for an amusement park, for a Sports Complex and a Tourist Health Resort have already been ear-marked in the Chandigarh Master Plan.
   - We propose the Amusement Park be marketed to families traveling Delhi- Shimla with young children to encourage an overnight break.
   - Linking the sightseeing
   - The distance between the Rock Garden and the area identified for the Amusement park is a long walk but a short auto-rickshaw ride.
   - We propose a vintage narrow gauge railway be set up to link all the points in this Recreation & Entertainment area.
4. Well planed city but lacks tourism after Worldwide pandemic

Proposed Interventions

a. For Tourism, here is an Incredible Plan 2.00 (Travel and Tourism Council)

- The economy runs on the four wheels of demand, supply, capital and labour. \textit{Covid-19 pandemic} has impacted demand and supply, capital availability and left labour facing unemployment.
- Though the pandemic has affected almost every sector of the Indian economy, perhaps the travel, tourism and hospitality sectors have been the most affected. According to the \textit{World Travel and Tourism Council}, nearly 42 million jobs in the tourism and hospitality sector will be at risk in India.
- Given the vital importance of the tourism industry in the Indian economy, there is a need to address underneath challenges and adopt a suitable policy for overall growth.

Importance of Tourism Sector

Employment Generation:

- Travel, tourism, and hospitality can exponentially create jobs, which are important for India’s demographic dividend, as 72% of India’s population is below 32 years.
- Travel and tourism account for approximately 8.1% of the total employment opportunities.
- In 2019, it contributed 9.3% to India’s Gross Domestic Product (GDP) and received 5.9% of total investments.

Multiplier Effect:

- An added aspect of the travel and tourism sector is that not only does the sector provide high-quality jobs; it also enhances an investment in India, accelerates development, and showcases India’s unique treasures—acting as a tool for soft diplomacy.

Potential Areas of Tourism:

- India offers amazing diversity in tourism, ranging from 38 \textit{UNESCO World Heritage sites} to the different physiographic features to medical and Wildlife Tourism and Chandigarh is one of them
- India is ranked third (behind US and China) in the World Travel and Tourism Council (WTTC)’s Travel and Tourism Power Ranking, 2019.

Underneath Challenges of India’s Tourism Sector

Entry/exit Issue:

Despite the introduction of an e-visa facility, visitors find the process of applying for a visa still cumbersome.
- This process will further get complicated in the post-Covid era.

Infrastructure and Connectivity:

- Deficiencies in infrastructure and inadequate connectivity hamper tourist visits to some heritage-sites.

Promotion and Marketing:

- Although marketing related to India’s tourism has been increasing, still online marketing/branding remains limited and campaigns are not coordinated.
- Tourist information centers are poorly managed, making it difficult for domestic and foreign tourists to access information with ease.
Skill Deficit:

The number of adequately trained individuals for the tourism and hospitality sector is a key challenge to giving visitors a world-class experience. A limited number of multi-lingual trained guides, and the limited local awareness and understanding of the benefits and responsibilities associated with the tourism industry act as constraints on the sector’s growth.

Steps to be taken:

- The Government of India emphasised the importance of making India a global hub for tourism, urging each citizen to visit 15 tourist destinations in India by 2022. In this pursuit:

  Focusing Inward:

- A campaign focusing on domestic tourism that showcases what the nation offers to Indians could be the post-pandemic plan for the sector.

  Improving Transportation Infrastructure:

The **UDAN scheme** has been a huge success, and now the government can focus on the earlier plans of launching 100 tourism-oriented trains.

Preserving Heritage:

Conservation and development of all heritage sites should be undertaken and completed through either government funding or through NGOs/Corporate Social Responsibility (CSR)activities.

  b. **Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASAD)** PRASAD scheme will undertake the development or maintenance of heritage sites.

Skill Development:

- There is a need to connect local communities to tourism by encouraging them to set up small enterprises to supply the tourism industry (accommodation, food and material).
- Employment opportunities can be expanded by ensuring that investors and operators in the organized sector are encouraged to hire staff locally.
- This will give a boost to Eco-tourism.

Leveraging Technology:

- Moving forward, technology can play a significant role in creating minimum physical touch-points in hotels, which is very much required for safe and hygienic tourism.

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<td>1.</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Rajiv Gandhi Mission</td>
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<td>2.</td>
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<td>Tourism Police outposts</td>
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<td>Product Improvement</td>
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<td>Infrastructure &amp; Manufacturing Product Improvement</td>
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<td>3.</td>
<td>Accreditisation of Shops and transporters</td>
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<td>4.</td>
<td>Cultural/ Tourism Information Centre.</td>
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<td>Department of Tourism- GOI</td>
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<td>5.</td>
<td>Incorporated into “Recreation &amp; Leisure Centres”</td>
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<td>Department of Tourism- GOI</td>
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<td>6.</td>
<td>For Tourism, here is an Incredible Plan 2.00</td>
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<td>Travel and tourism council</td>
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<td>7.</td>
<td>Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASAD)</td>
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<td>Travel and tourism council</td>
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Sources:

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https://wikitravel.org/en/Chandigarh
https://www.drishtiias.com/daily-updates/daily-news-editorials/tourism-industry-in-india
Cauliflower is one of the most important vegetable crops of Chhattisgarh. The edible part of cauliflower is known as curd, which consists of a shoot system with short internodes, branches apices and bracts. It has high quality of proteins and peculiar in stability of vitamin C after cooking. It is rich in minerals such as potassium, sodium, iron, phosphorus, calcium, magnesium etc.

Cauliflower can be grown in all types of soil with good fertility and good regime. In light soil, the plants are most sensitive to drought and therefore, adequate moisture supply is important. For early crops, the light soils are preferred, while, loamy and clay loam soils are more suitable for mid-season and late maturing types.

Problems

1. There is a lack of adequate technology in the area that will specifically benefit small farmers, for example there is lack of technical knowledge, lack of soil testing facilities, problem of high infestation of different insects, pests and diseases in the crop, etc.

Proposed Interventions

a. Ministry of Agriculture, Chhattisgarh can enter into partnership with various technological and agricultural institutes to train farmers with various techniques to improve quality and quantity of produce.

b. Government of Chhattisgarh can give interest free loan to small farmers with the objective of equipping them with better and more efficient tools and machinery.

c. Government can facilitate setting up of a state-of-the-art soil testing laboratory in district headquarter and a couple of smaller ones in other parts of the district.

d. Government can partner with private sector to set up facilities near major cauliflower farm clusters for standardization and grading of produce.

e. Agricultural institutes can be asked to issue journals in local language where quality of pesticides and insecticides to be used should be specified. Also, the horticulture department of Chhattisgarh should ensure that pesticides available in the market is not of poor quality, because in many cases it is seen that to avoid spending too much on pesticides, farmers end up buying poor quality chemicals, which in the end destroys their crop.

2. Existing credit policy does not favour marginal and small farmers. Provision of credit on the basis of single enterprise and also on the basis of collateral does not favour small farmers at all.

Proposed Interventions
a. Small farmers can be given collateral free loan to meet their short term needs (to buy farming inputs and the beginning of year).
b. Small farmers can be provided with loan at low interest rate to upgrade their factors of production.

3. **There is lack of adequate transportation means in rural areas that will affect farmers because they are unable to sell their produce at right time.**

**Proposed Interventions**

- Government can extend the Kisan Rail facility to the district which can help in reducing the cost of transportation for not just cauliflower farmers in the district but also for farmers of other agricultural commodities.
- Government can partner with private players to build and run storage and packaging facilities, so that farmers are not forced to sell their produce at low cost.
- State government can exempt road tax for vehicles carrying cauliflower harvest, so that the transportation cost incurred to the farmer is reduced to some extent.
- Setting up of cooperatives can lead to better price realisation for farmers.

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<tbody>
<tr>
<td>1</td>
<td>Training and Development (Upskilling)</td>
<td>Government can enter into partnership with various agricultural institutes to train farmers with various techniques to improve quality and quantity of produce.</td>
<td>Indian Council of Agricultural Research (ICAR), Ministry of Agriculture, Chhattisgarh</td>
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<td>2</td>
<td>Credit</td>
<td>Government of Chhattisgarh can give interest free loan to small farmers with the objective of equipping them with better and more efficient tools and machinery.</td>
<td>National Bank for Rural and Agricultural Development, Ministry of Finance, Chhattisgarh</td>
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<td>3</td>
<td>Setting up of a state-of-the-art soil testing laboratory in district headquarter and a couple of smaller ones in other parts of the district.</td>
<td>Ministry of Agriculture, India, Ministry of Agriculture, Chhattisgarh</td>
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<td>4</td>
<td>Product Improvement</td>
<td>Partnership with private sector to set up facilities for standardization and grading of cauliflower.</td>
<td>Ministry of Food Processing Industries</td>
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<td>5</td>
<td>Training and Development</td>
<td>Agricultural institutes can be asked to issue journals in local language where</td>
<td>Indian Council of</td>
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<td></td>
<td>(Upskilling)</td>
<td>quality of pesticides and insecticides to be used should be specified.</td>
<td>Agricultural Research (ICAR), Department of Horticulture, Chhattisgarh</td>
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<tr>
<td>6</td>
<td>Credit</td>
<td>Small farmers can be given collateral free loan to meet their short term needs (to buy farming inputs and the beginning of year).</td>
<td>National Bank for Rural and Agricultural Development, Ministry of Finance, Chhattisgarh and Ministry of Agriculture, Chhattisgarh</td>
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<tr>
<td>7</td>
<td>Logistics</td>
<td>Extend the Kisan Rail facility to the district which can help in reducing the cost of transportation.</td>
<td>Ministry of Railways, Ministry of Agriculture</td>
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<td>8</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Partnership with private players to build and run storage and packaging facilities.</td>
<td>Ministry of Food Processing Industries</td>
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<td>9</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>State government can exempt road tax for vehicles carrying cauliflower harvest.</td>
<td>Ministry of Road Transport, Chhattisgarh</td>
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<td>10</td>
<td>Cooperative</td>
<td>Setting up of cooperatives can lead to better price realisation for farmers</td>
<td>Ministry of Cooperative</td>
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Source:
[http://researchjournal.co.in/upload/assignments/6_193-196.pdf](http://researchjournal.co.in/upload/assignments/6_193-196.pdf)
Gir Somnath district was carved out from Junagadh district as one of the new seven districts in August 2013. The district is divided into six talukas, Veraval, Una, Kodinar, Sutrapada, Talala, and newly formed Gir Gadhada. Talala Gir is Famous for its "KESAR MANGO". Behind Alphonso, the Kesar mango is the 2nd most exported mango kind. The iconic Gir Kesar mango, known for its bright orange color and distinct aroma, was granted a Geographical Indication (GI) in 2011 after being grown primarily in the foothills of Girnar mountain in Saurashtra.

The acreage of the fruit in the district has reported a sharp increase of about 1,700 hectares or a 7 percent rise at 10,033 hectares for 2017-18, as compared to about a 6 percent rise in mango acreage in Gir Somnath district at 14,820 hectares. Due to some climatic & environmental challenges, Gir Kesar mango has seen limited market reach in the last few years. Mango from Kutch is getting more prominence lately.

Problems:

1) *Volatility in climate conditions is creating havoc for Mango cultivators in Gir Somnath district.*

Proposed Solution

a) Last year, farmers in Gir district lost a major portion of their harvest due to Cyclone Tuktae. The majority of the trees fell and the ones that survived were heavily damaged.

b) Apart from this, changing rain patterns and extreme heatwaves are affecting climate conditions in the region specifically moisture in the land is decreasing and atmospheric moisture is increasing. This is affecting the quality of the output.

c) To provide a solution for these environmental problems, the agriculture department should train farmers to adopt climate-resilient agriculture practices such as precision agriculture, modern irrigation methods, and increasing crop intensity with plantation of other vegetable crops with mango trees.

d) Centre of Excellence at Junagadh is already working with Israel to develop this type of solution. State Horticulture Department should work on improving the adoption of same.

2) *Initial plantation cost is rising constantly which is a major hurdle for farmers to reset their orchards or to set up a new one. The majority of the farmers in the area have medium size orchards ranging from 3-6 hectares.*

Proposed Solution
a) During the peak season of crop plantation, the shortage of samplings has been a current phenomenon. There are 30 registered nurseries in 4 districts of Bhavnagar, Amreli, Gir Somnath, and Junagadh. The total production of samplings of these nurseries is 20 lakh grafts per annum.

b) Due to the lack of a centralized repository of grafts, farmers are only getting limited supplies from local nurseries. The horticulture department of Gujarat should create one central repository which can collect data about availability data for grafts from these private nurseries and reduce hurdles for the purchase of additional grafts during peak season.

c) This will reduce the occurrence of high sampling prices during peak season due to demand-supply mismatch. It will also provide better reach to the nurseries to sell additional inventories during the season.

3) Due to the same arrival window from other regions such as Kutch and Navsari, the Kesar mango market witnesses price fluctuation during June.

Proposed Solution

a) Gir Kesar mango arrives in the market during late May and early June. This supply lasts till early July. During mid-June, mangoes from Navsari, Valsad, and Kutch also arrive in the market which affects fruit prices, and GI-tagged Gir Kesar losses its value to high supply.

b) For this, alternate market channels and market expansion activities need to be started to realize better prices during the whole season. For this, big farmers can be trained and assisted to export high-quality mangoes to other states as well as the middle east and European countries are a major market for Indian mango. State Horticulture Department can work with APEDA to roll out such awareness & assistance programs.

4) For better price realization from residual, value-added products can be made.

Proposed Solutions

a) For availing better remuneration out of degraded mangoes and residuals, value-added products such as pickle, jam, pulp, etc. can be made as per fruit quality. SHGs can be formed in the mango growers which can take the responsibility of production as well as market these products in local markets.
b) For industry-scale production, value-added products from mango can also be promoted under a new project by Gujarat Government, “Gujarat Agro Industry Corporation Ltd.” Under this program, Saurashtra is one the focused geography for onion. Mango-based products can be promoted alongside to examine potential.

5) The use of chemical inputs can be limited to improving farm resilience as well as mango quality.

Proposed Solution

a) For the last few years, Mangoes from Kutch is taking the lead in the domestic as well export markets due to their superior quality and larger fruit size. As Gir Kesar is having a GI tag, it needs to meet criteria for product quality as well as chemical content in the final product. For this, farmers need to be motivated to use sustainable agriculture practices as well as alternative inputs compared to chemical fertilizers and pesticides. Government subsidies can also be one such tool to motivate farmers for this behavioural change to take place.

Implementation Responsibilities:

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<th>Intervention</th>
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<tbody>
<tr>
<td>1.</td>
<td>Agriculture Produce</td>
<td>Promotion &amp; adoption of sustainable practices</td>
<td>State Horticulture Department</td>
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<tr>
<td>2.</td>
<td>Input Distribution</td>
<td>Centralised Sampling Distribution</td>
<td>State Horticulture Department</td>
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<tr>
<td>3.</td>
<td>Marketing &amp; Export</td>
<td>Development of Alternative Market channel</td>
<td>Ministry of Industry &amp; Commerce, APDA, State Agriculture Department</td>
</tr>
<tr>
<td>4.</td>
<td>Food Production</td>
<td>Value added products</td>
<td>Agriculture &amp; Cooperation Department</td>
</tr>
<tr>
<td>5.</td>
<td>Quality Control</td>
<td>Promotion of green agriculture practices</td>
<td>State Horticulture Department</td>
</tr>
</tbody>
</table>

References:
After Tauktae in Saurashtra, mango farmers struggle to get quality planting materials | Cities News, The Indian Express


Mango Price Crash: Gujarat's Popular Kesar Mango is Less Expensive Than Potatoes (krishijagran.com)

Kesar mango auction begins at Talala (dnaindia.com)
Surat, an emerging city in the state of Gujarat, is known as the textile city of Gujarat. And, the epithet is perfectly suited to the city. The textile industry is one of the oldest and the most widespread industries in Surat. A major part of the city's population is associated with the textile industry. Nearly 30 million meters of raw fabric and 25 million meters of processed fabric are produced in Surat daily. The city has had several textile markets that exist since times immemorial. Zampa Bazaar, Bombay Market, JJ Textile Market, and Jash Market are among them. The famous brands of Garden and Vimal textiles evolved from Surat. A few other brands like Parag and Prafful from Surat did become famous for a short time but failed to create a lasting impression in the market.

Around 90% of the polyester used in India comes from Surat. However, international demand for its products is not very significant. The Middle East is the major export market for Surat's textile products. Most of the traders have a fixed group of clients, with whom they trade. Most of the business is done on a credit basis. The city occupies a major position in the production of manmade fabrics. Around 65% of India's manmade fabric production is done in Surat. The city expects a growth rate of 15-20% in manmade fabric demand in the near future.

Problems:

1) *Industrial infrastructure, as well as technology, need up-gradation for improving competitiveness in domestic as well as international market*

Proposed Solutions

a) Technology adoption in embroidery machining has been rapid in the last 7-8 years. But grey production units are lagging behind considerably.

b) Major reason for slow adoption is the need for capital for the initial purchase and lack of technical know-how to run those complex systems. Maintenance for these machines is also a major problem as a technical person has to be called by manufacturers who are mostly outside India.

c) Government should channelize financial resources to assist companies with capital investment in new technology. Gujarat Textile Policy 2018-23 is focusing on the same for technical textiles. Power subsidies can be another tool to disincentivize companies to adopt new technology.

d) Man-made Textile Research Association (MANTRA) at Surat can work as Centre of Excellence to develop new technology as well as modify existing machinery for efficiency improvement.
2) *Uncontrolled disposal of harmful chemicals used in the textile industry is causing problems for natural water bodies.*

**Proposed Solution**

a) Stringent monitoring, as well as penalty mechanism, is a dire need in the textile industry. Chemical products are mostly used for dying work during the further processing of raw yarn. The majority of such units are small and medium-size and proper disposal of chemical waste is a rare event.

b) Due to such nature, mutual monitoring framework can work best to reduce monitoring costs as well as improve regulatory compliance. Companies should be incentivized to report any deviating behavior by other companies.

3) *Majority of the small units are unorganized. GST compliance is a big hurdle for such players.*

**Proposed Solution**

a) GST slab of 12% for the textile industry has always been a point of discussion between industry bodies and central government. Apart from this, compliance with complex tax filing procedures and return claim mechanisms is hard for small-scale unorganized players.

b) Industry bodies should work with the tax department to arrange training and assistance programs for such players. This will help in terms of improving regulatory compliance as well as dispute redressal mechanism regarding taxation problems.

4) *Shortage of skilled labor is affecting product quality as well as labor expenses.*

**Proposed Solutions**

a) Textile industry involves labor from states of Bihar, Maharashtra, and Utter Pradesh. These are mostly unskilled and less educated people. Due to a lack of skills, industry performance suffers due to long production cycle time and high labor costs. It also acts as a hindrance to the adoption of new technology in the textile industry.

b) Training camps need to be organized under the scheme of capacity building for MSMEs. Textile industry associations can take responsibility for active participation while the government can perform the role of enabler.
5) Environmental Problems caused by textile industries are a major challenge for local authorities as well as the industry itself.

**Proposed Solution**

a) Gujarat Government has launched an emission trading scheme (ETS) in Surat in 2019. 88 industrial players have taken part in the first round of trading out of 188 who are part of the industry body cooperating with the Gujarat Pollution Control Board.

b) But to control the emission problems in the city, wide-scale adoption and participation are required among industry players apart from cotton mills. The pollution control board should incentivize industry players to be part of the scheme by penalizing them for non-compliance with pollution norms.

c) By working with technological institutes and industry bodies, innovative and low-cost solutions for emission control and filtration can be developed.

6) Credit recovery is a major problem for small and unorganized players.

**Proposed Solutions**

a) According to the Federation of Surat Textile Traders Association, the industry suffered a loss of Rs. 200 crores in the year 2004-05 on account of frauds by customers. Lack of regulatory action against such individual cases gives incentive to customers to continue such practices. Awareness among small companies about the regulatory system is also low.

b) Fast track dispute redressal mechanism should be developed for such problems. Regulatory and Legal department of state government will work in tandem with municipality body stop such behaviour and to create awareness among companies.

**Implementation Responsibilities:**

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<tbody>
<tr>
<td>1.</td>
<td>Financial assistance for capital expense for technological upgradation</td>
<td>Financial Credit</td>
<td>Industries Commissionerate, Government of Gujarat</td>
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<tr>
<td></td>
<td>Description</td>
<td>Department</td>
<td>Authority</td>
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<tr>
<td>2.</td>
<td>Innovation and Modification of textile machinery</td>
<td>Technological</td>
<td>MANTRA, Science &amp; Technology Department, GoG</td>
</tr>
<tr>
<td>3.</td>
<td>1. Mutual Monitoring &amp; regulatory compliance.</td>
<td>Pollution Control</td>
<td>Gujarat Pollution Control Board &amp; Climate Change Department, GoG</td>
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<td></td>
<td>2. Carbon Credit Markets</td>
<td></td>
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<td>4.</td>
<td>GST filling training and compliance programs</td>
<td>Training</td>
<td>Revenue Department, GoG</td>
</tr>
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<td>5.</td>
<td>Legal protection and awareness</td>
<td>Legal Protection</td>
<td>SMC, and Legal Department, GoG</td>
</tr>
<tr>
<td>6.</td>
<td>Skill-building &amp; training of uneducated labor</td>
<td>Skill Development</td>
<td>Labour, Skill Development and Employment Department</td>
</tr>
</tbody>
</table>

**References:**

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- 553180526.pdf (inspirajournals.com)
- GST hike on textile fabrics: An upset Surat industry mulls widespread protests | Cities News, The Indian Express
- Textile units in Surat (India) may remain closed for a month! | Apparel Resources
- In a first, Surat to run emission trading scheme | Surat News - Times of India (indiatimes.com)
Handicraft, Mandi, Himachal Pradesh

The historic town of district Mandi (800 m) is built along the banks of the river Beas. It has a rich culture and history represented by its temples which are a major tourist draw. Mandi is an important trading center situated on the Pathankot-Kullu Road. Mandi district is also a famous tourist place in Himachal Pradesh, India. The town is also the gateway to Himachal’s most famous valleys - Kullu, Manali, Lahaul, and Spiti. Mandi is also on the Kullu-Shimla Road via Bilaspur. The economy of the region is predominately agrarian as around 79% of the total population is dependent on agriculture and activities allied to it, for earning their livelihood.

Himachal Pradesh State Handicrafts & Handloom Corporation Limited (An H.P. State Government Undertaking) came into being in the year 1974 with the objective to assist and promote the interests of the poor weavers and artisans of the state. The Corporation ensures the overall welfare of artisans and weavers by imparting training, design inputs, raw material, reviving the languishing crafts, and providing them marketing facilities through its chain of emporia located within and outside the state.

The Corporation is running a handloom cluster development scheme in Mandi and Kullu District (Himachal Pradesh) under the Integrated Handloom Cluster Development Scheme with the financial assistance of the Ministry of Textiles, Govt. of India, New Delhi.

Problems:

1) **Major sales of products are only during tourist visit period and not throughout the year**

Proposed Solutions

a) Major artisans are engaged in small household level product development and selling in local markets. Moti Bazar is the only local market available in Mandi. Major products come to Kullu and Manali as these are alternate bigger markets. But, consumer inflow in these markets is mainly during the tourist season. During winter, due to less tourism activity, the selling of handicraft items also sees fewer sales and reduced prices.

b) Even though collective organizations in the area are increasingly expanding sales into cities during the lean period, overall demand satisfaction remains tepid.

c) E-commerce can be an alternate market channel for these products. Currently, Flipkart is facilitating limited orders from Himachal Pradesh under Flipkart Samarth Program. Platforms such as Myntra and Meesho should also be involved to develop such trade channels. Ministry of Culture and Ministry of Commerce can look into it to develop a holistic solution.
2) **On e-commerce platforms, listing and product differentiation is a problem due to small scale and differentiated products**

**Proposed Solution**

a) With the increasing penetration of e-commerce sales channels across the product categories, the identification of authentic products has become a big hurdle for consumers during the purchase of high price handicraft items.

b) The Himachal Pradesh State Handloom & Handicrafts Development Cooperative Federation Ltd. known as “HIMBUNKAR” is a state-level APEX organization of primary cooperative societies consisting of weavers and artisans engaged in the production of handicraft woven on handloom as well as others like woodcraft, leather, embroidery, woolen, shawls of chamba, decorative wooden pieces, grass shoes, Himachali caps, made-ups, embroidered ladies’ suits, shawls. HIMBUNKAR should develop a certification framework by working with the Ministry of Culture, Ministry of Textile and Department of Handicraft, Government of HP.

c) The marketing aspect also needs to be looked into to convey relevant information related to this type of certification and product identification to garner appropriate value for the original product. In the longer run, HIMBUNKAR should try to identify an independent brand for Himachal handicraft products as a holistic solution.

d) NGOs and Cooperative organizations need to be trained and assisted for marketing aspects by collaboration with business schools in North India for training with Management Development Programs.

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3) **Training of artisans is required to match product expectations of youth with a touch of Himachal Culture.**

**Proposed Solutions**

a) With innovative products coming in the fashion industry and other handicraft items, there is a dire need for product development without losing original identity.

b) Himachal culture research forum and Theatre repertory is one of the organizations involved in the training of artisans in Himachal Pradesh. Department of Handicraft should design a program to
include national level institutes such as NIFD, NID, and Indian Institute of Crafts & Design for capacity building of artisans as well as facilitating organizations in the region.

4) **Due to fewer socio-economic benefits with handicraft work, young artisans are leaving the profession. Only 30% of the households in the region are engaged in handicraft.**

**Proposed Solutions**

a) Young generation is attracted more towards fixed employment and moving in cities by leaving handicraft as a profession. Less remuneration, lack of basic amenities in the small towns, and less visibility of their work are some of the reasons for this.

b) Government of Himachal Pradesh should design insurance schemes, pension schemes, and market linkages to provide incentives to artisan families to stick to this profession and transfer skills to younger generations. Eligibility criteria for such programs can be decided based on no. of people in the household involved in handicraft and the time period of engagement with craft etc.

c) Government should also develop certificate courses for handicraft-based product development and business aspect of it to attract youth and depict handicraft as respectable profession rather than just family tradition.

**Implementation Responsibilities:**

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<tbody>
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<td>E-commerce Market penetration</td>
<td>Marketing</td>
<td>Ministry of Culture and Ministry of Commerce</td>
</tr>
<tr>
<td>2.</td>
<td>Product Certification &amp; Identification</td>
<td>Product</td>
<td>Himachal Pradesh State Handloom &amp; Handicrafts Development Cooperative Federation Ltd. (HIMBUNKAR)</td>
</tr>
<tr>
<td>3.</td>
<td>Communication &amp; Brand building</td>
<td>Marketing</td>
<td>Himachal Pradesh State Handloom &amp; Handicrafts Development Cooperative Federation Ltd. (HIMBUNKAR)</td>
</tr>
<tr>
<td></td>
<td>Product Innovation &amp; Upskilling</td>
<td>Training &amp; Skill Development</td>
<td>Department of Handicraft</td>
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<tr>
<td>5.</td>
<td>Artisan Retention</td>
<td>Economic Development</td>
<td>Government of Himachal Pradesh</td>
</tr>
<tr>
<td>6.</td>
<td>Certification Program on Handicraft</td>
<td>Training &amp; Skill Development</td>
<td>Department of Handicraft, Government of Himachal Pradesh</td>
</tr>
</tbody>
</table>

References:

Himachal Online Handicrafts - Himachal Online

himachal pradesh state handicrafts: Flipkart partners with Himachal Pradesh local artisans, weavers, Retail News, ET Retail (indiatimes.com)

Handicrafts of Himachal pradesh by rebecca singh - Issuu

H.P.State Handloom & Handicrafts Development Co-operative Federation Ltd. :: HIMBUNKAR ::

Himachal Pradesh Handicraft – BaazKart (wordpress.com)
Mushroom- Solan, Himachal Pradesh

Quality food, health, and environment are the major concerns facing our country. Mushroom cultivation helps to address the issue of nutritional security and also provides a solution for proper recycling of agro-wastes. With the ever-increasing demand for quality food, mushroom cultivation is emerging as an important activity in different parts of our country. This activity requires very little land and can be a good source of employment for small and landless farmers, educated youth, and women. The two primary inputs for mushroom cultivation i.e., Agro-wastes and labour, are easily available in our country. Integrating mushroom cultivation in existing farming systems will supplement the income of rural masses, provide gainful employment, and will lead to inclusive growth as all sections of society can adopt this venture.

Solan is known as the “Mushroom city of India” because of the vast mushroom farming in the area as well as the Directorate of Mushroom Research (DMR) situated at Chambaghat. The state barely has two medium to large button mushroom production units - Himalayan International Private Limited at Paonta Sahib and Vikas Mushroom Farms at Solan. These produced 4,500 tonnes per annum and figured in the top mushroom producing units. Mushroom production was initiated in Solan in 1961.

Problems-

1. Perishable commodity-

*Mushroom is a highly perishable commodity, having a shelf-life of 2 or 3 days. The farmers have to sell the crop immediately though given its growing demand in the market. As there are only a few processing facilities available locally, the farmers are always in a tearing hurry to sell their produce at the earliest.*

Proposed interventions-

1- After the maturing of the fruiting body, the deterioration starts with the formation of brown colouration and hence the quality deterioration and loss of marketability. To overcome this problem, especially during peak season, suitable post-harvest management/practices are to be followed to increase the shelf life and marketability of mushrooms.

2- The initial steps are, proper harvesting time and stage. Mushrooms are generally harvested after 3 weeks of the casing. Button mushrooms are to be harvested when the CAP size is 30-45 mm in diameter, whereas Oyster mushroom is harvested when the fruiting body becomes curled under edges and well-formed gills.

3- Another step is pre-cooling wherein the product is kept in a plastic bag and stored in a cooling unit. Vacuum cooling is another cooling system where water existing in cell walls and inter hyphal spaces of produce is evaporated under pressure which lowers the temperature. But it is a cost-oriented system and involves the inevitable loss of fresh weight.

4- Packing is essential to protect the mushroom during marketing. It is generally packed in polythene bags of 250 gm-400 gms for local markets. For long-distance transport, pulpboard punnets wrapped with PVC films should be used instead of polythene bags. Sometimes, precooled mushrooms are packed in insulated containers having ice in them, so that Mushrooms remain fresh, healthy during long transport.

5- Due to the highly perishable nature preservation of mushrooms is necessary to minimize the post-harvest losses. For this, the processing techniques such as Canning, Individual Quick Freezing (I.Q.F.), Vacuum Freeze Drying (VFD), Drying, Vacuum Drying, Pickling, Steeping Preservation, Radiation Preservation, etc. have been developed. These are used based on their merits per se market demand and end-use.
6- Growers at small / household levels are to be trained for efficient production as well as post-harvest management/practices etc. The transportation cost in hilly areas needs to be subsidized and refrigerated vans should be provided to minimize losses during transport of highly perishable fresh mushrooms.

2. Standard techniques-

The mushroom cultivation techniques are yet to be standardized and the farmers chiefly depend on their experience to improve crop prospects. The need of the hour is to develop standard models for different mushroom types and improve the capacity of mushroom units for their mechanization. Uniformity in design will fetch uniform and higher mushroom production.

Proposed Interventions-

1- To provide technical know-how to farmers, ten-day training programs are organized by the Department of Horticulture, Himachal Pradesh. Such programs are organized from time to time. The participants of such programs belonging to the state are given training allowance at the rate of Rs. 50.75 per day.

2- Since mushroom cultivation is a highly technical and skilled job, they must get technical know-how. The technical officers provide the required knowledge to farmers by visiting their mushroom houses. Any problem is solved on the spot and guidance is provided by the officers on their visits.

3- The registered SC and ST mushroom growers are eligible for a subsidy of 50% on the purchase of compost. The extent of subsidy on this account for marginal and small farmers and unemployed graduates is 25 percent. A hundred percent subsidy is available for transportation subject to a maximum of 400 trays.

4- On-farm research is often used to generate new or modified technologies that are more appropriate. Moving to farmers’ fields and interacting with farmers allows the researcher to have an appreciation of the farmers’ conditions and problems. It also provides a great opportunity for the identification of problem areas and researchable issues that may arise following farmers’ use of developed technology. This leads to a continuous process of refining, improving, and re-testing the system.

5- Mushroom enterprise is a capital-intensive venture. Financial assistance is available from NABARD, State Govt financial institutions, public sector banks but with a high rate of interest. Besides this, different incentives are also available from the Department of Food Processing Industries, NHB, and State Govt. agencies engaged in agricultural development. Generally, small growers are unable to avail of these facilities and therefore they may unite to form cooperatives or SHGs for better marketing and solving their problems

3. Only 2 large units in state-

There are only two medium to large scale button mushroom production units (Himalayan International Pvt Ltd at Paonta Sahib and Vikas Mushroom Farm at Solan) in Himachal, which figure nationally. They produce 4,500 tonnes of mushroom per annum and have also encouraged others to take up its cultivation. Thus, the potential of the crop needs to be exploited.

Proposed Interventions-

1- Presently, the work on 5 mushroom projects is going on in Himachal Pradesh. There is a plan to set up seven new mushroom centres to enhance the production of mushrooms.

2- At present 5 projects have been started for mushroom production. One of these projects is being implemented in the Solan district.

3- As per the Chief Minister Jai Ram Thakur, an Rs. 423 crore integrated mushroom development project would help to double the income of farmers and provide employment and self-employment opportunities to youth. The mushroom cultivation would also help in women's empowerment as more and more women
would be motivated to go for mushroom cultivation for increasing their income, thereby making them self-dependent since mushroom cultivation is an indoor activity.

4. Lack of awareness about mushrooms-

The mushrooms are highly nutritious food and have certain medicinal properties also and hence can be used by healthy and patients alike. The per capita consumption in India is meagre 20-25gm. as against 3.83 kgs. in Germany, 3.35 kgs. in U.K., 3.80 kgs. in Ireland and 2.60 kgs in Italy. Furthermore, it can also generate good income for producers. However, both the consumers and producers are not fully aware of its virtues.

Proposed Interventions-

1- There is an urgent need to make use of all the available media to educate both the target groups. Mushroom festivals or mushroom pavilions can be arranged in all the important exhibitions and fairs. Mushroom Fairs are organized at NRCM Campus. NRCM also participates in Kisan Melas and exhibitions.

2- The help of doctors, dieticians, and NGOs may be sought to popularize it by campaigning the benefits of mushrooms as a good nutritious diet and circulation of free recipe books.

3- A National Advertising campaign by Trade, Growers Co-operatives, SHGs, or Central/State Organizations to develop domestic trade, is the need of the hour to popularize virtues of horticultural crops and encourage consumption of nutritive mushrooms by the Indian population.

5. Paucity of space

The shortage of space is another constraint the growers face in the hill state. They generally erect permanent structures to raise the crop, season after season. This often causes contamination due to disease-causing build-up of bacteria. Also, it reduces the yield and the space remains unutilized when mushroom cultivation is not undertaken.

Proposed Interventions-

1- Farmers in Punjab and Haryana construct low-cost temporary structures to grow mushrooms and dismantle them after the season. This practice leads to a high yield and a healthy crop. Changing sites every season enables a grower to reap an optimum yield in plains where the availability of more space is an inherent advantage. Similar steps can be taken by farmers in Solan for the cultivation of mushrooms.

2- The registered mushroom cultivators are recommended by the govt for obtaining loans from nationalized banks. Under this scheme, a loan of Rs.35,000/- is recommended for the construction of a mushroom house accommodating 100 trays. Under this scheme a subsidy of 10 percent subject to the maximum of Rs. 3500/- is admissible to SC & ST, magical and small farmers. A subsidy of 3 percent is also available on the bank interest. The state department of civil supply provides consent, steel, etc. on priority for the construction of mushroom houses.

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<th>Implementing Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Establishment of On-farm research (OFR)</td>
<td>It is an indispensable tool for developing and validating any farm technology. It is necessary to screen and evaluate and experiment with management practices, quick initiation of on-farm research will help the research and development</td>
<td>ICAR- Directorate of Mushroom Research</td>
</tr>
<tr>
<td></td>
<td>Practical training in mushroom cultivation</td>
<td>To provide technical know-how to farmers.</td>
<td>Department of Horticulture, Himachal Pradesh</td>
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<td>2</td>
<td>Establishment of more mushroom centres</td>
<td>So that we can increase our production and enhance productivity.</td>
<td>Himachal Pradesh Government</td>
</tr>
<tr>
<td>3</td>
<td>Formation of cooperatives</td>
<td>Mushroom cultivators are unorganized. Hence due to low operating levels, they suffer from high costs for electricity, temperature, humidity conditions and transportation, lack of financial resources, and technical inputs. Growers should unite to form cooperatives; S.H.Gs or some NGOs/traders should come forward to their rescue with contract farming or backward linkage arrangement</td>
<td>Ministry of Agriculture, NGOs, SHGs, Cooperatives</td>
</tr>
</tbody>
</table>

**Sources/ References-**

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5. [https://hpuniv.ac.in/upload/uploadfiles/files/MUSHROOM%20CULTIVATION%20IN%20H%20P.pdf](https://hpuniv.ac.in/upload/uploadfiles/files/MUSHROOM%20CULTIVATION%20IN%20H%20P.pdf)
Kishtwar is also known as the "Land of Sapphire and Saffron", as there mine a huge mine of Sapphire in Paddar area and rich cultivation of Saffron in Pochhal area in Kishtwar district. The soils of Kishtwar district are appropriate for the saffron cultivation. Kishtwar is a unique land of saffron. In Jammu province, Kishtwar is the only Saffron producing district. Kishtwar saffron is very famous due to its fine flavour, colour and medicinal value. It is a very popular crop in the region and is considered as the costliest crop for the farmers of the area. It is low volume cash crop. The saffron is one of the oldest commodities of Kishtwar district

Problems

1. **Lack of proper cultivation methods**

   **Proposed Interventions**

   a. Need to constitute special policies to strengthen the saffron cultivation to enhance income and employment among the farmers
   b. Adoption of a shorter 4-5 years planting cycle instead of typical 10-12 years
   c. Integrated use of chemical, organic and bio-fertilizers for improvement of soil health
   d. Appropriate time, method and spacing between corms for sowing along with efficient irrigation methods
   e. Rodent management, proper weeding and hoeing; improved skill and technology including use of improved machinery and devices for hygienic picking of flowers, separating the stigma and drying, packing and storage of saffron

2. **Improper credit system, mostly through informal ways, especially Dalals or local traders**

   **Proposed Interventions**

   a. Government should try to purchase the end products and try to remove the intervention of middlemen and resellers, thereby assuring good prices to the farmers
   b. Efforts need to be made by state and central government to make the overall Saffron market systematic and organized
   c. Government needs to provide incentives and similar financial aid to the farmers before start of the season

3. **Poor linkage between the farmers, extension workers and scientists/technology**

   **Proposed Interventions**

   a. Recommendations should be taken and implemented from bodies like SKUAST J/K for standard production of crop
   b. Enhancing productivity of quality saffron by overcoming the bottlenecks of longer planting cycle, low seed rate of unsorted seed corms, infestation of corm rot disease, poor soil health, and rain fed cultivation and traditional post-harvest practices.
   c. Government to outsource the underutilized and unutilized public assets and infrastructure to supervise, guide and monitor the farming process
   d. Technical education should be prioritized for farmers containing material and sources derived from gathered field experiences, human resource development, workshops, technical training, hands-on training
4. **Less penetration within international market**

   **Proposed Interventions**
   
a. International market should be analysed and targeted well to explore new allies apart from the existing ones like UAE, USA, etc. as the demand for Saffron is huge
b. Appropriate channels to be made open by government for local traders to expand their businesses
c. The product should be marketed and positioned well through various channels like digital advertisement, social media and strategic partnerships
d. E-commerce should be utilised well to increase the sales

5. **Very poor (non-existent) marketing techniques**

   **Proposed Interventions**
   
a. Better packaging methods should be adopted to make the product aesthetically appealing
b. Understanding wide use of Saffron, various markets like food, pharmaceutical, cosmetic and perfumery should be targeted well in order to increase the sales
c. Local vendors should expand their capabilities by utilising digital resources like social media, advertisements to increase the awareness of product
d. Government and sellers to use e-commerce in order to penetrate the unexplored market across India and globe
e. Strategic partnerships can be made with large scale businesses

6. **Lack of Certification, Regulation, and Quality Guarantee in saffron market**

   **Proposed Interventions**
   
a. Appropriate measures should be taken by government to ensure good quality material is being cultivated
b. Scientists and relevant industry experts should be onboarded to monitor the well being of land and overall production
c. ISO certifications should be brought into place to decrease the adulteration and quality degradation
d. Transfer of improved technologies by continuing to undertake testing, training and demonstration on farmers’ fields and using all established extension methods

7. **Underutilised land**

   **Proposed Interventions**
   
a. Average land size of farmers should be increased either by collaborations or expansion to enhance productivity
b. Unutilised land should be adopted by government and should be supervised and monitored well to carry out Saffron farming
c. Women and self-help groups/tribes should be encouraged to work on unutilised land to generate additional revenue and strong social support
d. Proper irrigation system should be made available in order to cultivate more and better crops
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<td>Better marketing strategies to increase brand awareness</td>
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<td>New regions across the globe to be identified to increase exports</td>
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<td>8</td>
<td>Certification, Regulation, and Quality assurance techniques</td>
<td>ACFS, AGMARK, Department of Agriculture</td>
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</table>

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Kulgam Garlic, Jammu & Kashmir

Kulgam garlic has a hard, golden-brown husk and looks like an individual clove of garlic. It has a rounded, bulbous shape with a stiff, flattened portion on one side coming to a point at the tail end of the clove. The small, single cloves measure 1.5 to 4 centimetres in diameter. The hardened outer layers form a protective husk for the bulb while it develops in sub-zero degree temperatures. The clove beneath is a bright white to creamy-white colour and offers a strong, pungent garlic flavour without the acidity present in other varieties. Kashmiri garlic is available year-round with a peak season in the spring months.

Kulgam garlic is a good source of manganese, vitamins B6 and C, as well as copper, selenium, and phosphorus. It is also a source of calcium and vitamin B1. Garlic contains the enzymes alliin and alliinase and combine to form the compound allicin when the cloves are crushed or minced. Allicin is the compound that gives garlic its pungent smell as well as its health benefits. It has anti-inflammatory, antioxidant and anti-bacterial properties.

Kashmiri garlic can be used both raw and cooked. To maximize the beneficial properties in the garlic, crush or mince before using. In India, Kulgam garlic is most commonly consumed raw for the health benefits. The so-called ‘pearls’ are crushed and then swallowed, followed by drinking two glasses of cool water.

Mountaineers climbing in the Himalayan mountains of northern India during ancient times consumed this garlic to help maintain blood circulation, increase oxygen capacity and raise energy levels. The single-clove variety is renowned in Ayurvedic practices and is prescribed for people suffering from diabetes, heart disease, high blood pressure, and the common cold.

Kulgam garlic is grown at 1,800 meters above sea level in a climate with extremely low oxygen levels and harsh, snowy conditions. It is one of the few plants that will survive the cold, high-altitude environment. Garlic originated not too far from this region, in what is today Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. Kulgam Garlic is said to be one of the purest varieties due to the region where it is grown and the lack of industrial pollutants in the soil. It is most commonly found through online sellers and in stores specializing in Indian and Ayurvedic products.

Problems:

1. The farmers are less financially stable to purchase seeds for plantation.
Proposed Intervention:

a. Seeds can be provided without any initial cost to the farmers. The final crop (10-20%) can be procured as initial cost or entire seeds can be provided free of cost.
b. Training can be provided to the farmers on how to receive credit facility for farming.

2. Storage facility is not available in Kulgam District. It severely affects the shelf life of garlic.

Proposed Intervention:

a. Cold storage for storage of garlic and other vegetables can be well established.
b. Cost of storage facility at the cold storage can be subsidised.

3. Garlic is sold by farmers with roots. The selling price of garlic sold with roots is Rs 20-25 whereas selling price of garlic post removing the roots is Rs 70-80.

Proposed Intervention:

a. Machinery for removing the roots can be established in Kulgam district.
b. Distribution of manual tools can also be done extensively.
c. Training the farmers on how to use the manual as well as automatic machines for removing the roots.

4. Cleaning process for the garlic is manual.

Proposed Intervention:

a. The process of cleaning the garlic needs to be done using the machinery.
b. Research and development of how to better cleanse raw garlic can be better done maintaining the nutrition facts of garlic.
5. The packaging of garlic is done in nets (similar to Onion Nets). Bulk packaging facility is not available in the district. Raw material for packaging is also scarce in the area.

Proposed Intervention:

a. Common packaging facility can be established in the district.
b. Bulk procurement and provision of the raw material to the farmers needs to be done.
c. Frequent packaging training workshop to be conducted for the farmers.

6. In the recent years a few traders have exported Garlic (To North America, Bangladesh and Dubai). However, the farmers lack basic knowledge on how to export and documentation associated to it.

Proposed Intervention:

a. Training workshops of how to apply for IEC, documentation, norms and other compliances required for exports.
b. The farmers need to be formally trained of how to target (reach customers) potential markets where garlic is consumed extensively.

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<td>Trainings &amp; Skill Development</td>
<td>Ministry of MSME</td>
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<tr>
<td>2.</td>
<td>Research and Development</td>
<td>Improvising Crop</td>
<td>Ministry Of Agriculture And Farmers Welfare</td>
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<td>3.</td>
<td>Credit Support</td>
<td>Form Formal Micro Enterprises</td>
<td>Ministry of MSME</td>
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<td>4.</td>
<td>Credit Support</td>
<td>Subsidy on Transportation</td>
<td>Ministry of Commerce and Industry</td>
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<td></td>
<td>Technology upgradation</td>
<td>Provision of Machinery</td>
<td>Ministry of Food Processing Industries</td>
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<tr>
<td>5.</td>
<td>Branding and Marketing &amp; Credit Support</td>
<td>Promotion &amp; Trade Fairs</td>
<td>Ministry of MSME</td>
</tr>
<tr>
<td>6.</td>
<td>Technology upgradation</td>
<td>Common Facility Centers (CFC’S)/ Clusters</td>
<td>Ministry of MSME</td>
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<tr>
<td>7.</td>
<td>Packaging</td>
<td>Packaging training/ workshops</td>
<td>IIP-MSME</td>
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Thermal Power Plant - Mansa, Punjab

Talwandi Sabo Power Limited (TSPL) was incorporated as an SPV by Punjab State Electricity Board (PSEB) to construct 1980 (3×660) MW thermal power plant at Village Banawala, District Mansa, Punjab, India. Sterlite Energy Limited (a Vedanta group company) was selected as the developer of the project.

Vedanta Resources plc is a London Stock Exchange-listed FTSE 100 diversified metals and mining major with revenues over USD 12.9 billion. The group produces Aluminium, Copper, Zinc, Lead, Iron ore and commercial energy. Vedanta has operations in India, Zambia and Australia and a strong organic growth pipeline of projects. Vedanta is one of the major players in the Power Sector in the country with operating and under projects (CPP and IPP), thermal power capacity of about 10,000 MW.

The Talwandi Sabo Power Limited is the largest thermal power plant in North India, with a total capacity of 1980 MW and three units of 680 MW each. At present, the thermal power plant is supplying about 1178 MW to the North Grid. It is a coal-based supercritical thermal power plant and the first Supercritical unit, being one of the largest Greenfield power projects in the State of Punjab. Power generated from this project is supplied to the Punjab State Electricity Board. TSPL uses energy-efficient and cleaner supercritical technology for electricity generation. Supercritical technology utilizes steam at a temperature above the critical point of water. The technology generates the same amount of electricity using less coal.

Problems:

1. Unavailability of high-grade coal

TSPL has a fuel supply agreement with Coal India Limited (CIL). Under this, the generating station gets its coal supply from Mahanadi Coalfields (MCL) since 2015. The fuel from MCL is of low grades with a calorific value between 3400 – 4000 kilocalories per kg.

Proposed Interventions:

1. TSPL has signed an agreement with CIL and are expecting to get coal supply from ECL mines, which have higher calorific value, mostly between 6100 – 6700 kcal/ kg. TSPL should extend the timeline of the agreement to maintain a stable supply.
2. Central government should not impose any restrictions on coal imports by Thermal power plants.
3. If the Central government proceeds with restrictions on coal import as part of Atmanirbhar Bharat, it should provide low ash coal to TSPL.
4. TSPL should blend high-quality coal in higher quantities with the high calorific value coal from MCL as it would prevent the frequent breakdowns of its units.

2. Technical breakdowns during peak season

In the past decade, Punjab has often faced severe power crises during the summers, when the electricity demand soars in the state. In Jul of 2021, power demand rose to 14300 MW while the state resources were limited to 12800 MW. And in the same month, one of the units of TSPL developed a snag and stopped power generation while another unit had been closed for 3 months.

Proposed Interventions:
1. Government should not impose coal import restrictions on thermal power plants as long as substitute coal from Indian mines is not made available.
2. Dependence on a single source of coal should not be there. This could lead to supply shortages in peak season.
3. Provision should be made to provide early clearance from the customs, of the components imported from foreign countries.
4. Stringent monitoring systems should be developed and the boilers should be maintained and serviced to ensure that the units do not face a breakdown.
5. Laws should be created to penalize private players if they do finish the repair and maintenance work within a prescribed period of time.

3. Management of fly ash

In September 2018, farmers from Mansa’s Raipur village lodged a complaint with NGT about ill effects to their cultivable lands due to the mismanagement of silos of fly ash. Investigations made by Mansa district authorities on January 24, 2019, found fly ash lying on about 965 acres of Raipur. NGT’s state panel held TSPL liable to pay Rs. 85 lakhs to farmers.

Proposed Interventions:

1. Compliance of specified emission norms for Particulate Matter, as per extant notifications and instructions of Central Pollution Control Board, issued from time to time.
2. In the case of washeries, Middling and rejects to be utilized in FBC (Fluidised Bed Combustion) technology-based thermal power plants. Washery to have linkage for middling and rejects in Fluidised Bed Combustion plants.
3. The thermal power plants shall comply with conditions, as notified in the Fly Ash notification issued from time to time, without being entitled to additional capacity of fly ash pond (for existing power generation capacity) on the ground of switching from washed coal to unwashed coal.
4. The segregation of ash may be done at the Electro-Static Precipitator stage, if required, based on site-specific conditions, to ensure maximum utilization of fly ash.

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<td>Availability of High-grade coal</td>
<td>Ensuring that coal with high calorific value is available</td>
<td>Ministry of Power/ Coal India Limited</td>
</tr>
<tr>
<td>2</td>
<td>Maintenance during peak season</td>
<td>Repair and maintenance should be done time to time during summer season</td>
<td>TSPL/ Vedanta Resources</td>
</tr>
<tr>
<td>3</td>
<td>Early clearance of equipment from Customs</td>
<td>Parts which are imported from foreign countries should be given special preference, so as to make them available in short time</td>
<td>Central Board of Indirect Taxes and Customs</td>
</tr>
<tr>
<td></td>
<td>Efficient management of fly ash</td>
<td>Efficient use of technology should be done to prevent fly ash from affecting the surrounding community.</td>
<td>TSPL/ Government of Punjab</td>
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</table>

**References/ Sources:**

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Litchi- Pathankot, Punjab

Litchi has a special place among the fruits by virtue of its attractive colour and distinct taste. India ranks second in the world in production of Litchi after China. In India, Litchi is grown in almost 83 thousand hectares of area with a production of 5.75 lakh metric tonnes. Bihar, West Bengal, Uttar Pradesh, Jharkhand, Uttarakhand are the major litchi growing states of the country. The litchi requires specific climate for flowering and fruiting. Thus, its commercial cultivation is limited few states located in certain latitudes. In the northern states of India, litchi fruits mature in the months of May and June.

In Punjab, Pathankot, Hoshiarpur, Gurdaspur, and Ropar are major districts with high plantations of litchi. Litchi is he most cultivated fruit after mango in Pathankot. In Pathankot alone, 39,370 acres of land are under cultivation of litchi encompassing more than 800 growers out of 3000+ litchi growers in the state of Punjab. The majority of the orchard’s owners are medium or large farmers, market access for individual farmers is still a major problem. Apart from that, labour shortage, high costs and export limitations are some of the other recurrent problems with Pathankot Litchi growers.

Problems:

1) *Currently, farmers are heavily relied on contractors and traders for selling their outputs. This leads to less bargain power and margin profit realisation.*

Proposed Solution

a) During COVID lockdown, Farmers faced major loss during sale of litchi from districts of Gurdaspur, Hoshiarpur, and Pathankot as contractors from outstate did not timely approach them for purchase. According to one of the respondents, this type of market channel via contractors and traders is a major point of sale for the majority of farmers. Punjab Government can work with local NGOs to promote and strengthen FPO organization as well as strengthen existing FPOs to increase farmers’ participation in formal sales channels.

b) For FPOs and collective societies in Pathankot, export capacity needs to be built. Major local markets are fruit markets, army canteens and backers. FPOs should also explore scope of value-added products to improve market outreach in local markets as well as export of value-added products to other states.
2) **Grading and sorting** is major challenge at farmgate location as well as with collective enterprises such as FPOs. Due to this, market potential of high-quality litchi is limited.

**Proposed Solution**

a) For export as well as selling to private companies at high prices, grading, sorting and certification of product quality is much required. As informed by Pathankot Fruits & Vegetable Co-operative Society, due to absence of grading facilities, harvest is transported to Ludhiana for the purpose from there it is sent to major export hub such as Mumbai and Delhi.

b) State government should build basic grading & sorting facilities at block or panchayat level with panchayat partnership to improve reach of these facilities to litchi growers at farmgate and reduce maintenance by involvement of local institutes.

3) Litchi growers are heavily dependent on farm labour especially during harvesting period. Due to shortage of labour as result of outward & reverse migration, orchard owners face issue of **high labour cost as well as difficulty in timely harvesting** activity.

**Proposed Solution**

a) Farm labour becoming scare and costly due to parallel industrial development in most of the states. In Pathankot, litchi orchards faced major problem during COVID lockdown when almost 80% of the farm labourers migrated to their hometown. This led to delay in harvesting of ripped during month of June.

b) Mechanised solution can be developed for this type of labour-intensive work. National Innovation Foundation is one such organisation which develops grassroot solutions created by farmers for wide scale applications. Punjab Government can work with NIF to create mechanised device which can reduce need of more labour.

c) As majority of the litchi orchard owner are medium or big farmers, adoption and affordability of technology is not a major hurdle. Irrigation facilities can be automized as per plant need to reduce reliance on farm workers further.

4) **Export of litchi, specially form Pathankot, is pretty much limited to middle east countries.**
Proposed Solutions

a) Indian litchi is earliest to arrive, as litchi ripens 15 days earlier than Thailand and Chinese litchies ripen one month later, i.e. in June. Thus, during this period there is comparatively less competition from China for exporting litchi to European markets.

b) Export packaging houses and export zones are mainly located in Bihar, West Bengal and Uttarakhand. There is need for better integration of litchi export entities from Punjab to these export locations to smoothen whole process and reduce cycle time. Punjab can use Amritsar International Airport at its advantage to boost export.

c) Big farmers can be aggregated under group to incentivise them to export directly without involving intermediaries. Similar initiatives are already existing in Kutch in Gujarat with high quality mango to South Africa and Middle East.

5) Pathankot has almost 40000 acres of land under Litchi cultivation. Still the district has less than 50% of total area under cultivation which is significantly less than state average.

Proposed Solutions

a) Under the Mission for Integrated Development of Horticulture, Agriculture Department of state should promote cultivation of litchi and other fruits to increase overall output by means of extensive and intensive agriculture practices.

b) Apart from this, Precision Agriculture practices such as drip irrigation, crop intensity improvement and farm mechanisation practices should be promoted through subsidies and adoption schemes in alliance with Ministry of Agriculture.

c) Focus agriculture finance schemes can be worked out to provide reliable finance sources to farmers for improving area under cultivation as well as insurance against risk of crop loss due to environmental factors.

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::DEPARTMENT OF HORTICULTURE PUNJAB::
Marine and Fisheries, Devbhumi Dwarka, Gujarat

Gujarat has the country's longest coastline, with 1650 kilometres. Fishing is a significant addition to the state's GDP, with seafood worth Rs 7,000 crore exported each year. Even during the shutdown, Fish was on the list of daily necessities whose movement and sale were unrestricted. In comparison to other important fishing hubs such as Veraval, Porbandar, and others, Devbhumi Dwarka has consistently lagged in terms of value addition and facilities for fishermen.

Problems

1. A decline in fish catch and depletion of natural resources due to over-exploitation of coastal fisheries along with the increased frequency of cyclones.
   - Fishing season in Gujarat normally used to begin from August 15 and would go on till May 31. However, with the effects of climate change being visible, the fishing cycle has been changing.
   - Due to the increased frequency of cyclones, the government guidelines also change frequently. There is a lack of proper warning and information systems.
   - As pollution, climate change, and overfishing deplete their catch, fishermen of Gujarat and Diu are often forced to move deeper into the sea and risk entering Pakistani waters.

   Proposed Interventions:
   a) Guidelines on the fishing cycle need to be re-evaluated to ensure it is in line with the current situation at the shoreline.
   b) Proper warning systems to ensure proper and timely availability of information needs to be ensured.
   c) Training fishermen to combat the ill-effect of cyclones and insurance of their property may be done for the relief of the fishermen.
   d) Keeping a check on the release of industrial wastewater into the sea. Ensure that effluent treatment plants maintain the norm required for release.
   e) There has been arising need to build specific indicators in the sea to avoid crossing borders. Joint patrolling and providing GPRS support around the maritime boundaries should reduce the arrest and killing incidents of border crossing.
   f) Regulations on fleet size, promotion of sustainable fishing activities through participatory rural development programmes, promotion of coastal mariculture and open sea farming.
   g) Conservation of resources through mesh size regulation, regulation of bottom trawling and promotion of sea ranching programmes of commercially important and cultivable species like shrimps and lobsters.

2. Illiteracy and socio-economic conditions

Despite a very high potential of the fishery sector, the fishermen continued to remain socio-economically downtrodden. They are mostly exploited by the middlemen and suffer a lot on account of their illiteracy, poor know-how and technical inaptness.

   Proposed Interventions:
a) Centralizing fishing cooperatives, currently, there are some cooperatives registered in the area but they have not been successful in coordinating and connecting the fisherman.
b) Fishery cooperatives are appropriate means to get rid of most of the demerits of the fishing sector. They have enough potential to improve the socio-economic conditions of the fishers. Fishery co-operatives are directly involved in improving fishermen socially, physically and economically. This multidirectional influence is supposed to give a boost to development.
c) The establishment of cooperatives will also help the fishers in selling fish at a reasonable rate throughout the year.
d) Intense drives to promote education must be carried in fishing villages.
e) Proper checks on children working in fishing boats and markets must be made to ensure they are not skipping school. If found practising any such activities, parents must be heavily penalized.

3. Lack of focusing on the tourism aspect

   **Proposed Interventions:**
   a) Even with all the tourist attractions that Dwarka gets, marine life is not being promoted exclusively to tourists.
b) The potential of promoting marine life at The Narara Marine National Park is huge. It is a unique place in India where you can walk on the sea bed during low tide. It gives the experience of various kinds of sea life, like sea anymore, sea cucumber, sea slag, octopus, starfish. Mangrove forest is another attraction. This would also generate livelihood not just for the fisherman who can share their insights about the sea animals but also for other locals in the area.

4. Lack of proper institutional support like infrastructure

   **Proposed Interventions:**
   a) Rupen Bandar is one of the few fishing places in the state that lacks a jetty. Jetties protect the shoreline of a body of water by acting as a barrier against erosion induced by currents, tides, and waves. Jetties can also be used to connect land to deep water further out from the beach, allowing ships to dock and cargo to be unloaded. A good jetty or fishing harbour is necessary for safety and sustainability. A breakwater to protect moored fishing vessels from adverse weather, a quay where the boats can be tied while dumping the fish, and a slipway for cleaning, painting, and servicing fishing vessels are all common features of a good coastal fishing refuge.
b) Floating jetties have come up as a substitute for a permanent jetty in recent times. Setting up one such jetty by the authorities will ensure fewer problems faced by fishers.

5. **No provision of Insurance or loans, Dearth of Investment:**

Most Fishers hardly have any information about the various government schemes for their welfare. A part of the problem is illiteracy and access to information limited to big fishermen/businessmen

   **Proposed Interventions:**
   a. Providing life insurance policy to all fishers and immediate compensation to family members. Timely help is one of the key factors for their livelihood sustainability.
The funding from the Government needs to be channelized considering the importance and scope of the sector in the coming years. It is suggested that refinancing from NABARD can be arranged by issuing a notification or the subsidy schemes may be made available to the interested entrepreneurs who want to build their own value chains in the fishery sector. This will promote livelihood generation and also ensure fixed incomes for the fishers.

b. Fishers should be made aware of govt schemes through T.V, Digital ads, Newspapers.
c. Grassroots level workers should be made accountable for informing fishers about various government schemes

6. *Unorganized marketing system*

The existing marketing system does not have any forward or backward linkages. Moreover, there is a wide difference between fish sale prices at landing centres and the retail markets which indicate that the middlemen are benefitted from a substantial share of the prices.

**Proposed Interventions:**

a. The Government should intervene and take appropriate measures so that the fishers get the due price of their product.

a. A cooperative society can enable them to obtain loans from financial institutions to expand their marketing activities.

b. Building an organized market and ensuring free trade in the area Government must encourage fish marketers.

**Mode of work for Fishery Co-operative Society:**

- Producer’s cooperative: Aiming at the production of goods and services based upon common ownership and management by a group of workers to eliminate the employee-employer relationship.
- Fisheries: A mutual aid association to provide credit to their members on personal security or the basis of nominal security.
- Marketing: Promotion of trade by selling goods at reasonable prices and by eliminating middlemen.
- Insurance: To minimize the risk of their members and their products these societies negotiate with insurance companies. Individual and group insurance policies for its member are purchased at a comparatively lower premium.

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<td>A clear policy on fishing cycles</td>
<td>Department of Fisheries National fisheries development board</td>
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<td>2</td>
<td>Infrastructure support</td>
<td>Centralizing fishing cooperatives</td>
<td>Ministry of fisheries, Animal husbandry and dairying</td>
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<td>3</td>
<td>Promotion of Tourism</td>
<td>Promoting the marine life at The Narara Marine National Park</td>
<td>Ministry of Tourism</td>
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<td>Environmental Checks</td>
<td>Checks on the release of industrial pollution into the sea</td>
<td>Ministry of Earth Sciences</td>
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<tr>
<td>5</td>
<td>Literacy Programs</td>
<td>Intense drives to promote education</td>
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**Coconut and Coconut based Products, Nicobar, Andaman and Nicobar Islands**

In the Indian union territory of Andaman and Nicobar Islands, the Nicobar district is one of three districts. The Nicobar Islands, which are located in the Indian Ocean between the Bay of Bengal and the Andaman Sea, are part of the district's administrative boundaries. The district's headquarters are in Malacca, a settlement on the island of Car Nicobar. The territory's first foray into industrial activity was the establishment of resource-based industries such as wooden structures and coconut oil, followed by the establishment of highly needed industries such as agricultural implements, bakery products, steel fabrication, repairing and servicing, and so on.

**Problems**

1. **Branding and Marketing of coconut oil**

   **Proposed Interventions:**

   a) Copra is the Nicobar Islands' most important export. Most of the Nicobari tribals who dwell on these islands rely on copra exports for their external needs. Before the tsunami, the Northern Group of Nicobar Islands,
primarily Car Nicobar, produced roughly 250 metric tonnes of copra per month, while the Central Group produced about the same amount. In the 1950s, a tribal cooperative, Ellen Hinango Limited (EHL), was established to handle the trade in Port Blair, which was formerly held by a single-family.

b) Rather than exporting copra, coconut kernels can be converted into virgin coconut oil as an alternative (VCO). This is utilised as a health food, a medicinal raw ingredient, and a soap and detergent foundation.

c) The Nicobaris prepare this for their own consumption, but due to technical difficulties, it has not been produced on a big scale. It's worth noting that the VCO made from this coconut is organic, which means the pharma and perfume industries will pay a premium for it. This includes international agencies that are having a tough time locating organic coconut oil.

d) To popularise the coconut oil produced in the district, a more defined branding approach is required.

e) Producers must be organised into clusters in order to streamline production, price, and the supply chain.

2. *Information dissemination for the locals*

**Proposed Interventions:**

a) The majority of the residents are unaware of the government's various programmes and provisions for growing the coconut sector. Information sessions regarding the schemes need to be organized.

b) The Coconut Development Board is a statutory entity set up by the Indian government to promote the integrated development of coconut production and consumption in the country, with an emphasis on increasing productivity and diversifying product offerings. The board's principal responsibilities include,

- Adopting steps to promote the coconut industry's development.
- Providing technical assistance to people involved in the coconut industry and agriculture.
- Providing financial and other support for the expansion of the coconut-growing area.
- Encourage the use of contemporary technology in the processing of coconut and coconut products.
- Taking steps to increase the price of coconut and its by-products.
- Recommendations for improving coconut and coconut-related product marketing.
- Recommending measures to control the import and export of coconut and coconut products.
- Establishing coconut and coconut-related grades, specifications, and standards.
- Financing appropriate plans to enhance coconut production while also improving the quality and output.
- Providing assistance, encouragement, promotion, and funding for agricultural, technological, industrial, and economic research on coconut and its products.
- Compiling and publishing statistics on coconut and its products.
- Organizing public relations campaigns and publishing books and periodicals about coconuts and their products.

c) The government has already planned to work in these areas in the district so more focus needs to be on this to ensure they are completed.
- Increasing the production of quality planting material.
- Creating future production potential by bringing more area under coconut.
- Improving productivity of existing coconut holdings.
- Integrated management of major pests and diseases.
- Strengthening coconut industry by promoting product diversification and by-product utilization.

3. **Quality Testing Plant**

**Proposed Interventions:**

a) Facilities for chemical analysis of copra, coconut oil and coconut vinegar are available at the Technology Development Centre of the Board at Vazhakkulam, Aluva, Ernakulam only.

b) A complete supply chain also needs to ensure quality testing, for which proper transportation protocol needs to be followed.

4. **Tourism**

**Proposed Interventions:**

a) Due to tribal constraints, tourism is not promoted in the Nicobar District. Many of the islands have yet to be affected by civilization's negative impacts. If tourism's potential is fully realised, allied industries have a high chance of establishing themselves on these islands.

5. **Other coconut-based products**

**Proposed Interventions:**

a) Coconut plantations cover 42.83 per cent of the 50,000 hectares of land available for agriculture on the island. Annually, 280 million nuts are estimated to be accessible for industrial use. These nuts can be used to establish a variety of coconut-based industries, including:

- Copra production
- Production of coconut oil
- Production of desiccated coconut, which is frequently used in sweets, confectionery, curry preparation, and scented products.
- Production of coconut shell powder for thermostat moulding powders such phenol-formaldehyde and synthetic resin glues.
- Making handicrafts, toys, and bowls out of coconut shells.
- Activated carbon production

b) It is estimated that 56000 M.T. of coconut husk is available annually for industrial usage in these Islands, but only a small portion, 120 M.T., is now utilised for creating coir products, with the remainder being squandered
or used as home fuel. In the Rangachang and Burmanallah areas, there are a few tiny coir rope manufacturing operations, as well as one curled coir unit in Hati Tapu, South Andaman.

c) Extraction of Virgin Coconut Oil necessitates the use of machinery and equipment.

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<td>Promoting and highlighting the coconut oil and other products</td>
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<td>Value Addition</td>
<td>Establishment of a business model in the district to make them self-sustainable</td>
<td>Ministry of Food Processing Industries</td>
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<td>7</td>
<td>Research and Development</td>
<td>R&amp;D on using coconuts for making different products</td>
<td>Ministry of Food</td>
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</table>
Rice, Buxar, Bihar

The district, Buxar has two subdivisions, 11 blocks, 291 panchayats and 1134 villages. Agriculture is the mainstay of the economy keeping 59 % of the population gainfully employed. It has a net cultivated area of 142,931 ha. Around 70% of the cultivable land is cultivated more than once. The district has a majority rural population (90.8 %) and some urban population (9.2%). Buxar excels in rice production also known in Bihar as rice bowl i.e Dhankakatora. Irrigation is provided to 53 % of the cultivable area under Kharif and 47 % in Rabi season. Buxar district has got an almost plain area which is suitable for agriculture. There are one big river Ganga and another small river Chausa, which are helpful for irrigation in agriculture. One major canal of Sone command is the main source of irrigation to the farmers along with its subsidiary channels and tube-wells. Paddy which was earlier sold to the rice mills is at present procured by the state food corporation or Primary Agriculture Credit Societies (PACS) under minimum support price (MSP).

Problems

1. Arsenic is found in locally grown food items – rice.

Bihar is the second most affected Indian state with arsenic contamination. As many as 22 of the 38 districts in the state have an arsenic level above the World Health Organisation (WHO)’s permissible limit of 10 micrograms/ litre. The reason for arsenic in food is that irrigation is dependent on shallow tube wells hardly 30-70 feet deep. Arsenic is present more in shallow water. Arsenic in water used by Shivshankar Prasad, a farmer of Bichoo Ka Dera village of Buxar district, is 336.2 micrograms/litre. In the case of fellow villager Kamlesh Yadav, it is 574.6 micrograms/ litre. The reason for this difference is that Yadav’s handpump is shallower than Prasad’s.

Proposed Interventions:

a) Deeper Tube Wells- A standard needs to be implemented to ensure tube wells are being built to get water from a certain depth to avoid arsenic contamination.

b) Regular testing- Testing measures need to be built and regular testing must be taken in practice to check the levels of arsenic. Farmers need to be made aware of the adverse effect of arsenic not only on the food but also on themselves.
c) The government will need to devise a public awareness campaign that will generate influencing elements within communities that will encourage mutual adoption. Young farmers, who are more likely to adopt technology, should be targeted.

d) Financial aid, such as a loan interest subsidy or a moratorium during the initial time, can also help to improve adoption. Current government programmes, such as the Rashtriya Krishi Vikas Yojana, can be used to fund these efforts.

2. **Climate change affects the onset of monsoon.**

Thousands of farmers are facing the adverse impacts of changing rainfall patterns in recent years due to global warming.

**Proposed Interventions:**

a) Creating awareness about the importance of System of Rice Intensification (SRI), life-saving irrigation that needs to be provided at critical stages such as tillering.

b) Creating awareness about LCC based fertilizer application, Foliar application of micronutrients and Urea (1.5 %), Conoweeder in SRI Manual weeding in the conventional method.

c) Improving input linkages to access these inputs like fertilizers, Urea etc.

3. **Traditional rice farming techniques in India are becoming environmentally unsustainable.**

**Proposed Interventions:**

a) Direct Seeded Rice (DSR) is a resource-efficient alternative to rice cultivation that reduces the influence on the environment while increasing farmer livelihoods. Transplantation is the most common and traditional procedure of rice cultivation in the region. Seedlings are germinated in a nursery and then transplanted to a flooded area during transplanting. During this time, the fields are flooded with water. Flooding for an extended period of time boosts greenhouse gas emissions. It takes about 2,500 gallons of water per kilogramme of farmed rice to flood paddy fields. This process changes the texture and content of the soil, resulting in decreased groundwater replenishment and the possibility of water scarcity.

b) Direct seeded rice (DSR) is an alternative to transplanting for cultivating rice. It entails manually or mechanically dispersing seeds straight into the field. DSR increases groundwater retention and protects the water table by allowing faster crop establishment and requiring less demanding labour. Yields improve as well, and the rice matures faster, boosting income and allowing farmers to access markets earlier. Despite its advantages, DSR is not commonly used in India. This is due to a lack of availability to high-quality inputs like hybrid seeds and herbicides, as well as low levels of mechanisation and a lack of knowledge about the technology.

4. **A constant rise in Fuel prices**
The rise in fuel prices is directly linked to an increase in productions costs. Most farming activities like ploughing, watering the fields, separating grains and harvesting are done through tractors, water pumps, threshers, harvester machines that operate on diesel. With the increase in fuel prices, the cost of farming activities increases manifold.

**Proposed Interventions:**

a) Subsidy on fuel to farmers- Farmers need to be made aware of the various schemes the government is already working on. One such scheme is the “Bihar Diesel Anudan Yojana 2021”. Under this scheme, farmers will be receiving subsidies on purchasing diesel for irrigation so that they can easily purchase diesel for irrigation. Through Bihar Diesel Anudan Yojana 2021, the government will be granting a subsidy of Rs. 50 per litre to the farmers in Bihar. The diesel subsidy amount will be granted at the rate of Rs. 800 per acre for twice irrigation in crops such as jute and paddy. In addition to this, a grant of about Rs. 1200 per acre will be delivered for three times irrigation in seasonal vegetables, oilseeds, as well as pulses. Through the Diesel Anudan Yojana 2021, a new transfer will occur within 48 hours in place of 72 in response to the issues related to the electricity department transformer.

b) Proper maintenance of machinery to ensure efficient use of fuel- State government can focus on providing capacity building sessions, training sessions regarding maintenance of machinery to ensure better efficiency.

c) Using technology to find alternative ways to operate the machinery and include automation in farming activities. Seeking alternative fuel for farming is becoming increasingly important. Farms use significant quantities of fuel and resources. Tractors, generators and other machinery are all necessary for running an efficient farming operation. Although this is a necessity, the continued spiralling cost of traditional energies and fuels combined with the negative impact on the environment means that alternative fuel solutions are important. Some effective alternatives can be-

- **Biofuels**- These fuels are made from biomass such as ethanol. Biomass is the term used to describe the plants that are used to make this fuel. Sugar cane and corn are used for some fuels.

- **Solar and Wind Power**- Because many farms are spread out across huge swaths of land, they can often support the massive pieces of equipment required to create this energy. Wind turbines, for example, may not be practicable in a typical home setting, but they take up a relatively modest amount of land when installed near farmland and can be used by collective micro-groups of villagers who own land in that area.

5. **State government’s poor process of procurement of paddy**

**Proposed Interventions:**
a) Bihar’s small and marginal farmers are dissatisfied and concerned about the procurement procedure. Farmers have been forced to sell their paddy crop to traders and rice mill agents due to the poor pace of paddy procurement. Farmers are pushed to sell paddy for Rs 1,350-1,400 per quintal to traders, rather than the MSP cost of Rs 1,815 per quintal because dealers pay them instantly and without the paperwork that government agencies do. Selling on the open market is not a profitable alternative for marginal and small farmers because market prices are lower than the government price.

b) The process of procurement and MSP needs to be streamlined with proper information disbursement to keep the farmers from being exploited.

6. Need of marketing support required for micro-units

**Proposed Interventions:**

- a) Currently, even though Buxar is known for its rice production, not much of its being marketed or exported under a name. Market linkages are to be developed to get better prices for the farmers. Also, if micro-interest groups market the same quality rice under a name, it would increase the visibility of the product.

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<td>Resource-efficient alternative to rice cultivation that reduces the influence on the environment while increasing farmer livelihoods.</td>
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<td>11</td>
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<td>Market linkages are to be developed to get better prices for the farmers.</td>
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Papier Mache – Kupwara, Jammu & Kashmir

The term 'papier mache' derives from the French words papier mâché, which literally translates as 'chewed or mashed paper'. The term has been used to refer to a variety of craft forms that involve use of processed paper. Papier-mâché is used to create moulded forms of a variety of objects. It involves ornamentation of smoothened surfaces built up of paper pulp or layers of paper. The most sophisticated form of paper craft appears to be papier-mâché. These are made in homes, and workshops, in Srinagar, and other parts of the Kashmir Valley, and are marketed primarily within India, although there is a significant international market. The product is protected under the Geographic Indication Act 1999 of Government of India and was registered by the Controller General of Patents Designs and Trademarks during the period from April 2011 to March 2012 under the title "Kashmir Paper Mache".

Problems

1. Lack of raw material during winter season: In winter, the paper pulp takes 20 to 30 days to dry in winters, on the other hand, in other seasons it takes 3 to 4 days to dry.

   Proposed Interventions
   a. Financial support for buying required equipment to raw material sellers that are not economically strong.
   b. Establishing common heating halls in different areas so the raw material sellers can dry their products within a short time.

2. Expensive equipment and colors: Day by day colors and other equipment’s are becoming expensive like brushes etc.

   Proposed Interventions
   a. Subsidy or finance support to the artisans to buy color and other equipment’s
   b. Govt. stores to provide artisans good quality colors and new equipment’s to artisans

3. Lack of marketing: Due to lack of solid marketing strategy, papier mache artisans suffer a lot and poor packing also play a role of oil in the fire.

   Proposed Interventions
   a. We can use the social networking sites as a platform to promote papier mache
   b. We can make small documentary on papier mache and spread through various social networking sites
   c. Setting up of stores in malls, Airport’s, railway station as well as in big cities
   d. Encourage the artisans to take part in the various trade fare and financial support should also given to the participants.
   e. We can make advertisement banners with attractive photo of our products and also insert some attractive lines in favors of papier mache like a papier mache with the earthy scent of Kashmir and craftsman’s yeas experiencer
   f. Attractive product packaging along with stories and uniqueness behind the papier mache
   g. Creating a brochure that covers the points like background story of the product, benefit of product, processing of product and kind of products
4. Lack of training programs - Lack of training programs for new generation artisans is another difficulty

   Proposed Interventions
   a. Providing minimum 6-months training to artisans of new generation along with stipend during training.
   b. Provide certificates to trained artisans.

5. Lack of awareness about government initiatives and schemes - Lack of knowledge about governments programs for development of papier mache.

   Proposed Interventions
   a. Appointing a team of experts to spread awareness regarding government schemes and programs
   b. Using new papers, social networking sites, radio, etc to spread awareness regarding government schemes and programs through.

6. Lack of skilled people - People move to another profession due to low profits. Due to lack of technical expert team and lack of training centers new generation avoid this profession.

   Proposed Interventions
   a. Training workshops for e-commerce platforms, market awareness, etc along with NIT Srinagar, IIT Jammu.

7. Government negligence - According to many artisans, government is not taking any concrete steps to encourage papier mache.

   Proposed Interventions
   a. Create new schemes according to the needs of the artisans.
   b. Consulting with the artisans before making any schemes
   c. Create schemes for the insurance, pension of the artisans, and the education of children
   d. Continually informing the artisans from about government schemes
   e. Modifying the benefit schemes from time to time according to the needs of the artisans
   f. Set up a help desk where artists, irrespective of the art, can raise their concerns.

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**Invest India**

**One District One Product**
Belagavi Aerospace Components (Karnataka)

The first notified Aerospace Precision Engineering and Manufacturing SEZ centre in India is located in Belagavi. It has become an important location for the manufacture of heavy machine tools and high-pressure oil hydraulics due to its rich bauxite reserves and 200 foundries generating over 70,000 tonnes of automotive and industrial ferrous base casting. The geographic benefit of being in the heart of the Bengaluru-Mumbai region is a significant advantage in growing the region as a support base for the automotive and aerospace sectors. There are 16 industrial estates, 6 industrial zones, and one special economic zone in the district.

**Problems**

1. *Digitization of parts*

**Proposed Interventions**

a) With the next generation of aircraft manufacturing based on Industry 4.0, which includes the digitalization of part conditions, the manufacturing and assembly processes will be completely digitised, starting with part specifications, drawings, engineering, manufacturing, qualification, serial production, quality assurance, transportation, and aircraft assembly.

b) To drive predictive maintenance and improvements to the technology incorporated on aeroplanes, the industry needs to exploit the benefits of connectivity and big data.
c) This is the space where entrepreneurs need to be incentivized to bring forth a revolution in full-electric or hybrid-electric power and other disruptors like additive manufacturing and to work towards the possibilities of urban air mobility vehicles.

2. Absence of established Original Equipment Manufacturers (OEMs)

Proposed Interventions

a) We need to recognize the lack of expertise in developing a commercial or defence aircraft and should leverage the opportunity to get the knowledge in technological and managerial expertise from foreign Original Equipment Manufacturers (OEMs).

3. Process of projects update and monitoring is not streamlined

Proposed Interventions

a) There is a growing requirement to know where parts are at all times and in what condition they are in. A virtual assembly procedure to match the correct parts for the best deviation fit is required.

b) All of the data and procedures must be stored in a database before being transferred to the assembly lines.

c) The need to increase manufacturing flexibility, such as different versions, aircraft types, and customer needs, while cutting costs and shortening delivery times, among other things.

4. No formalized supply chain

Proposed Interventions

a) In the sector, there are accumulating backlogs as well as a significant information asymmetry. To reach ambitious timelines, it is necessary to overcome short-term manufacturing problems.

b) There must be approved and pre-designated manufacturers for even the tiniest element, as well as raw material suppliers. Likewise, raw supplies are currently unavailable.

c) Because the industry now hires only from within the local community, there will be an increased demand for the recruitment and training of a large number of new technicians in the coming years.

d) The lack of tier 2 and tier 3 companies that can help aircraft manufacturers is one of the weak links in the aerospace supply chain. The majority of SMEs are having difficulty moving up the value chain. There will still be a large vacuum in the local supply chain unless SMEs advance to tier 2 / tier 3 status.

e) The government can assist in the creation of an ecosystem for repair and overhaul that includes specialised supply and support networks and services, cutting-edge equipment and skills, advanced training, and professional knowledge.

5. Less Focus on maintenance

Proposed Interventions

a) The current focus is solely on manufacturing, with minimal assistance for maintenance.

b) The sector needs to start focusing on potential in worldwide aviation maintenance, repair, and overhauling, which has previously been HAL’s domain. We are experiencing competition from corporations in Southeast Asian countries, mainly Singapore, in this regard.

c) To ensure quality, anti-counterfeiting measures, particularly in small parts and helmets, must be applied.

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<td>1</td>
<td>Product Improvement</td>
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<td>Curriculum for recruitment and training of a large number of new technicians in the coming years.</td>
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Onions, Gadag, Karnataka

Gadag emerged as a new district on 24th August 1997. In the fields of art, literature, culture, spirituality and industry, Gadag has had its own heritage since long back. It is also a tourist place with greenery and being visited by many nature-lovers. The presence of 2 agro-climatic zones – north dry zone and north transitional zone and the presence of both black soil and red sandy soil provides scope for the cultivation of a large variety of crops in Gadag. A global review of the area and production of major vegetables shows that onion ranks second in area and third in production of the total vegetables in the world. China is first in area and production while India occupied the second position in production.

Karnataka state accounts for 20 per cent area and 13 per cent total output of onion in the country. Gadag district of Karnataka is among the top district in onion production. Of the 2.72 lakh hectares of cultivable land in the district, onions are grown in about 1.25 lakh hectares and taluks like Ron, Nargund, Mundargi and Gajendragad are the prominent onion hubs. In spite, lot of efforts have been taken by extension agencies and scientists to materialize the potential and productivity of onion, production was stagnant over a period of time due to the traditional way of cultivation, the dominance of local varieties, lack of supporting facilities and wide fluctuation in the market price of onion which made onion cultivation unprofitable in the district. Onion is one of the most important vegetable crops cultivated extensively throughout the country under a wide range of climatic conditions. It is very important in cookery; hence it is called the “Queen of the kitchen” by Germans. Onion consumption is spread throughout the year and there is a constant demand for onion bulbs all around the year.

Key Opportunities in the area

- APMC yard (State Warehouse) of 7004 MT is present at Berageri
- A constant increase in the area under irrigation has improved the productivity of the district.
- The district comprises of good infrastructure for agriculture marketing
- Moderate rainfall pattern encourages the growth of short/long duration crops and for adopting mixed and intercropping.
- 65% of the landholding are small and semi medium

Problems

1. Traders, Retailers exploit the situation of crisis for their own benefit.

Proposed Interventions

a) At the retail level, there is still greater scope for increasing competition by allowing more private players, investment in retailing, storage and strengthening information dissemination system. If we take the analysis forward, the government policies also had a great role in the December 2010 high price episode. Unseasonal
rains in late September and October 2010 destroyed the onion crop. Yet the government agencies allowed traders to export 1.33 lakh tones of Onion in October 2010.

b) By the time the minimum export price was hiked to stop exports in November, the damage had already been done. Now, not having information of unseasonal rains in major onion producing areas, which damaged around 35 per cent to 40 per cent of the total product showed the negligence of government agencies.

c) The prices, demand and supply need to be continuously monitored to ensure all the stakeholders are following proper protocols.

d) For the onion, NAFED intervenes in domestic marketing whenever there is a glut in the market and prices reach uneconomical levels. Prices prevailing in major markets all over the country are reviewed every day in this process.

e) Procurement prices of onion are decided by NAFED based on the cost of production and procurement is initiated in the markets and from the farmers directly. This benefits the producers, particularly the small producers, who have low carrying capacity and are constrained to sell immediately after harvest on account of financial constraints.

f) In case of external trade, NAFED is responsible for fixing the minimum export price (MEP) of onion in collaboration with DGFT (Director General of Foreign Trade), which is done on a 15 day to monthly basis. Factors such as market trends, world prices and domestic prices, and margins are considered for arriving at the MEP of onion.

2. **Export standards.**

**Proposed Interventions**

a) The Big onion produced in Maharashtra, Karnataka, Andhra Pradesh and Tamil Nadu is exported to Dubai, Kuwait, Saudi Arabia, the Middle East etc.

b) The Small onion produced in Karnataka and Andhra Pradesh is exported to Singapore and Malaysia etc.

c) The export standards need to be regulated and met at each stage of the farm cycle to ensure the least waste generation.

3. **Production of onion fluctuates from year to year.**

**Proposed Interventions**

a) The low production results in a hike in the price which creates discomfort among consumers. The middlemen are taking undue advantage of this situation and exploiting both producers and consumers in Karnataka, which is the second-largest onion producer in the country with a 16.04 per cent share in the total onion production of 18,927.40 MT.
b) Technological support like cold storage, crop insurance, assured buy-back of produce, high-quality seed supply, subsidized fertilizers and pest managing tools & pesticides could be another area of concern for futuristic study.

4. Lack of storage facilities and financial problems of onion growers.

Proposed Interventions

a) In Karnataka, onion is grown in all three seasons. However, it is predominantly a winter crop. Generally, the onion growers bring their produce to market for sale immediately after the harvest, because of the lack of storage facilities and financial problems of onion growers.

b) This result in a glut of onion in the market and a fall in market prices of the onion. Sometimes, the market rate will reach a record low as less than one rupee per kilogram. Then it becomes very difficult for onion growers even to meet the transportation charges. This situation is creating discontent among the farmers giving rise to their agitation for the fair market price.

c) Arising need to improve storage facilities for the farmers to ensure they can store the excess produce to get better prices after a short while.

d) Many farmers sell their produce at a particular period due to the pressing need for cash and due to indebtedness to traders. Financial help in terms of credit for storage at this time will also help in controlling the fluctuating prices.

e) Adequate scientific storage facilities should be provided to the farmers so as to spread the sale throughout the year with minimum quantitative and qualitative losses.

f) Producers should also be provided with credit facilities against their produce stored to meet their immediate financial commitments.

g) Information about the market price should be passed on to the onion growers through mass media and other means of communication.

5. The majority of the farmers had less education than the high school level, medium level of participation in extension activities and extension contact

Proposed Interventions

a) Intense drives to promote education must be carried in the farming villages.

b) Proper checks on children working in farms and markets must be made to ensure they are not skipping school. If found practising any such activities, parents must be heavily penalized.
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Sugar, Mandya (Karnataka)

Mandya is a district in the Indian state of Karnataka that is known for being one of the country's largest sugarcane growing districts. 'Sakkara Nadu,' which loosely translates to 'The Sweet Place,' is another nickname for Mandya. Sugarcane is one of the district's most important commercial crops. In the district, there are four sugar factories: one cooperative and three private. Mysugar factory the oldest in the district has been closed. There are 532 jaggery factories in the district, which aid in the use of sugar cane grown in the area. The four sugar plants produce 26,00,000 metric tonnes of sugar per year, while the Khandasari units produce 10,00,000 metric tonnes of jaggery.

Problems

1. **Closing of MySugar Factory- Farmers in the district regard the Mysuru Sugar (MySugar) factory to be their lifeline, but it has been closed for more than two years.**

   **Proposed Interventions**
   a) Even though the state ruled against privatisation of the factory, for now, there is a need to fast track the process of decision making and revival of the factory.
   b) As a temporary measure for the benefit of farmers, the sugarcane supplied this season will be sent to other factories for crushing. Harvesting and transportation charges are borne by sugarcane farmers.
   c) The absence of interior roads is also a limitation for the transport of cane from field to sugar factory.
   d) Sugarcane grown in Mandya taluk are being transported to Shakti Sugars and Pyari Sugar factories near Sathyamangalam in Tamil Nadu, this reduces efficiency and needs to be capped. We need to ensure the crop grown in the district can be supplied to the industries in the same district to improve the recovery rate of sugar from these canes.

2. **Small and uneconomic size of sugar mills that make use of machinery that has become old and almost obsolete.**

   **Proposed Interventions**
   a) The mills and their workers remain idle during the remaining period of the year, thus creating financial problems for the industry as a whole.
   b) High cost of sugarcane, inefficient technology, uneconomic process of production and heavy excise duty results in high cost of manufacturing.
c) Financial support from the government so that the existing old traditional machinery can be replaced and advanced machinery that will boost productivity and improve the condition of the sugar mills in the region.

d) Dedicated research on how the sugarcane crushing capacity can be increased using modern technology. This will provide insights into the efficient utilization of raw materials, without any unnecessary wastage.

e) Government can provide subsidies on the installation of new technology and equipment for both sugar mills as well as sugarcane farmers.

3. Low Irrigation Efficiency and the state faced the worst drought in the year 2018-19.

Proposed Interventions

a) Training and capacity building sessions to teach farmers and other stakeholders how to collect rainwater in unirrigated regions using smaller structures such as farm ponds, check dams, Nala bunds, and other watershed structures.

b) Implementing appropriate procedures such as tank desilting, rehabilitation, and tank filling with canal/lift irrigation schemes.

c) The proper lining of distributaries/field channels that have been left unlined, as well as timely completion of other canal maintenance tasks.

d) A new cropping pattern incorporating restricted sugarcane cultivation and the reduction of other water-intensive crops can save a lot of water and ensure water supply in the tail-end areas.

e) Educating the sugarcane farmers to make them aware of the advanced techniques of cultivation will help improve their existing situation.

4. Need for an increase in manufacturing of by-products and other Value-Added products.

Proposed Interventions

a) 85 per cent of sugar mill revenues only come from the production of sugar. This means they heavily rely upon just one source of revenue which tends to fluctuate.

b) Reducing the mills’ reliance on virtually a single source of revenue by giving the flexibility to produce more or less sugar along with proportionate production of by-products (alcohol – for potable, industrial or fuel blending) would impart greater stability in the incoming revenues.

c) Increase in production of products like sugar, hand sanitiser, power, ethanol, organic manure.

5. Improvement of Sugarcane variety and efficiency.
Proposed Interventions

a) It is necessary to find an appropriate variation to replace the ruling Co62175.

b) Using staggered plantation techniques, which are backed up by three-tier cane seed nursery programmes along with providing tissue culture plantlets to sugar mills of premier kinds on a large scale to cane growers.

c) The beginning of extensive cane development and extension initiatives near sugar mills by introducing/improving sugarcane agro-techniques, including irrigation facilities, in the farmer's field.

d) Minimizing the time from harvest to crush by adhering to appropriate harvesting and transportation timetables.

6. Need of provision of Insurance, loans and revision of terms of the contract with sugar mills

Proposed Interventions

There have been numerous reports in the State of incorrect entries being made during the crop-cutting activity, resulting in lower or higher average yields, which are significant for crop insurance. Farmers who choose the scheme and pay the premium amount should be given the opportunity to raise objections if such circumstances materialise.

Due to the lack of GPS, the key worker in charge of the crop-cutting exercise tend to enter entries without ever visiting the farmer's field. All of these could jeopardise a farmer's insurance claim.

The problem is far more serious than a lack of knowledge about local credit programmes. Every year, the majority of sugar mills owe large sums of money to the farmers, on which they frequently default. Hence, to protect the farmers’ rights, the policy on terms of trade with farmers and mills must be revised.

Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU-2014):

- The government announced a Scheme for Extending Financial Assistance to Sugar Undertakings (SEFASU-2014), which calls for banks to provide interest-free loans to sugar mills as additional working capital in exchange for clearing cane price arrears from previous sugar seasons and timely payment of current sugar season cane prices to sugarcane farmers.

- The government will cover the interest on this loan for the next five years through the Sugar Development Fund.

Revision of policies
Proposed Interventions

Crushing of cane needs to commence on the 15th of June in the coming year. Delays result in a lower supply of cane, lower yields, and, as a result, lower earnings.

The significance of ancillary and follow-up crushing actions is high and needs to be implemented. The Karnataka Sugarcane (Regulation of Purchase and Supply) Act 2013 was also amended, increasing the timeperiod from 15 to 45 days. This recommendation, if implemented, will be of consequence to all Sugar Companies in the region.

a) In addition, the government policy of MSP should be strengthened to incentivise these farmers. Strengthening the relations between sugarcane farmers and sugar mills can improve supplier power.

Proposed Interventions

Using sugarcane for the Ethanol Blended Petrol Programme (EBP Programme):

The Ethanol Blended Petrol Program (EBP) aims to achieve Ethanol-Motor Spirit Blending in order to reduce pollution, conserve foreign exchange, and boost value addition in the sugar business, allowing them to clear farmer cane price arrears.

Brazil, the world's largest sugarcane producer, relies on ethanol, not sugar, as its primary source of revenue from sugarcane, and blends 27% ethanol with gasoline.

Under the EBP, the Central Government has increased the blending aim from 5% to 10%.

The EBP procurement system has been simplified in order to streamline the entire ethanol supply chain, and a remunerative ex-depot price for ethanol has been established.

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Barytes and Barium Products, YSR Kadapa, Andhra Pradesh
Baryte or barite is a moderately soft crystalline mineral form of barium sulphate (BaSO\(_4\)). Approximately, 80% of barytes produced worldwide is used for oil and gas drilling as a weighting agent in the drill mud, primarily to prevent the explosive release of gas and oil during drilling. Its unique physical and chemical properties like heavyness, high specific gravity, chemical and physical inertness, very low solubility and magnetic neutrality. Barium compounds are utilised as filler, extender and aggregate. Barytes after converting to barium carbonate, is used in the manufacture of ceramic and glass. The Mangampet deposit in Kadapa district of Andhra Pradesh is the single largest barytes deposit in the world. India is one of the leading producers and exporters of barytes in the world.

The total resources of barytes in India as on 1.4.2010 as per UNFC system is placed at 73 million tonnes of which 43% constitute reserves and 57% remaining resources. By grades, 40% resources are of Oil-well Drilling grade followed by 6% of Chemical grade, 1% of Paint grade and 33% constitute Low grade. About 20% resources are of Other, Unclassified and Not-known categories. Among the States Andhra Pradesh alone accounts for 94% of the country's baryte resources.

**Problems**

1. **Upgrading quality of Baryte**

   **Proposed Interventions**
   
   a. Set up an industry for upgrading the quality of barytes mined from the YSR Kadapa district
   b. Educating workers on how they could improve quality

2. **Better Marketing of Product**

   **Proposed Interventions**
   
   a. Improving the quality of product and promoting it in other parts of country
   b. Setting up BSM for increasing presence of product
   c. Setting up an agency to help producers get fair and better opportunities

3. **Lack of education and poor exposure to new technology**

   **Proposed Interventions**
   
   a. Ministry of education can help in educating the latest technology and know how of the market intelligence and institutional framework.
   b. Introducing producers to new technology and education them on its usage
   c. Providing financial aid to producers to encourage them to use better technology for production

1. **Inadequate infrastructure facilities affect the quantity as well as quality of Barytes production**
Proposed Interventions

a. Establishing baryte Processing Units that will provide modern infrastructure facilities to the production units so as to improve the productivity and quality of products.
b. In addition to establishment of new units, it is essential to implement the modernization of existing units to ensure optimum utilization of available raw materials.
c. Training of prospective entrepreneurs on the latest machinery to promote new baryte products

2. Better credit facilities

Proposed Interventions

a. Providing cheap credit to baryte producers

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Ananthapuram, Readymade Garments, Andhra Pradesh

Rayadurg (Ananthapuram) is known for its garment industry more particularly for stitching jeans of various brands and designs. The business runs into several hundreds of crores and there are nearly 20 units which employ at least 150 workers for stitching and related works on orders from big companies, while there are 400 families which stitch jeans in their houses and sell them in the market for decades together.

Readymade industry in Rayadurg (Ananthapuram)

- 80,000 jeans manufactured per day on an average
- 70 percent of workforce in manufacturing hub are women
- 50,000 people given employment directly and indirectly at garments manufacturing hub
- 55 units given permission to run in Rayadurg Textiles Park

Problems:

1. *All Manufacturers preferred skilled and efficient workers for increasing their production, but the basic problem was finding skilled workers who would sustain with the production house for longer time. It was observed that skilled workers are in demand, so they shift their jobs often for better wages.*

   **Proposed Interventions:**
   
a. There is a serious need to conduct training and skill building programmes in the district so that the demand for skilled workers can be met.
b. This can be done by the involvement of professionally sound workers in the training programmes which can be the state government.

2. *Maximum number of manufacturers faced the problems of outdated stock maintaining and selling those goods, which slowed down business.*

   **Proposed Interventions:**
   
a. Awareness campaigns should be run on the inventory management skills.

3. *Although garment industry made a rapid growth till few years back but no organized data is available that can show the expansion or reduction in the growth of this sector.*

   **Proposed Interventions:**
   
a. Conduct surveys and collect data on the readymade garment industry of the district.
b. This data can be used to generate insights so that it’s easier to predict the market on a large scale.
4. In educational sector, there is no trend towards research. Lack of research-oriented attitude also leads to lack of improvement in the industry. With these problems the quality of the product has deteriorated. Consumers on the other hand today are more aware of the product quality and they do not waste their money on poor quality products.

**Proposed Interventions:**

a. Setting up a Research & development institute in the district that focusses on the kind of materials that can be used to ensure the good quality of garments and are comparatively cheaper for the manufacturers.

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Stone Carved Products, Kurnool, Andhra Pradesh

The stone carving tradition in Andhra Pradesh dates back to 2nd Century BC when Amaravati was an important Buddhist centre under the Satavahanas. Buddhist, Hindu and Islamic architecture in the region stand testimony to this craft. Mythological figures and the stone carvings of gods and goddesses in the temples in this region are typical illustrations of the stone work.

**Problems**

1. *The art of stone carving has gained the nickname of the “lost art” because there are not many stone sculptors in the world. The main problem is time and money*

   **Proposed Interventions**
   
a. Sculptors are not receiving the subsequent amount of price for which they are spending lot of time and efforts. Thus resulting in loss of interest of artesian to other jobs. This can be improved by the government providing subsidies for the same.

2. *The handicraft artisans suffer a lot due to being unorganized, lack of education, low capital, poor exposure to new technologies, absence of market intelligence and a poor institutional framework.*

   **Proposed Interventions**
   
a. Ministry of education can help in educating the latest technology and know-how of the market intelligence and institutional framework.

3. *Problems with Master Craftsmen not providing with the proper payments on time and rejection of orders*

   **Proposed Interventions**
   
a. Irregular orders, irregular supply of raw materials, irregular payments etc need to be worked on.
b. They are facing the problem of rejection of orders that the products are not meeting the specifications give, a proper training needs to be done for the same.
c. Respondents have said that they are not getting raw materials regularly

4. *Problem with financing as craftsmen are not able to raise loans*

   **Proposed Interventions**
   
a. Commercial banks should lend loans and advances to all artisans so that craftsmen will not depend on master craftsmen and dealers for raw materials and finance. So the government and its agencies should provide raw materials, finance and proper market for handicrafts to all craftsmen.
b. Problems of craftsmen in raising loans Most of the respondents are facing problems of providing security, rigid procedures and formalities and inadequate loan amount. There are several problems in raising loans from different sources.
c. The problem of high interest rates has been expressed by 10 respondents who have taken loans from moneylenders

5. *Marketing is the main problem and for this reason the crafts person are facing various problem. Marketing Problems faced by Artisans*

**Proposed Interventions**

a. To stone carving have said that they have faced the marketing problems due to rapid changes in consumer preferences and tastes.

b. One third of the respondents have faced the problem of inadequate advertising and publicity.

c. Tie have faced the problem of unremunerative pricing in Pattachitra.

d. Illiterate as most of the artist, make them depend on dalals for the promotion of their craft and to earn lively hood. They are taking undue advantages.

e. No Govt. patronization, there is no such scheme for this craft by the Government, some Govt. organization, those are running for the artists are not working properly as the administrators and they have no direct link with the artists and their work.

6. *The process of making a sculpture is same as the past. The artist uses the some tool kit, chipset and hammer for the making of a sculpture. The technique is typical and traditional, which is very hard and labourious. They were unaware of modern machines and techniques.*

**Proposed Interventions**

a. The artists should have to use new equipment, which are easy to use and more fruitful than the prevailing ones. The grinders and cutters can be introduced these days. They are very time consuming. Government agency should

b. So artists, in under to satisfy and for the promotion of this business should know the art of modern making and work according to the taste of the customers.

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<tr>
<td>1</td>
<td>Regulate the local market</td>
<td>State Department of Art &amp; Culture</td>
</tr>
<tr>
<td>2</td>
<td>Run extensive awareness campaigns across state</td>
<td>State Department of Art &amp; Culture</td>
</tr>
<tr>
<td>3</td>
<td>Partner with countries to increase commercial value export limit</td>
<td>Department of Export, Invest India</td>
</tr>
<tr>
<td>4</td>
<td>Organize exhibitions, Art fairs</td>
<td>Department of Art &amp; Culture, South Zone Culture Center</td>
</tr>
<tr>
<td>5</td>
<td>Logistics and Shipping policy for art &amp; sculptures</td>
<td>NITI Aayog</td>
</tr>
<tr>
<td>6</td>
<td>Establish skill development centers (Upskilling)</td>
<td>Ministry of Skill Development and Entrepreneurship</td>
</tr>
<tr>
<td>7</td>
<td>Lower GST rates</td>
<td>GST Council</td>
</tr>
<tr>
<td>8</td>
<td>District-level Bone handicraftsmen association to be registered.</td>
<td>D.C. (Handicrafts), Ministry of Textiles, Ministry of Skill Development &amp; Entrepreneurship</td>
</tr>
<tr>
<td>9</td>
<td>The product should be marketed at trade</td>
<td>Department of MSME &amp; Export</td>
</tr>
</tbody>
</table>
### Madhepura Maize, Bihar

In Bihar, maize is cultivated over an area of around 0.65 million hectare and produces 1.43 million tons in major maize producing districts viz., Khagaria, Madhepura, Begusarai, Saharsa and Katihar. Winter (Rabi) maize is cultivated mainly in Bihar with a production of 1.02 million tonnes, about 70% of the total production in the states. This gives a unique position to the state in the national maize market with most maize processing units in north India depending highly on maize from the Bihar state for a significant period of time.

Bihar’s maize, which is primarily a Rabi crop, has been a success sector mainly due to the quality of the produce which has grown steadily in the last few years. Productivity of maize in Bihar is 2,541 kg/ha, which is far greater than the all-India average productivity of 1,907 kg/ha. Agricultural innovations such as winter maize have helped dispel the spectre of near-term starvation for many smallholders in Bihar.

### Problems

1. Most of the maize cultivators are small and medium farmers, so their grain retention capacity is low (these farmers can’t wait for higher prices of maize to sell their grains). They sell most of their grains soon after harvesting to meet their essential expenses. Farmers have limited in-house capacity (2-10 quintals) to store their maize grains. Lack of storage facility, prevent farmers from exploiting the opportunity of good prices for their maize. It also leads to mass-transhipments of maize grain by the traders.

### Proposed Interventions

a. Creation of mass scale storage facility is urgently required, which will enable the farmers to exploit the opportunity of good prices for their maize. In future, this will ensure the constant flow of maize as raw material for the processors in Bihar. Since constructions of warehouses are beyond the means of small and marginal farmers, there is a need for strengthening the network of warehouses owned and managed by ‘Central Warehousing Corporation’ and ‘State Warehousing Corporation’ in maize producing areas. It has been recommended that possibility of building storage capacities in Public Private Partnership (PPP) format should be considered.
2. Due to inadequate processing facilities in the state, result more than 80% of Bihar maize goes outside the state and gets processed there depriving it of value addition and higher income for the people in the state. The processed maize in the form of poultry feed and seeds then comes back to the state. At present, despite sufficient availability of raw material, maize processing industry in Bihar is very underdeveloped. Some of the factors constraining maize processing industry in Bihar as follows:

- Poultry sector which uses poultry feed is not so much developed in Bihar, hence low demand and low production within home state.
- Most of the farmers use by-products of their crop as cattle feedback, so no sufficient domestic demand for cattle feed (lack of purchasing power is also an important factor).
- Dearth of industries in Bihar, using high value by-products of maize i.e., Starch, maize syrup, corn oil, ethanol, etc, as their input.
- Low rate of urbanisation in Bihar does not provide a good market for maize processed items like breakfast cereals (corn flakes, etc.)
- And most important of all these are lack of power which is very essential for running of any machine-based industry.

Proposed Interventions

a. For proper integrated development of the maize processing sector, a multidimensional approach is needed. Other related sectors, like poultry & fisheries, also have to be developed for the development of this sector. Government has to support private sector in terms of research input, tax incentives, basic infrastructure like power, roads, etc.

b. Use of seeds for high value-added maize crops like baby corn, sweet corn, etc. should be promoted through input subsidy to farmers. These high value-added crops would enhance the economic return to farmers. Government can play the role of facilitator in this sector.

c. At present, power supply for industrial purpose is not regular in Bihar, and this is not going to improve in near future. So, in short term, option of captive power generation (maize bio-mass co-generation) should also be thought about.

3. The maize marketing is unorganized and is dominated by commissioning agents and traders. There is only one mandi for maize at Gulab bagh, Purnea. These markets/mandis lack basic infrastructural facilities like platform for drying grains, pest-free storage godowns, moisture metres, machines to ascertain quality, grading and weighing, public utilities, etc. Lack of these facilities at mandis reduces the returns to both farmers and local maize traders. Small players (farmers & small traders) are exploited by big players (wholesale traders who supply grains to maize industry) on account of manipulation in weight and assessment of quality of maize grains.

Proposed Interventions

a. At markets/mandis level development of common facilities such as platform for drying grains, standardized weighing machine, etc. should be done either through public initiative or cooperative organizations
b. Implementation or activation of quality control & testing system should be done

c. Need for storage and warehousing facilities at the mandis

4. There is low level of mechanization at farm level and most of the activities are carried out manually. Since farmers are generally small and marginal, they store maize in gunny gas etc at home. Their capacity to retain grain, therefore is limited to 2-10 quintals. As the maize producing areas are flood prone areas, their storing
capacity goes down to a great extent during the rainy season. Even if they are able to store the quality of the produce is affected by high moisture content in these grains which lowers their prices.

Proposed Interventions

a. Farmers should be made aware of low-cost irrigation techniques, like drip irrigation, irrigation through sprinklers, etc., their irrigation cost could be reduced substantially. Subsidy for these irrigation implements and others like de-shelling machines can also play an important role in farm mechanization of this sector.

b. High-cost machinery like maize harvester/combine dryer should be set up or made available on a custom hiring basis.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Logistics-Distribution</td>
<td>Creation of mass scale storage facility in Public Private Partnership (PPP) format</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>2</td>
<td>Value addition</td>
<td>Use of seeds for high value-added maize crops like baby corn, sweet corn, etc. should be promoted through input subsidy to farmers.</td>
<td>Ministry of Food Processing Industries</td>
</tr>
<tr>
<td>3</td>
<td>Regulatory</td>
<td>Option of captive power generation (maize bio-mass co-generation) should be considered</td>
<td>Ministry of Food Processing Industries</td>
</tr>
<tr>
<td>4</td>
<td>Logistics-Distribution</td>
<td>At markets/mandis level development of common facilities such as platform for drying grains, standardized weighing machine, etc. should be made available</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>5</td>
<td>Quality Assurance</td>
<td>Implementation or activation of quality control &amp; testing system</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
<tr>
<td>6</td>
<td>Logistics-Distribution</td>
<td>Need for storage and warehousing facilities at the mandis</td>
<td>Government of Bihar</td>
</tr>
<tr>
<td>7</td>
<td>Training and Development (Upskilling)</td>
<td>Spreading awareness about low-cost irrigation techniques, like drip irrigation, irrigation through sprinklers etc.</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>8</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Subsidy for irrigation implements and others like de-shelling machines</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
<tr>
<td>9</td>
<td>Infrastructure</td>
<td>High-cost machinery like</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
</tbody>
</table>
Manufacturing maize harvester/combine dryer should be set up or made available on a custom hiring basis.

References/Sources:

Jute Products, Purnia, Bihar

The district of Purnia extends northwards from the Ganges River. Purnia is the unofficial capital of Seemanchal due to its financial and educational importance. It is a depressed tract, consisting for the most part of a rich, loamy alluvial soil. It is traversed by several rivers flowing from the Himalayas, which afford great advantages of irrigation and water-carriage. Its major rivers are the Kosi, the Mahananda, the Suwara Kali, the Kari kosi, the Saura and the Koli. In the west, the soil is thickly covered with sand deposited by changes in the course of the Kosi. Among other rivers are the Mahananda and the Panar. Its major agricultural products are jute and banana.

India’s first jute park named Punrasar Jute Park is established at Maranga in Purnia district. This plant can serve the jute industry in the entire north-east Bihar region for production of jute yarn.

Problems

1. The Bihar government's recent decision to invoke section 8(5) of Central Sales Act 1956, imposing additional tax of 3% on Jute purchases might spell doom for already crisis ridden Jute industry in Bihar. The industry is already working on low profits and most of the processing mills in Bihar are already closed. This additional tax puts further burden on the jute product makers.

Proposed Interventions

a. In West Bengal, Jute traders are not included in the central sales act to protect the industry.
b. Similar strategy can be adopted for a few years in Bihar too by allowing jute traders to not register under central sales act.
c. This move would reduce the tax burden on traders and hence raw material cost will be reduced.
d. The increased profit margins because of this can revive the jute industry in the state.

2. Earlier all the food grains and products are packed and transported in Jute bags. But now the markets are flooded with synthetic bags. The food grains are being transported in synthetic bags. This reduced the demand for jute bags and hence price of jute has also dropped.

Proposed Interventions

a. Awareness programs across different markets in the state to be run to increase the use of Jute bags instead of synthetic bags.
b. The eco-friendly nature of jute bags can be a selling proposition.
c. The program increases the use of jute bags to transport food grains and other food products.
d. This increased use can generate demand for the jute.

3. The jute products produced are traditionally jute baskets and jute bags. These products have historically been good market attractors but lately scenario has changed. Consumers are no longer interested in these products as they don't use these products in their daily lives.

Proposed Interventions
a. Design and development of new products is necessary to generate market interest.
b. Products like corporate gifts, lifestyle products, fashion accessories can be designed and produced.
c. Customized products can be designed made with names, special occasions, etc.
d. Prototype and product design workshops can be conducted. Products like corporate gifts and accessories can generate bulk orders of the Jute products.
e. Customized products generate the market interest and increases visibility and penetration of the product.

4. Most of the Jute products from Purnia are made by artisans in their homes. They then sell the products to middlemen or traders who sells them to markets. The artisans are disconnected with the markets and are unaware of the fair prices for their products. The losses owing to this are a major reason for reduced number of weavers in the area.

Proposed Interventions

a. Local Jute products associations can be established which can collect the produce from artisans directly at market price and transport to markets.
b. These associations can collect the produce and sell in bulk to the markets.
c. These associations can lobby with the local governments for subsidies and incentives.
d. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

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<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Regulatory</td>
<td>In West Bengal, Jute traders are not included in the central sales act to protect the industry. Similar strategy can be adopted for a few years in Bihar too by allowing jute traders to not register under central sales act.</td>
<td>Department of Industries Bihar&lt;br&gt;Bihar Commercial Tax Department&lt;br&gt;Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Awareness programs across different markets in the state to be run to increase the use of Jute bags instead</td>
<td>Department of Industries Bihar&lt;br&gt;Department of MSME &amp; Export Promotion</td>
</tr>
</tbody>
</table>
of synthetic bags. The eco-friendly nature of jute bags can be a selling proposition.

| 3 | Product Improvement, Value addition | Design and development of new products is necessary to generate market interest. Products like corporate gifts, lifestyle products, fashion accessories can be designed and produced. Customized products can be designed made with names, special occasions, etc. Prototype and product design workshops can be conducted. | ODOP |
|   |  |  | Ministry of Skill Development & Entrepreneurship |

| 4 | Regulatory | Local Jute products associations can be established which can collect the produce from artisans directly at market price and transport to markets | Department of Industries Bihar |
|   |  |  | Ministry of Skill Development & Entrepreneurship |
|   |  |  | Department of MSME & Export Promotion |

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- https://en.wikipedia.org/wiki/Purnia_district
Litchi, Saharsa, Bihar

Saharsa is a city and a municipal corporation in the Saharsa district in the eastern part of the state of Bihar, India. It is situated near the eastern banks of the Kosi River. Saharsa district of Bihar is situated in the Eastern Plains 15 of Agro Ecological Sub Region (ICAR). It is a major producer of best quality of Corn and Makhana in India. From Saharsa corn and Makhana are exported abroad countries like America, Australia, France, Japan, England. The following crops are grown in the region: Makhana, rice, mangoes, litchi, bamboo, mustard, corn, wheat, and sugarcane.

Litchi is an important subtropical fruit crop of the country. It is known as queen of the fruit due to its attractive deep pink or red colours. It has high nutritive value. Litchi is now an important commercial fruit crop in India due to its high demand in the season and export potentiality. Cultivation of litchi is widely spread in eastern India.

Problems

1. Litchi is a highly perishable product. It is harvested during peak summer. It needs to be pre-cooled immediately after harvest to improve the shelf life. However, no such cooling and storage facility is available for the farmers.

   Proposed Interventions

   a. Local cold-storage facilities near the Litchi orchids are to be established.
   b. Alternatively, farm-level mobile cooling plants can be provided to the farmers at subsidized prices.
   c. Immediate pre-cooling of Litchi after harvest improves the shelf life of the produce.

2. Majority of the Litchi farmers still use outdated farming practices in cultivation. These farming practices result in lower yield of the crop. The quality and grade of the produce is also not consistent which makes it hard to export to international markets.

   Proposed Interventions

   a. It is observed that farmers are inclined towards acquiring new knowledge and technique to improve their production.
   b. Trainings to farmers and nursery growers can be provided on the latest techniques and trends in the horticulture field.
   c. The trainings will help farmers produce more yield at relatively lower inputs.
   d. The consistency in quality can also be maintained through these practices. Increased yield results in increased margins for the farmers.

3. There is no proper marketplace to sell Litchi. Existing markets do not have proper trading platforms, storage facilities, etc. Produce is being transported in pick up vans and is exposed to heat, rain, dust, etc resulting in value loss.

   Proposed Interventions
a. Establishing private marketplaces controlled by farmer interest groups will ensure proper infrastructure facilities and helps better trading.
b. Collection and transportation systems to be established in consultation with farmer interest groups.
c. Private markets help maintain competitive landscape and upgraded infrastructural facilities for the produce and producers.
d. Logistical support ensures the product reaches markets in time without loss of value.

4. Indian export market is not very diverse and most of the production is consumed domestically. The highest exports of Litchi so far happened, is less than 1% of the total produce. China being a significant competitor produces a major challenge to Indian export market.

Proposed Interventions

a. Interventions in term of prices and storage infrastructure is to be done to become competitive in the international markets.
b. Quality grading systems to be established to mark export grade Litchi and increase exports.
c. Competitive pricing and value addition throughout the value chain can help capture a greater international market share.
d. Established quality standards and grades help market products on international platforms.

5. Majority of Litchi farmers are currently selling their products as fruits to the markets. Due to lack of storage and processing knowledge, no further processing is being done. The fruits fetch lower market prices when directly sold to wholesale markets.

Proposed Interventions

a. Downstream integration is to be encouraged where farmers can further process their produce into juices, pulp, etc. to increase product portfolio.
b. Farmer interest groups can be formed to collect fruit from local farmers and process them at locally established processing units.
c. Processed products increases product portfolio and makes an attractive market for the consumers.
d. Profit margins for the farmers will also be increased by selling these downstream products.

6. Litchi is a perishable commodity, and the crop is prone to attack by diseases, pests, and insects. This is one of the major limiting factors in successful production of temperate fruits which damages around 10% to 30% of crop yield. Use of excessive chemical to tackle these issues over the years have made the pests resistant to them.

Proposed Interventions

a. UNCED in 1992 identified Integrated Pest Management in horticulture as one of the requirements for promoting sustainable horticulture. Awareness campaigns to encourage farmers to adopt these practices is to be encouraged on a wider scale.
b. These sustainable practices reduce the risk of diseases and pests.
c. Organic ways of cultivation without using chemicals will fetch premium prices form the 'conscious-consumers', which further increase the profit margins to farmers.

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<thead>
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<th>Proposed intervention</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infrastructure &amp; Manufacturing, Regulatory, Credit</td>
<td>Local cold-storage facilities near the Litchi orchids are to be established. Alternatively, farm-level mobile cooling plants can be provided to the farmers at subsidized prices.</td>
<td>Ministry of Agriculture Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>It is observed that farmers are inclined towards acquiring new knowledge and technique to improve their production. Trainings to farmers and nursery growers can be provided on the latest techniques and trends in the horticulture field</td>
<td>ODOP Ministry of Agriculture Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>3</td>
<td>Infrastructure &amp; Manufacturing, Regulatory</td>
<td>Establishing private marketplaces controlled by farmer interest groups will ensure proper infrastructure facilities and helps better trading. Collection and transportation systems to be established in consultation with farmer interest groups.</td>
<td>Ministry of Agriculture Department of MSME &amp; Export Promotion</td>
</tr>
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<td>4</td>
<td>Regulatory</td>
<td>Interventions in term of prices and storage infrastructure is to be done to become competitive in the international markets. Quality grading systems to be established to mark export grade Litchi and increase exports</td>
<td>Ministry of Agriculture Department of MSME &amp; Export Promotion</td>
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<tr>
<td>5</td>
<td>Product Improvement, Value Addition</td>
<td>Downstream integration is to be encouraged where farmers can further process their produce into juices, pulp, etc. to increase product portfolio. Farmer interest groups can be formed to collect fruit from local farmers and process them at locally established processing units</td>
<td>Ministry of Agriculture Department of MSME &amp; Export Promotion</td>
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UNCED in 1992 identified Integrated Pest Management in horticulture as one of the requirements for promoting sustainable horticulture. Awareness campaigns to encourage farmers to adopt these practices is to be encouraged on a wider scale.

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- [https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0244798](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0244798)

## Ceramic tiles, Morbi, Gujarat

### About Morbi

Morbi is an industrial town located in the Saurashtra belt of Gujarat. It is one-stop hub for anything and everything on ceramics. One can get right from floor tiles to bathroom sanitaryware, home accessories to crockery and kitchen utensils. Morbi is a thriving hub for ceramic products in India.

- City of Morbi alone has over 900 Ceramic manufacturing plants that produce products worth a whopping Rs 20000-25000 Crores.
- The Indian ceramics industry ranks second in the world right after China and accounts for 13% of the overall ceramic products in the world
- 90% of the ceramic products manufactured in India come from Morbi

### About Tiles
Tiles are classified into floor, wall, and roof tiles. They are predominately made up of clay and other materials. China Clay and Ball clay constitute 33% and 23% of raw materials by volume in manufacturing tiles.

There are two main subgroups under this classification:

1) Ceramic (non-porcelain)
2) Vitrified (Porcelain)

Characteristics of ceramic tiles in comparison to vitrified tiles are porous, high water absorption, less durable, less scratch resistance, less strength, not slippery, cheaper, not easy to maintain and difficult to install. Vitrified tiles, on the other hand are more porous, stronger, durable, high scratch resistance, slippery, expensive, easy to maintain and install.

Types of Vitrified tiles

1) Full body (Uniform color in the entire body of the tile. Used in airports and malls)
2) Double charge (3-4 mm thicker than other tiles and hence more durable. Used in homes & offices)
3) Glazed vitrified tiles (Manufactured through digital printing technology, offer variety of designs)
4) Polished glazed vitrified tiles (Similar to GVT. Suitable for homes)
5) Soluble salt (Printed with screen printing technology and then polished. Used in low traffic areas)
6) Nano polished (Application of liquid silica on vitrified tiles fills the micro pores and makes the tiles smooth)
Global Tile market

China is the largest manufacturer of tiles in the world, accounting for 43% of world tile production. China has manufactured 5683 MSM (million square meter) in CY18. Almost 80% of the world tile production is by top 10 countries.

Global tile production across the globe

Note: The numbers given above are in msm

Global tile consumption across the globe

China is also the world’s largest consumer of tiles. China’s domestic consumption is 38% of the world’s consumption. China has consumed 4840 MSM in CY18. 67% of the world’s consumption is from top 10 countries.
<table>
<thead>
<tr>
<th>In MSM</th>
<th>CY14</th>
<th>CY15</th>
<th>CY16</th>
<th>CY17</th>
<th>CY18</th>
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<tbody>
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<td>Iran</td>
<td>280</td>
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<td><strong>Total</strong></td>
<td><strong>8,333</strong></td>
<td><strong>8,307</strong></td>
<td><strong>8,881</strong></td>
<td><strong>9,084</strong></td>
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<td>4,108</td>
<td>4,211</td>
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<td><strong>Total World Consumption</strong></td>
<td><strong>12,132</strong></td>
<td><strong>12,281</strong></td>
<td><strong>12,989</strong></td>
<td><strong>13,295</strong></td>
<td><strong>12,818</strong></td>
</tr>
</tbody>
</table>

Note: The numbers given above are in msm
India’s consumption was 66% in CY18 and 92% in CY14. It implies that exports have picked up drastically over the years for India. The largest exporter in CY18 was China, exporting 854 msm or 31% of the world’s exports. Spain and Italy occupy the 2nd and 3rd spot, with exports of 414 and 328 msm. India is the world’s 4th largest exporter, it exported 275 msm or 10% of world’s exports in CY18.

The largest importer in CY18 was USA, importing 209 msm or 7.6% of world imports. 72% of USA consumption is met by imports. Iraq and Saudi Arabia hold the 2nd and 3rd spot, with imports of 124 and 113 msm. 98% of Iraq’s consumption is met by imports and 64% in case of Saudi Arabia. Top 10 countries contribute to 38% of world’s imports.

**Indian Tiles Industry**

Note: The numbers given above are in msm

Production has grown by 9% and stood at 1145 msm in FY’19. Consumption growth has been 1%, poor consumption has led to oversupply in the market. Export growth has 38% growth over the five-year period. Exports as a % of production is 24% in FY’19 as compared to 7% in FY’14.

The largest importer of Indian tiles is the GCC region, 40% of Indian exports are to this region. However, realizations are quite lower than the world average. The world average realization is 5.5 Eur/sqm as compared to 3.1 Eur/sqm. It gives an indication that Indian players have played the volume gain to gain the market share in exports.

**Tile Sub segments**
Ceramic tiles have a major share of the volumes – 57% in FY19 in comparison to 59% in FY14. Volumes in this segment have degrown by 1%. GVT’s share in total volumes is 11%, as compared to 5% in FY14, GVT volumes have grown by 16%. PVT volumes have seen degrowth of 2%, it constitutes 33% of volumes as compared to 36% in FY14.

Ceramic tiles constitute 44% of the total tile industry in terms of value, the realizations per sqm for ceramic tiles was Rs 283 as compared to Rs 241 in FY14. GVT segment has grown by 12% and forms 15% of the industry in value terms. The value growth has been less than the volume growth. This implies that this segment has seen some pricing pressure. GVT realizations are the highest at Rs 506/sqm as compared to Rs 605/sqm in FY14. Latest PVT realizations stood at Rs 445/sqm as compared to Rs 354/sqm in FY14.

The size of the industry is around Rs 39,000 Cr, 45% of the industry is organized, with the rest 55% held by the unorganized players. 75% of the industry is domestic, the balance 25% are exports. The Indian tile industry is fragmented, with lot of small regional players operating in the unorganized space. Kajaria is the market leader, with 11% share of the overall market and 25% of the organized market. Somany and Prism Johnson have 6% each of the overall market and 15% each of the organized pie. 70-75% of the tile demand comes from the residential segment, 10-15% from the commercial space and 10-15% is the replacement demand. Tiles unlike paints do not require frequent replacement.

Speciality of the Morbi region for tiles

Morbi in Gujarat is the hub for tile production. 70% of India’s tile production happens there. The other tile clusters in the country are in Rajasthan, West Bengal, Andhra Pradesh and Tamil Nadu.

Some of the reasons are

- Easy access to raw materials
- Uninterrupted supply of power and gas
Problems

1. Availability of raw materials specifically fuel to the people in the Industry. At present the Industry depends on coal for its major fuel requirement. As the organised players have started acquiring the industries, there is a pressure to convert to alternate or low carbon emitting fuel which is increasing their fuel cost and investment costs. It also increases the production cost.

Proposed Interventions

a) Alternate sources of fuels for the domestic ceramic are available like LPG, Propane gas, Light Diesel oil, Coal gas and LNG. Presently ceramic and refractory industry spends 35% of the total production costs as fuel and energy costs. The gas findings by Reliance and ONGC has given the industry some hope. Government can start a fuel revamping scheme for this sector and this region specifically. Alternate fuels can be subsidized to the Industry and credit must be given to the players to convert to clean fuels. Credit can be passed on to the players with the cash flow forecast and relaxations in credit facilities can be offered to the region.
b) The zone can be made SEZ or pro-Export zone, to give additional incentives to the region to meet both domestic and export demands

c) Also, this region contributes to significant amount of GHG emissions, so usage of green fuel needs to be encouraged or less emitting fuels can be tried by the industry to compensate for the limited availability of coal

d) Availability of China Clay and Ball Clay also cause a huge concern for the Industry. Specifically, fluctuations in the availability of raw materials from Rajasthan has also creates a setback. About 80% of the raw materials for tiles come from Rajasthan to Gujarat. If there is a ban or fluctuations from Rajasthan, it creates a challenge for the industry

e) To add to that, the diesel price increase has also led to an increase in the raw material prices. Also, the availability of raw materials on time becomes a challenge, as it leads to a decision for Industry players to either have the inventory or fall short of raw materials

f) There is also an increase in coal prices due to the global pandemic situation, which is leading to shortage of raw material availability and fuel availability

2. *Need for diversification from traditional ceramics. There is a huge potential for advanced ceramics across the globe. Though there are good number of advancements in the region. It can still leverage technology to greater benefit*

**Proposed Interventions**

a) Indian ceramic industry has started to focus on advanced ceramics a lot in the recent days. The portfolio is very limited in the Indian market. India is lacking in the technology for large scale commercial operations of advanced ceramics. The Morbi region can also focus on product developments and can try to diversify their product offerings to get into advanced ceramics

3. *Availability of cheap products from the foreign market especially from China, German tiles. Indian tile makers are facing an issue of low margin and falling profitability. Cheap imports have started entering the Indian market, which makes it difficult for the Ceramic industry to match the quality and costs*

**Proposed Interventions**

a) Government has introduced anti-dumping duty to the tiles to make it competitive for the domestic market to survive

b) To add to that, subsidies to the segment can be given on raw materials and alternate fuels to make the industry competitive.

c) Government should provide necessary training and workshop session to the players to focus on value added products. It will help them fight against low margins and profitability. Extending credit facilities to the industry players help them to manage the extended credit terms and lower margins. Also, tax on the products can be subsidized for the industry to get better margins.

d) Research and improvements have to happen on recycling the raw materials involved. Thus, reducing the production cost
4. *Availability of transportation and increased cost due to transportation.*

**Proposed Interventions**

a) Transportation has been a constraint to the industry. Availability of trucks especially due to the pandemic situation. Government should intervene and provide some support to the industry during this crisis time.
b) Transportation services can be provided by the government on lower subsidies and cheaper costs to support the industry players.

5. *There is a need for promotion and branding of the Morbi tiles. Morbi region already has a good visibility as it’s famous for the Indian ceramic market.*

a) Government needs to promote the Morbi region by conducting trade fairs and creating trademarks for the products produced in the region. Already there are quite a few trade fairs happening in the region. It can be increased to create more awareness and visibility to the industry.
b) Government ads and promotions can be done for the region to make it globally attractive.
c) Government trademark or certificates can be provided by the government to make the industry players more lucrative.
d) Also, as there is a huge impetus on sustainability and with countries setting their Net Zero targets in COP26. There needs to be add on trainings on sustainable manufacturing process and utilization of clean fuel to make the product globally competitive.
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<tbody>
<tr>
<td>1</td>
<td>Infrastructure, Regulatory</td>
<td>State government should provide tax benefits, land at cheaper rates to incentivize producers and sellers to set-up units; Credit facilities for technology upgradation and to leverage the use of clean fuels</td>
<td>Commercial Tax Department Gujarat Government of Gujarat. Ministry of Infrastructure. MoEFCC</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Facilitate skill development of the labor to enable easy transition to the newer, more efficient techniques, which can prevent future obsolescence and unemployment. Training on sustainable manufacturing techniques and training on ecolabels to make the product more attractive in the export market</td>
<td>Ministry of MSME, Ministry of Skill Development and Entrepreneurship. MoEFCC</td>
</tr>
<tr>
<td>3</td>
<td>Branding and Marketing</td>
<td>Promotion and trade fairs Giving trademark/Geographical Indicator/Verified product/Ecolabels Formation of Cooperatives</td>
<td>Ministry of MSMEs, Invest India team</td>
</tr>
<tr>
<td>4</td>
<td>Value addition</td>
<td>Develop a system to enrol various sellers and international buyers on a system like an online marketplace to facilitate easier matching</td>
<td>Ministry of Information and Broadcasting</td>
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<td>5</td>
<td>Packaging</td>
<td>Enable tie-ups with packagers to understand and develop a sturdy packaging material at reasonable prices</td>
<td>Ministry of Commerce and Industry, Indian Institute of Packaging (IIP)</td>
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<td>6</td>
<td>Health Hazard</td>
<td>Providing PPEs &amp; Installation of sprinklers to reduce pollution Awareness to be created on the health hazards and the precautions needed to be taken</td>
<td>Invest India team; MoEFCC</td>
</tr>
<tr>
<td>7</td>
<td>Transportation</td>
<td>Facilitate tie-ups with trucking companies and set-up seller groups to enable easier transportation for the seller groups</td>
<td>Ministry of Road Transport and High ways of India</td>
</tr>
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</table>
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4. https://www.capitalmind.in/2020/06/the-indian-tile-and-bathware-industry-which-companies-are-better-placed-part-1/
6. https://viterotiles.com/blog/indian-tile-industry-2021
Sugar Mills, Jind, Haryana

Sugar Industry is the second largest agro-based industry and has a significant contribution towards the socio-economic development of the country. The sugar industry serves as a major sector to create employment, providing direct employment to over 5 lakhs, not only for skilled labourers but also to semi-skilled labourers in sugar mills and allied industries across the nation. It is also involved in the production of sugar complexes, bio-electricity, bio-ethanol, bio-manure and chemicals.

Problems

1. The sugar sector in Haryana faces cyclicity in the production of sugarcane, the most important raw material. There are at max. three years of good production in a row, followed by consecutive years of bad or below average production.

   Proposed Interventions

   a. To deal with the cyclical nature of the production of sugarcane, increase of variety of high yielding canes can help make the transition from cyclical to structural nature of production. These newer varieties will improve the sugar production in the region and also improve the per hectare yield for farmers and give them better recovery from every stick of sugarcane harvested. One such variety is Co-0238, which has already been put to use in states like UP, giving the farmers in that region a high return on investment.

   b. Improve irrigation facilities for better production of sugarcane to reduce its dependency on rainfall. A significant proportion of the cyclicity can be attributed to the dependency on rainfall, which must be changed to improve the situation.

   c. The cyclicity also arises because of the fact that 85 percent of sugar mill revenues only come from the production of sugar. This means they heavily rely upon just one source of revenue which tends to fluctuate. Reducing the mills’ reliance on virtually a single source of revenue by giving flexibility to produce more or less sugar along with proportionate production of by-products (alcohol – for potable, industrial or fuel blending) would impart greater stability in the incoming revenues.

2. There is a significant disconnection between the sugarcane prices and the sugar prices

   Proposed Intervention.

   a. The price of sugarcane in these regions is administered whereas the price of sugar is market driven. This poses as a potential problem to sugar mills that are bound to pay a fixed amount to the sugarcane producers irrespective of the market price. Appropriate policies should be put in place by the concerned authorities (State level as well as Central Level) so that the price fluctuations do not eat into the margins of the sugar mills.

   b. Sugar sector in this region is largely surviving on subsidies, which has also contributed towards the disconnect between the prices of sugarcane and sugar. This should be minimized by increasing the yield of sugarcane which has not shown significant improvement in the past few decades and in addition, to stabilize the production as well. Encouraging appropriate farm practices, improved quality of seeds will ensure that there is a high yield of sugarcane.
3. Small and uneconomic size of sugar mills that make use of machinery that has become old and almost obsolete.

**Proposed Interventions**

a. Financial support from the concerned authorities (State and Central Govt. particularly) so as to provide financial resources so that the existing old traditional machinery can be replaced and advanced machinery that will boost production and improve the condition of the sugar mills in the region.

b. Dedicated research on how the sugarcane crushing capacity can be increased using modern technology. This will provide insights on efficient utilization of raw materials, without any unnecessary wastage.

c. Government can provide subsidies on installation of new technology and equipment or both sugar mills as well as sugarcane farmers. New attractive schemes to be launched

4. The sugarcane farmers in the region face two kinds of problems viz. on the fields as well as off the fields. The former includes problems occurred during cultivation while the latter includes problems occurred during marketing of sugarcane.

**Proposed Interventions**

a. In view of huge labour cost associated with sugarcane production and subsequent processing in the mills, appropriate capital-intensive methods which include better machinery for planting de-weeding and harvesting should be supplied to the farmers in such a manner that it can be afforded by majority of farmers.

b. Educating the sugarcane farmers to make them aware of the advanced techniques of cultivation will help improve their existing situation. In addition, government policy of MSP should be strengthened in incentivise these farmers. Strengthening the relations between sugarcane farmers and sugar mills can improve the supplier power.

c. Online channels can be leveraged to market the produce of these farmers to sugar mills. Similarly, online channels can also be used to market the produce of sugar mills. This will increase the visibility of the products, thereby, boosting production fuelled by increased demand. In addition, de-localization of distribution (to the extent that sugarcane does not lose its value) can foster competition within farmers, thereby boosting production.

d. Tie-ups with local start-ups to improve distribution of raw materials as well as finished sugar from the sugar mills

e. Creating a community for sugarcane farmers so that they can receive benefits by pooling services.

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<tr>
<td>1</td>
<td>Increase of variety of high yielding canes to make the transition from cyclical to structural nature of production.</td>
<td>Ministry of Food Processing &amp; Industry, Ministry of Agriculture and Farmers’ Welfare</td>
</tr>
<tr>
<td>2</td>
<td>Improve irrigation facilities for better production of sugarcane to reduce its</td>
<td>Ministry of Agriculture and Farmers’ Welfare</td>
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<td></td>
<td>Dependency on rainfall</td>
<td>Ministry of Agriculture and Farmers’ Welfare</td>
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<td>3</td>
<td>Policies to be put in place to ensure that sugarcane prices and sugar prices are in line with each other.</td>
<td>Ministry of Commerce &amp; Industry</td>
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<tr>
<td>4</td>
<td>Financial support from the concerned authorities (State and Central Govt. particularly) so as to provide financial resources so that the existing old traditional machinery can be replaced by advanced machinery</td>
<td>Indian Council of Agricultural Research (ICAR)</td>
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<td>5</td>
<td>Dedicated research on how the sugarcane crushing capacity can be increased using modern technology</td>
<td>Ministry of Agriculture and Farmers’ Welfare</td>
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<td>6</td>
<td>Provide subsidies on installation of new technology and equipment or both sugar mills as well as sugarcane farmers.</td>
<td>Ministry of Agriculture and Farmers’ Welfare</td>
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<tr>
<td>7</td>
<td>Educating the sugarcane farmers to make them aware of the advanced techniques of cultivation will help improve their existing situation</td>
<td>NPTEL, Indian Council of Agricultural Research (ICAR)</td>
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<tr>
<td>8</td>
<td>Online channels can be leveraged to market the product of these farmers to sugar mills. Similarly, online channels can also be used to market the product of sugar mills</td>
<td>Ministry of Agriculture, Individual Sugar Mill companies</td>
</tr>
<tr>
<td>9</td>
<td>Tie-ups with local start-ups to improve distribution of raw materials as well as finished sugar from the sugar mills</td>
<td>Invest India, Ministry of Food Processing &amp; Industry</td>
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<tr>
<td>10</td>
<td>Creating a community for sugarcane farmers so that they can receive benefits by pooling services</td>
<td>Ministry of Agriculture and Farmers’ Welfare, Invest India</td>
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Rewari Motorcycles/ Parts (Haryana)

Rewari has a variety of industries, from cottage industries to small-scale integrated units and automobiles and auto ancillary industries. The traditional industries are brass metalwork and ornamental shoes. Various automobile and auto ancillary industries in Dharuhera and Bawal industrial areas such as Hero Moto Corp., United Brewery, Uno Minda etc. World’s largest production of motor cycles is in Hero Moto Corp. Dharuhera plant.

Industrial growth has been aided by the creation of industrial estates like Dharuhera in Rewari and Industrial Model Township in Bawal. Consequently, the number of medium and large scale units in the district has increased significantly. There are number of medium scale units which manufacture products like motorcycles and their parts, brass/copper sheets, coils/cables, synthetic yarn, plastic products, printing paper, medicines, readymade garments, machinery, electrical products etc.

It is part of Delhi Mumbai Industrial Corridor Project (DMIC) on Western Dedicated Freight Corridor (WDFC) and also located in the influence zone of the Amritsar Delhi Kolkata Industrial Corridor (ADKIC). It also synergises with other IMT of Haryana along Delhi Western Peripheral Expressway. During last three years, HSIIDC has allotted 78 Industrial plots in Bawal for medium- and large-scale projects with capital investment of around US$ 1.18 billion (2016). Many multinational corporations including Haco Group, Musashi Auto Parts India, POSCO, Kansai Nerolac, Asahi India, YKK India Pvt. Ltd., Keihin, Caparo Maruti, along with many Indian companies such as Minda Group, Rubyco International, Tenneco Automotive India, Continental Equipment and Multicolor Steels, Caparo power plant, etc. have set up plants.

The two wheelers segment dominates the market in terms of volume owing to a growing middle class and a young population. Moreover, the growing interest of the companies in exploring the rural markets further aided the growth of the sector. Premium motorbike sales in India recorded seven-fold jump in domestic sales, reaching 13,982 units during April-September 2019. Production of two wheelers reached 21.03 million in FY20.

Problems

1) Direct solar energy is not available from open source market, Haryana Electricity Regulatory Commission provides it to the end user through DISCOM. Constant electricity is not provided at times.

1. Proposed Intervention :
2.
a) Solar electricity should be directly procured from open source market.

3. b) Subsidy should be reinstated for installing solar power plants in industries.
4. c) Electricity cuts should not be frequently imposed, especially in the industrial area.

2) Transport unions dominate the transportation system in the area and ask for freight 1.5x or 2.0x as per their will

Proposed Intervention:

a) Better transport system should be established
b) Rate capping as per kilometre/ metric tonnes should be decided.

3) Skilled labour is expensive. 75% of the labour in private firm needs to be Haryana domicile.

Proposed Intervention:

a) Better training to workers should be provided. They should be trained to operate CNC, VMC machines, machine coding so as they prove to be more valuable to the company they are employed in or this may help them find better job.
b) Talent should be hired on the basis of skills and not on the basis of native place.
c) More awareness of Haryana government established employment platforms like Hrex.gov.in and Hreyahs.gov.in should be done.

4) Electronic Vehicles (E.V’s) is the future. Industries are less concerned to update them according to the need.
Proposed Intervention:

a) Most of the parts in EV’s would be light weight, as per the battery capacity.
b) Aluminium and Carbon (because of light weight) parts should be developed for upcoming vehicles; also, the battery life should be tested for the vehicles formed.

5) GST on motorcycles is 28%. This is a grave concern for certain sect. of people.

Proposed Intervention

a) GST can be revised as per CC segment:
   - 0-125 CC – 12%
   - 125-250 CC – 18%
   - 251 CC and above. – 28%

6) Businessmen are less aware of the schemes/subsidies available and how to avail them

Proposed Intervention

a) Workshop on how to check Potential schemes and how to avail them should be done annually.
b) Training on how to use Trademap.org should be done as per each customer. HSN and hence export related assistance can also be provided.

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<td>1.</td>
<td>Training and Development (Upskilling)</td>
<td>Skill development &amp; improvements on existing job portals</td>
<td>Haryana Chamber of Commerce and Industries (HCCI)</td>
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<td>2.</td>
<td>Technology</td>
<td>Establishment of central tool rooms and incubation</td>
<td>Ministry of MSME</td>
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<td>upgradation centres should be set up for work piece production.</td>
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<tr>
<td>3. Infrastructure Support</td>
<td>Better infrastructure and constant electricity</td>
<td>HSIIDC and Haryana Bijli Vitran Nigam</td>
<td></td>
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<tr>
<td>4. Research and Development</td>
<td>R&amp;D on substitute metals usage for product development (Especially for EV’s)</td>
<td>Haryana State Council for Science and Technology</td>
<td></td>
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<tr>
<td>5. Branding and Marketing</td>
<td>Trade fair proactive participation</td>
<td>Ministry of MSME, Haryana Enterprise Promotion Board (HEPC)</td>
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<tr>
<td>6. Credit Support</td>
<td>Reinstating subsidy on solar panels for industrial units</td>
<td>Ministry of New and Renewable Energy</td>
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Rohtak is a regional centre of NCR (National Capital Region). Development trends reveal that Rohtak is developing fast towards North-East and South-East. With the induced economic momentum in Rohtak city mass employment would be possible.

There are 420 Engineering Micro & Small Enterprises and Artisan Units in Rohtak with tentative investment of INR 5670 Lacs and generating employment for 4500-5000 people. Approximate value of export during the 2010-11 was Rs.13500 lacs.

To promote the MSME sector manufacturing and skill development, Tool Rooms are being set up at IMT Rohtak (over 19.8 acres). This technology centre is expected to train 10,000 trainees every year through various long-term and short-term training programmes.

Tool Rooms would support Indian industry by way of precision tooling and provide skilled manpower in the area where they are supposed to be established.

The tool rooms are open for training at the moment, bulk production/ job work has not been started yet and will take at least one year to start. However, there is a controversy where misleading information was presented in the state assembly.

Machine tools are utilized to perform a wide range of operations, such as cutting, forming, drilling, grinding and abrading. These tools enhance product uniformity and reduce the manual efforts required. At present, various machine tools are available in the Indian market, ranging from small workbench mounted instruments to large devices that are employed in the automotive, aerospace and electronics industries.

Rising industrial automation to increase the overall productivity and improve the ergonomics represents one of the significant factors stimulating the market growth in India. Apart from this, an increase in the number of small and medium-sized enterprises (SMEs), along with stringent evaluation criteria on product quality, is bolstering the market growth.

Furthermore, due to lower labour and raw materials costs and reduced tax rates, several foreign companies are setting up their manufacturing bases in India.

**Breakup by Tool Type:**

- Metal Cutting
- Metal Forming
- Accessories

**Breakup by Technology Type:**

- Conventional
- CNC

**Breakup by End Use Industry:**

- Automotive
- Aerospace and Defence
- Electrical and Electronics
- Consumer Goods
- Precision Engineering
- Others

**Problems**

1. *Raw material (Medium Carbon Steel) prices are volatile especially after Covid-19 and the import duty on high precision tools is high.*

**Proposed Intervention**

a) Raw material can be procured directly from steel plants for the cluster combined with fixed MOQ.
b) Recycled steel can be procured from Tata Steel Rohtak Steel Recycling Plant.
c) Better machinery should be established in proposed MSME Technology Centre at the earliest. Since it would help manufacture even complex parts and promote exports further.

2. *Machinery used in most of the ancillary units is conventional which consume more energy, dissipate more heat and it affects production cycle as well.*

**Proposed Intervention**

a) Better machinery awareness programs should be conducted.
b) Manufacturers should be made aware about credit facility schemes.
c) Awareness about solar panels and their long term benefits should be conveyed to the industries.

3. *Skilled labour is expensive, 75% quota of Haryana labour to be employed by private companies is a grave concern for the industries.*

**Proposed Intervention**

a) Hiring should be done on the basis of skills and not native place.
b) Employers and employees both are less aware about employment websites like Hrex.gov.in and Hreyahs.gov.in (Saksham Yuva Scheme). More awareness for these websites is required.
c) Better training of labour for using machines - CNC’S, VMC’S and softwares like CAD, Corel Draw etc.
d) Training/ Diploma Programs at tool room, Rohtak should be well promoted through E-commerce.

4. *Machine tools get damaged and may damage the work pieces after a certain degree Celsius. In drilling operation, cutting tool is exposed to the material for prolong period which could have chip formation in the space preventing the process from going smoothly.*

**Proposed Intervention**

a) Training for apt usage of liquid coolant is necessary to remove the chips. Coolants play a pivotal role in reducing the rate of heat generation in machining.
b) Apart from dry machining training, other types of trainings are required for machining conditions available include wet, minimum quantity of lubricant (MQL), flooded and cryogenic cooling.
c) Better research and development is required for usage of machine tool on workpieces should be tried whilst developing machine tools. They can be tested in different conditions like Dry Machining, Wet Machining, Flooded Machining Condition, Minimum Quantity Lubrication (MQL) and Cryogenic Machining.

5. *The manufacturers are not active on e-commerce platforms - Indiamart, Tradeindia and are not aware of how e-commerce can help them find potential buyers. Hence, export would significantly increase.*

**Proposed Intervention**

a) Awareness for importance of query turnaround time should be done.
b) Training workshops of how to list products on e-commerce platforms.
c) Training for usage of trademap.org and finding potential buyers as per HSN.

6. Businessmen are less aware of subsidies/ schemes available to expand their business. Also, most of them do not participate in trade fairs.

Proposed Intervention

a) Information Credit facility, tool room (MSME Technology Centre) facilities and other.
b) Workshops for awareness of MSME schemes and other, should be organised. For Instance - Govt. promotion scheme for trade fair participation – subsidy on participation and airfare.

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<td>Haryana Chamber of Commerce and Industries (HCCI)</td>
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<tr>
<td>2.</td>
<td>Market linkage</td>
<td>Procurement of Steel from major manufacturers for cluster/ Tata Rohtak Plant/</td>
<td>Haryana Chamber of Commerce and Industries (HCCI)</td>
</tr>
<tr>
<td>3.</td>
<td>Technology upgradation</td>
<td>MSME Technology Centre should be timely developed for job work of manufacturers.</td>
<td>Ministry of MSME</td>
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<tr>
<td>4.</td>
<td>Credit Support</td>
<td>Training for acknowledgment of latest schemes/ credit facilities to the industry.</td>
<td>Ministry of commerce and Industries</td>
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<tr>
<td>5.</td>
<td>Research and Development</td>
<td>R&amp;D for high precision tools under high temperature for various work pieces.</td>
<td>Haryana State Council for Science and Technology</td>
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<tr>
<td>6.</td>
<td>Branding and Promotion and trade fairs</td>
<td>Promotion and trade fairs</td>
<td>Ministry of MSME</td>
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<td>7.</td>
<td>Certification</td>
<td>Effective waste disposal and pollution control</td>
<td>Haryana State Pollution Control Board</td>
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https://www.researchgate.net/publication/317192138_A_STUDY_OF_DEVELOPMENT_TRENDS_IN_ROHTAK_CITY_INDIAN_WITH_REFERENCE_TO_NCR_NATIONAL_CAPITAL_REGION_POLICIES_FOR_HARYANA_SUB-REGION
Sonipat Steel and Bikes (Haryana)

Sonipat is an ancient town and a municipal council in the state of Haryana, India. It comes under the National Capital Region and is also known as education city in the India. It is 20kms north from Delhi.

Sonipat is one of the major bicycle-manufacturing centres in the country. Other products include sewing-machine parts, automobile parts, rolled steel, hosiery, and textiles. Carpets, hand-loomed textiles, and brass and copper ware are among the handicrafts.

There is a cluster in Sonipat relation to Steel:-

Stainless Steel Cluster- Kundli, Sonipat has approximately 72 function units. The turnover of the cluster is INR 800 crores out of which 200 crores is from exports. The steel cluster provides employment to an estimated 8000 employees.

Most of the manufacturing units in Sonipat related to steel make: Stainless steel products, Utensils, Auto Parts, Railway track components and bicycle parts.

There are six HSIIDC industrial estates one of which is Sonipat. The development of Sonipat Industrial area in the city started in the 1950s with Atlas Cycles.

Atlas cycles manufacturing unit had shut down in the year 2020. Most of the cycles manufacturing plants have shifted to Ludhiana due to supportive ancillary units present in and around Ludhiana.

Problems

1) Most of the Moulds/ high precision parts for bicycles are imported from China.

Proposed Intervention

a) Upgraded machinery should be set up in Sonipat, when cluster can use machines for bulk production.
b) Import duty can be reconsidered for HSN 8714.
2) **Steel prices are volatile especially post covid-19 lockdown.**

   **Proposed Intervention**

   a) Direct procurement of steel from major players can be done for the cluster with fixed Moq’s and contract can be formed for the same.
   b) Steel can be procured from Tata Steel Recycling Plant, Rohtak. This would also reduce transportation cost significantly.

3) **The industrial area lacks basic facilities. There are frequent power cuts, the sewerage pipelines are not well connected and the roads also need immediate attention.**

   **Proposed Intervention**

   a) The concerned department (HSIIDC) should help in betterment of the area.
   b) Electricity should be provided without any interruption as some factories operate on 24 hour basis. So it is a loss of labour cost as well.
   c) Manufacturing plants should be made aware of using green energy and briefed about the benefits of solar energy.

4) **Government pollution norms are not full followed. This is a serious concern as industrial waste is not properly disposed.**

   **Proposed Intervention**

   a) Thorough inspection from Haryana State Pollution Control Board is required.
   b) Awareness of proper waste disposal and pollution level/ display meter can be installed on traffic signals.

5) **Immense scarcity of Skilled Labour. Labour is expensive as compared with other states.**
Proposed Intervention

a) Job fairs should be held regularly. And online job platforms like Hrex.gov.in & Hreyahs.gov.in (Saksham Yuva Scheme) should be made well aware among employers and employees.
b) Industry related educational programs/ diplomas should be introduced in institutions in Sonipat, and the skilled students shall be further provided jobs in industrial units as per the requirement.

6) Conventional Machinery is used in most of the ancillary units which affects precision several. Also, the Annual Maintenance Cost of these machines is high.

Proposed Intervention

a) Manufacturers should be made aware about credit facility schemes so that they upgrade to new machineries.
b) Workshops can be conducted to make industries realise the benefits of latest machinery. The latest machinery would consume less electricity and provide better precision to the parts manufactured.

7) Most of the businesses are not listed on e-commerce platforms. Also, there is lack of awareness of export potential and benefits of participating in trade fair.

Proposed Intervention

a) The companies should be made aware of benefits of listing on Indiamart, Tradeindia etc and how their brand would increase its visibility through the same.
b) Export promotion council can provide workshop/ training about IEC, importance of HSN and how to proceed for exports if any manufacturer receives order.
c) B2B meet can be organised in Sonipat, as Stainless Steel Cluster manufacturers quality products.
d) The businessmen can be made aware about subsidies on trade fair participation and other related benefits.
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<th>No.</th>
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<th>Description</th>
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<td>1.</td>
<td>Training and Development</td>
<td>Skill development training programs</td>
<td>Ministry Of Skill Development and Entrepreneurship</td>
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<td></td>
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<td></td>
<td>Haryana Chamber of Commerce and Industries (HCCI)</td>
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<td>2.</td>
<td>Technology upgradation</td>
<td>Establishment of better equipment at Stainless Steel Cluster- Kundli</td>
<td>Haryana Chamber of Commerce and Industries (HCCI)</td>
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<tr>
<td>3.</td>
<td>Credit Support</td>
<td>Credit support for businesses.</td>
<td>Ministry of MSME</td>
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<td>4.</td>
<td>Branding and Marketing</td>
<td>Promotion and trade fairs</td>
<td>Ministry of MSME, Haryana Enterprise Promotion Board (HEPC)</td>
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<td>5.</td>
<td>Certification</td>
<td>Effective waste disposal and pollution control</td>
<td>Haryana State Pollution Control Board</td>
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<td>6.</td>
<td>Infrastructure Support</td>
<td>Land to be provided with shed</td>
<td>HSIIDC</td>
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<td>7.</td>
<td>Market Linkages</td>
<td>Direct procurement of steel from plants</td>
<td>Ministry of Commerce and Industries</td>
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<td>8.</td>
<td>Infrastructure Support</td>
<td>Better roads and sewerage system</td>
<td>Haryana Chamber of Commerce and Industries (with Municipal corporation Sonipat).</td>
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<td>9.</td>
<td>Training and Development (Upskilling)</td>
<td>Export Assistance</td>
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[https://www.britannica.com/place/Sonipat](https://www.britannica.com/place/Sonipat)


[https://investharyana.in/content/pdfs/Draft%20EPP%202020.pdf](https://investharyana.in/content/pdfs/Draft%20EPP%202020.pdf)

[https://sonipat.gov.in/about-district/](https://sonipat.gov.in/about-district/)
India is now indisputably the world’s largest dairy industry in terms of milk production. India has produced about 146 mn tonnes of milk in 2020, which is 50% greater than US. The dairy sector has shown remarkable growth in the last decade and India has become the largest producers of milk and other value-added milk products in the world.

India’s Export ➔ 54762.31 MT worth Rs 1491.66 Crores during 2020-21

Major export destinations ➔ UAE; Bangladesh; Bhutan and Singapore

Problems

1. Not all the farmers are using scientific management methods. Still a great deal of farmers is using the traditional methods and it is time consuming

Proposed Interventions

a) Government can provide facilities that can be used by farmers/cattle breeders at the time of need on a rental basis (to increase the productivity)
b) Stable operation can be taught, and advancements can be made in this field to ensure the farmers involved equip themselves with the needed skills.
c) Training has to be given to the farmers on various symptoms to take care of in a cattle as a precautionary approach
d) Common best practices of handling a animal husbandry can be provided to the farmers in their own language (so that farmers can be equipped with the latest advancements and new equipment)
2. Availability of veterinary doctor and facilities is a huge concern area for the farmers. Due to lack of facilities, treatment is not given to animal at the right time.

**Proposed Interventions**

a. Veterinary facilities should be set the respective towns based on the animal population and the revenue generated through the same. It will enable the farmers to get the right facilities at the time of their need.

b. As there is reluctance among the public to pursue a career in veterinary sciences, government can educate the farmers with the precautionary measures and provisions has to be given to people to learn veterinary sciences with some relaxation in their background education and classes to be provided in their own language.

3. Feed is not affordable for small dairy farmers. It is a huge cost factor for the farmers

**Proposed Interventions**

a) Cattle fodder can be given at a subsidy to small scale farmers at a reasonable rate. They can use the Kissan card/Aadhar Card/Any other card to link the subsidy scheme and can be provided to the needed farmers (A method like LPG Scheme can be done to maintain uniformity)

b) Government should increase the production of cattle fodder and man-made cattle feed can be made to feed the cattle at an affordable rate. Research must be done in this area

4. Dairy farmers are not getting the revenue to make a good profit and their products are not fairly priced if they are selling it individually. Middlemen and dealers take a cut reducing the margin for farmers

**Proposed Interventions**

a) Small farmers can be encouraged to pool-in their resource and start a cooperative, just like Amul- was started to help dairy farmers get a fair share for their produce.

b) Government can give loans at low interest rates to the dairy farmers (it can be made easy if there’s a cooperative and when the risk is pooled) so that they mechanize cattle stable, which helps in reducing labour cost which is already very high.
5. One more concern is the adulteration of the milk, as the small farmers hardly test the quality of milk and the products they make. Once a member of Animal Welfare Board of India said around 68.7% of milk and milk products sold in India is not as per standards prescribed by FSSAI.

**Proposed Interventions**

a) Awareness about FSSAI has to be done to the small farmers and regulation has to come for the use of FSSAI certified milk and strict action has to be taken for defaulters (It has to be done in a phase wise manner. It increases the credibility of the dairy products in India)

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<th>Sr. No</th>
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<th>Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Government can open up more veterinary hospitals and cattle medical stores in the district and provide subsidy on medicine. Government can make public stables, which, farmers can use after paying a nominal upkeep fee.</td>
<td>Government of India, Department of Animal Husbandry and Dairying</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development</td>
<td>The government should completely subsidize education of veterinary sciences students.</td>
<td>Government of India</td>
</tr>
<tr>
<td>3</td>
<td>Raw material</td>
<td>Government can give subsidy to small dairy farmers for purchasing cattle fodder</td>
<td>Ministry of Animal Husbandry and Fisheries</td>
</tr>
<tr>
<td>4</td>
<td>R&amp;D</td>
<td>Central government can give funds to various research institutes for research and development of manmade cattle feed</td>
<td>Government of India, various livestock research institutes</td>
</tr>
<tr>
<td>5</td>
<td>Cooperative Society</td>
<td>Government can start regulated markets for dairy products and try to ensure that dairy farmers are able to secure a good margin for their produce. Small farmers can be encouraged to pool-in their resource and start a cooperative.</td>
<td>Ministry of Animal Husbandry and Fisheries, Ministry of Cooperative</td>
</tr>
</tbody>
</table>


Credit facility

Government can give loans at low interest rates to the dairy farmers so that they mechanize cattle stable.

National Bank for Agricultural and Rural Development, Department of Animal Husbandry and Dairying

Reference


https://apeda.gov.in/apedawebsite/SubHead_Products/Dairy_Products.htm
ORGANIC VEGETABLES, REASI, J&K

J&K has enormous potential for organic farming as the large area in the state is already under semi-organic cultivation in hilly districts due to the lack of availability of chemical Agro-inputs in these areas, and the farmers of these areas avoid applying the chemical Agro-inputs.

Reasi is a town and a notified area committee and tehsil in the Indian union territory of Jammu and Kashmir. Situated at the bank of River Chenab, it is the headquarters of the Reasi district.

Farmers in the area have been using semi-organic farming and were reluctant to move into organic farming because of the uncertainty of the yield of organic farming and the price the organic products would fetch them.

Ginger and Turmeric of Talwara, Reasi are major exportable organic products in the state and can fetch more returns in the market.

PROBLEMS

1. Farmers are not inclined to use organic farming because of the uncertainty of how much would they earn from the organic yield

   Proposed Interventions
   a) Farmers to be informed regarding the complete process of organic farming and how much yield they can obtain by switching to new methods, how much is the demand for organic products in the market, and what would be the additional income the farmers can earn
   b) Farmers should also be informed regarding the enhanced life that the soil can have just by switching to new organic methods

2. Training is not being imparted at a large scale

   Proposed Interventions
   a) Krishi Vigyaan Kendra (KVK) Scientists are training the farmers, but the information is overwhelming for them. They not only have to switch from pesticides and fertilizers, but they also have to learn about crop rotation, seeds for different weather, vermicompost, biofertilizers, bio fungicides, biopesticides, cow urine, etc. to keep the soil healthy
   b) There are only eight farmers’ clubs and Self Help Group (SHG) of women who are working for the organic vegetable production, which should be increased so that all the farmers can be made aware of the benefits of organic farming and can avail help from these groups

3. Small farmers find it difficult and expensive to shift to organic seeds and methods of farming
   a) Sufficient aid to be provided by the Government through different agencies to distribute these seeds and organic fertilizers, etc. to small farmers either at subsidized prices or free of cost so that the farmers find no problem in switching to organic farming

4. Non-Organic farming is impacting organic farming in the region
   a) During heavy rains, water from non-organic farms enters the adjacent organic fields, thus affecting the purity of crops. This leads to poor yield and impure products not qualified enough to be sold in the market as organic products
b) This also leads to farmers not getting a certificate for their products as 100% organic, and thus the prices for these products reduce in the market.

c) All the farmers in the region should be pushed for having 100% organic farming to canals to be created separating organic and inorganic farms so that organic farmers have no problem during the monsoon.

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<th>S. No</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Training and Development (Awareness)</td>
<td>Farmers need to be made aware of the benefits of the organic process and all other related information to be imparted in a systematic manner</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Awareness)</td>
<td>The benefits of organic farming on soil are not known to farmers</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>3</td>
<td>Training and Development (Awareness)</td>
<td>The farmers are not following the shift from chemical fertilizers and pesticides to organic ones since the information can be overwhelming. The training for such methods should be imparted at regular intervals so that the farmers have no problem in accepting the methods</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>4</td>
<td>Training and Development (Awareness)</td>
<td>Need to increase the self-help groups that can help small farmers make a gradual shift to organic farming</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>5</td>
<td>Infrastructure</td>
<td>Aid is to be provided by the government to small farmers to access organic seeds, fertilizers, and pest control methods.</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>6</td>
<td>Infrastructure</td>
<td>Water entry from in-organic farms to organic farms ruins the organic crops leading to reduced profits for organic farmers. Canals to be constructed so that the water does not enter into organic farms</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>7</td>
<td>Training and Development (Awareness)</td>
<td>100% push to be made in the region for organic farming so that the water and soil quality does not deplete</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>8</td>
<td>Brand awareness</td>
<td>Issue GI tags for the products</td>
<td>Ministry of commerce</td>
</tr>
</tbody>
</table>
References

3) https://indiaeducationdiary.in/reasi-kvk-organizes-training-programme-on-commercial-organic-farming/
5) https://boldnewsonline.com/farmers-from-reasi-visit-krishi-bhawan-jammu-for-practical-exposure/
Lac, Khunti (Jharkhand)

Lac is a natural, renewable, bio-degradable, versatile and non-toxic resin produced by the colonies of a tiny insect known as Kerria lacca (Kerr). These insects thrive on the tender twigs of specific host trees viz., palas (Butea monosperma), ber (Zizyphus mauritiana), kusum (Schleichera oleosa), Ficus spp. etc. It serves as an important source of income to more than one million tribal families in India as well as a foreign exchange earner for the country. Cultivated by poor, marginal and tribals in the sub hilly tracts of Jharkhand, Chhattisgarh, Madhya Pradesh, West Bengal, Maharashtra, Assam and Orissa, lac is grown in and outside of forest areas contributing 20-30% of the grower’s annual income. As a renewable source of resin, dye and wax lac have a bright future. World demand for this natural resin of insect origin is increasing due to enhanced awareness of the use of safe, natural products for human contact and consumption.

In India, Jharkhand state registered the highest average annual production (6306 tonnes), comprising 38.82% of the total lac produced in the country. Khunti district is the largest producer of lac with 28.9% of total lac production of the state accompanied by Simdega (24.5%) and Gumla (17.9%).

Problems:

1. Instability of prices
   *India imports raw lac from Thailand to cater to the demand for processed lac from various countries. This import from Thailand is in excess of the supply shock that happens in India due to poor production. Such imports lead to an increase in the supply of raw lac in the domestic market, which eventually causes a dip in the prices.*

   **Proposed Interventions:**
   1. Fixation of cost price every two to three months every year or every harvest season by the government.
   2. To purchase the produce at MSP even when the prices are low.
   3. To acquire & acquaint forward trade rate for sale of the product like shellac, seed lac, aleuritic acid, button lac etc. and deducting the cost of production & processing. The price of lac for lac growers should be fixed.
   4. To establish rural production industries for lac, particularly seed lac manufacturing unit. If chauri (seedlac) will be made in the villages, lac growers will be ensured of 30 to 40% value addition of the prices at present they are getting at village markets (haats).

2. Lack of Knowledge
   *Lack of knowledge of technological advances is another major constraint. Most of the farmers still depend on the traditional practices of lac rearing, which were not very rewarding.*

   **Proposed Interventions:**
   1. Training the farmers in scientific rearing practices to reduce the mortality of lac insects.
   2. Making lac rearing a round-the-year activity by experimenting with different strains on different host plants, for example, Kusumi on ber.
   3. Identification of good host plants and improving pruning techniques for greater canopy.
   4. Spraying of insecticides and fungicides in a regulated schedule and follow-up on male insect emergence, predator attacks, proper growth, etc.
5. Establishment of F. semialata Plantation & Ber Plantation (Ziziphus mauritiana) for Lac cultivation on a plantation basis. These hosts can be established on a plantation basis for better management compared with traditional lac hosts i.e., kusum and palas.

3. Brood Deficiency

*Brood lac has a very short lifespan and cannot be stored. Therefore, whenever there is a dip in lac production due to adverse climatic conditions, production is constrained by a decrease in brood lac supply. No brood means no crop in the next cycle. To make matters worse, there is not much institutional support to provide lac rearers, who want to take up this activity at a larger level, with the working capital or the equipment.*

**Proposed Interventions:**

1. There must be a revival of the existing broodlac farms.
2. The delay in the harvesting of broodlac, crop inoculation, and wrong transportation of broodlac as well as untimely pest management results in loss of lac crop. To overcome this problem, scientific knowledge of lac cultivation, as well as training to the farmers, is the best way to gain knowledge.
3. Formation of a Brood Lac Bank needs to be done. The Brood Lac Bank would provide a platform to carry out live, long-term experiments which are significant in order to understand local ecology, harvesting forest produce, and nature at large. It would serve a dual purpose of conserving the lac insect by creating conditions of reproduction of lac and building a repository of brood lac accessible to lac rearers locally.

4. Poor market linkage

*The agents, or the middlemen, who buy the lac, hoodwink the farmer while weighing the produce. They also keep an unjustifiable margin between the buying price at the farmer level and the selling price at the processor level, making huge profits. These middlemen adulterate the raw lac by embedding it with mud, thereby lessening the resin content of the produce.*

**Proposed Interventions:**

1. Lac based enterprises should form a basic part of a livelihood approach.
2. Co-operatives consisting of lac farmers should be made so that they have an entrepreneurial approach right from cultivation to marketing and selling to the end consumer. The farmers can this way control the value chain of lac production and remove the middlemen and get the profit for themselves. The farmers should also invest in value addition of lac to get higher returns.
3. Farmers should get in contact with JASCOLAMPF (Jharkhand State Cooperative Lac Manufacturing Federation) to increase procurement of lac and then process them into a myriad of products like seed lac, button lac, sealing wax, shellac and aleuritic acid.
4. Setting up a ‘Lac Board’ to promote the cultivation of lac. This is to be done both at the state as well as national levels. This would be done for the expansion of lac and ensure the presence of available markets and fair price to the lac farmers.

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<td>Creating Institutional linkages</td>
<td>Establishment of cooperatives</td>
<td>Ministry of Agriculture</td>
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<td>2</td>
<td>Establishment</td>
<td>Setting up of a ‘Lac Board’ to promote the cultivation of lac</td>
<td>Government of Jharkhand,</td>
</tr>
<tr>
<td>#</td>
<td>Activity</td>
<td>Description</td>
<td>Responsible Agency</td>
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<tr>
<td>3</td>
<td>Regulating prices</td>
<td>Procurement at MSP</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>4</td>
<td>Knowledge transfer</td>
<td>Adaptation of new technologies in remote lac cultivation areas via awareness, training and demonstration</td>
<td>IINRG/ Centre for Development Practice (CDP)</td>
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<tr>
<td>5</td>
<td>Tackling Brood Deficiency</td>
<td>Formation of a Brood Lac Bank needs to be done.</td>
<td>Ministry of Agriculture/ Centre for Development Practice (CDP)</td>
</tr>
<tr>
<td>6</td>
<td>Creating Market Linkage</td>
<td>Lac based enterprises should form a basic part of a livelihood approach. Establishment of Lac Collectives</td>
<td>Government of Jharkhand/ JASCOLAMPF</td>
</tr>
</tbody>
</table>

**References:**

2. [https://iinrg.icar.gov.in/stakeholder/irfan.html](https://iinrg.icar.gov.in/stakeholder/irfan.html)
The handloom industry flourished in the Dakshina Kannada and Udupi regions during the 18th century, when a large number of migrants from Andhra Pradesh's Padmashali (Shettigar) community and Kerala came in Karnataka. The introduction of frame looms by the Basel Mission in 1844, as well as the succeeding co-operative and cottage industry movement, gave the sector a boost. Until the 1980s, the area had about 5,000 weaving families and eight co-operative weaving groups. The Udupi co-operative organisation represented them all, and the saris that were woven here were known as Udupi saris.

The speciality of this sari is that it is made of pure cotton with artistic silk design on the border and aesthetic patterns on the pallu. These saris are available in both 80x80 and 60x60 counts. The thread count determines the quality and thickness of the sari. The weight of the sari is less if the count is high. Strong thread is used in the making of the saris. White thread is boiled in caustic soda and soap to clear the germs and dirt. Further, the thread is rinsed in cold water and an equal amount of colour is added. The rolls of thread are again washed, dipped in starch and left to dry. The body of the sari is usually light coloured and the pallu is dark.

Problems

1. Retaining existing weavers and attracting younger generation in the profession is a major challenge. Most of the wavers are above the age of 60 and the younger generation is not interested due to the low wages.

Proposed Intervention

a. Ensuring that weavers get at least the minimum wage prescribed by the government.
b. Training in association with NABARD with sufficient stipend.
c. Reinstating the previous health insurance program which covered all kinds of illness instead of the current program which covers only major illness.
d. Reinstate the scholarship program for the weaver’s kids, the current program only provides scholarships for design students.

2. The yarns provided by the National Handloom Development Corporation Ltd. do not meet the quality expectations, forcing the weavers to either manage with low-quality yarns or procure expensive yarns from the market.

Proposed Interventions

a. NHDC should be asked to improve the quality of the yarns.
b. Price regulation of the yarns will help weavers to procure quality raw materials at reasonable price.

c. Trouble procuring natural dyes.
d. Frequent Power cuts in the area.
Proposed Interventions

a. Build natural dying units closer to the village to ensure timely availability as they cannot be stored for a longer time.
b. Install solar lighting units

5. The product faces marketing problems.
6. Kadike Trust has done a commendable work in popularizing the sarees but the presence is still limited.

Proposed Interventions

a. Increase the online presence of the sarees.
b. Focus on exports.
c. Authorising more such trust will help in tackling both, the demand side and the supply side constraints.
d. Help the weavers form a FPO like organisation or designate some cooperative societies for helping them.

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<td>Stability of Pricing of raw material (Yarns)</td>
<td>KHDC/State Govt./Min. Of Textiles</td>
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<td>2.</td>
<td>Natural Dying units</td>
<td>State Govt./Min. Of Textiles</td>
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<tr>
<td>3.</td>
<td>Training with stipend to attract younger generations.</td>
<td>State Govt./Min. Of skill development/ NABARD</td>
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<td>4.</td>
<td>Health Insurance Program</td>
<td>State Govt. Ministry of Health</td>
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<td>5.</td>
<td>Scholarship Program</td>
<td>State Govt. HRD Ministry</td>
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<tr>
<td>6.</td>
<td>Forming FPO like structure for weavers</td>
<td>State Govt./Min. Of Commerce/Min.of Textiles</td>
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<tr>
<td>7.</td>
<td>Increasing marketing &amp; exports</td>
<td>Min. Of Commerce</td>
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<td>8.</td>
<td>Onboarding weavers for online presence</td>
<td>Min. Of commerce</td>
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Sources


About Jalandhar

Jalandhar, which is also called Jullundur, is a city in the north-central Punjab state. It lies on a level plain about 20 miles (32 km) east of the Beas river. Jalandhar is an ancient city. In the 7th century CE, it was the capital of a Rajput kingdom. The third-largest city in the state is an important rail and road junction and a trade center for agricultural products. Its industries include manufacturing, tanning, weaving, and carpentry, in addition to a sizeable sporting-goods industry. Jalandhar’s surrounding area is on a level, fertile alluvial plain, most of which is under cultivation. Principal crops are wheat, corn (maize), cotton, sugarcane and gram.

Sports Industry in India

The sports industry in India is nearly a century old and driven by a skilled workforce. It is a labor-intensive industry, providing employment to about 5 lakh people. Indian sporting goods are famous around the world. The domestic industry export is nearly about 60% of its total output.

The words 'sports goods' have become synonymous with the passion that India has for sports. The sports goods industry in India is nearly a century old and has flourished due to the skills of its workforce. Being labor-intensive in nature, the industry provides employment to more than 500,000 people.

The nucleus of this industry in India is in and around the states of Punjab and Uttar Pradesh.

- Jalandhar in the state of Punjab and Meerut in the state of Uttar Pradesh account for nearly 81.8 per cent of total production.
  - Together, the two towns house more than 3,000 manufacturing units and 130 exporters.
- About 60 per cent of the sports goods manufactured in Jalandhar are different kinds of inflatable balls.
- The Indian sports goods industry also has a presence in the cities of Mumbai, Kolkata and Chennai, albeit at a lower scale.

To give an overview of the facts of the Industry based on the data provided by IBEF

- Total toys, games and sports requisites exports stood at US$ 417.43 million in FY19 and reached US$ 404.13 million in FY20.
- The total sports goods export accounted for US$ 121.15 million from April 2021 to July 2021 and for the month of July 2021 it was US$ 41.88 million.
- In FY21, the total sports goods export accounted for US$ 268.52 million and for the month of March 2021 it was US$ 24.03 million.
- Top destinations for export of sports goods in FY21 were US, China, UK, Australia, and Germany. Top ten destinations for export of sports goods in FY19 were US, UAE, UK, Australia, Germany, Netherlands, France, South Africa, Sweden, and Canada.
- Major exported items were inflatable balls and accessories, nets, general exercise equipment, boxing equipment, toys and games, protective equipment, cricket equipment, sportswear, carrom boards and hammock.
India has emerged as the leading international sourcing destination for inflatable balls and other sports goods for global brands such as Mitre, Lotto, Umbro and Wilson.

World revenue share of the Toys and Hobby market

The Sports equipment accounted for 27% of the world revenue of the toys and Hobby market.

The worldwide Sports Equipment revenue will increase at a CAGR of 4.5% from 2012 to 2025.

Due to COVID-19, the new 2020 forecast for the Sports Equipment segment is 4.9% lower than the original forecast.

In the Sports Equipment segment, Iceland (US$69.7) and Switzerland (US$69.0) had the highest annual revenue per capita in 2019.
Key trends driving the market

1) Rising importance of technology and data
2) Engaging fans through social media
3) Increasing online consumption of sports
4) Growing female viewership
5) In India, specifically, there is increase in viewership, sponsorship and participation in sports other than cricket
6) Growth in rural viewership and increase in sports start ups

Sports goods exports from India

- Challenges: Rising costs of raw materials are making Indian products more expensive than Chinese goods
- Advantages: India's focus on environment and rising manpower costs there can be advantageous for India
- Meerut's export share is 45%; Jalandhar's is 35% and declining
Itemwise export of sporting goods from India (in Cr)

<table>
<thead>
<tr>
<th>Item</th>
<th>Export (Cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflatable balls</td>
<td>93.02</td>
</tr>
<tr>
<td>Athletic goods</td>
<td>84.93</td>
</tr>
<tr>
<td>Protective equipment for</td>
<td></td>
</tr>
<tr>
<td>cricket</td>
<td>70.46</td>
</tr>
<tr>
<td>Cricket bats</td>
<td>67.36</td>
</tr>
</tbody>
</table>

Sports Goods Export Promotion Council

The Sports Goods Export Promotion Council (SGEPC) promotes the export of sports goods and toys from India. SGEPC represents the leading 200 manufacturers and exporters of sports goods and toys in India.

1) There is shortcoming in the quality raw materials. It has multiple forms like inadequacy in the availability of raw material, untimely availability of raw material, raw material needs to cover long distances leading to increase in transportation costs, which leads to high raw material costs. To add to that fluctuation in the raw material quality is also a major concern for the Industry players.

Proposed Intervention

a) The Industry players major focus or costs are tied up in raw materials and quality of basic infrastructure such as power, road, rail etc. To counter that Government can promote alternate sources of fuel like eg: Clean energy like Solar, CNG, Biogas etc. It helps to reduce the dependency on the non-renewable sources of fuel and contributes to reduction in carbon emissions. Also, it helps to eliminate the power related issues faced by the Industry. Feasibility study needs to be done for adapting such facilities on Jalandhar area.

b) Skill development needs to be done for the people in the Industry and train them to use the modern equipments and latest technologies, which helps to increase the efficiency and productivity of producing the sporting
goods. Though the Industry players are exposed to new stuffs, there is scope for improvement in this area. Live demo and workshop can be conducted by the government and respective sports board to further customize the product.

c) Also, interstate restriction of raw materials has to be relaxed, as it is also leading to reduction in getting the material on time.

d) Testing facilities to check the quality of the raw materials has to be set up and certifications can be provided to verify and validate the quality of raw material supplied to the Industry.

e) A cooperative/society can be laid to share the best practices and technology can be used to track the value chain i.e the suppliers and customers on a single platform to help the Industry players.

2. Constraints in the Industry due to the labour laws and regulation. As the Industry involves more contractual labours and lesser number of full time employees.

Proposed Intervention

a) Exceptions can be given to the labour laws on case by case basis. Government can give a provision for firms to explain the rationale behind the proportion of casual or full time employees depending on the need of the Industry. It will help the Industry to get good margins.

3. The Industry is following less of automation and more of traditional methods are being used. It is restricting the players to cater to international orders and they constraint themselves to domestic orders. It makes it difficult to scale up the units

Proposed Intervention

a) Training and workshops can be provided by the government or a platform can be set up to share the industry best practices and a consultant can be brought in from other countries to monitor and suggest recommendations to the Indian players.
b) Avenues for technological collaborations can be set up which will enable the Indian players to adopt to better platforms.
c) Credit facilities has to be extended to the industry for the people to adopt to latest technologies and increase their performance. Government can try to lease the modern equipments also in critical areas.
4. There is limited focus on product developments. Due to lack of funds, investing in product developments is a challenge for the people in the Industry. Sports Industry has become dynamic and customizable globally and stick to traditional products will constraint the Industry as a whole

**Proposed Intervention**

a) Respective sports board can spend some amount on research and development of new products. It will give the industry the needed fund to become more novel and innovative  
b) Sports Ministry can also look into the industry and give influx of cash for the industry to grow. As the Industry as a whole is labour intensive, it will create employment opportunities also.

5. One major drawback in the Industry is the lack of indigenous brands, marketing and promotional strategies.

**Proposed Intervention**

a) Though Indian sport goods industry is serving to the global market. It is not having that command due to the lack of brand awareness and globalisation of brands. Ministry should try to promote the sports industry via trade fairs and giving the place the trademark/geographical indicators to increase the visibility  
b) To add to that, government can provide certification/quality certificates/labels to make the product universally recognizable  
c) Government can also try to make the sector more organised and industry best practices can be shared. Sustainable way of manufacturing has to be educated to the industry players

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed solutions</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infrastructure support</td>
<td>Credit facilities to adopt to latest technology and investments in new product developments, Construction of roads for ease in access, Enabling digital market platforms for the suppliers and customers to interact</td>
<td>Sports Ministry, Respective Sports board, Ministry of Information &amp; Broadcasting, GoI</td>
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<tr>
<td>2</td>
<td>Training &amp; Development</td>
<td>Knowledge sharing of Industry best practices; Technology upgradation; Skill development of labours</td>
<td>Government of India, Ministry of Skill Development; Respective Sports board</td>
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<tr>
<td>3</td>
<td>Branding &amp; Marketing</td>
<td>Advertisements highlighting the Sports Industry in India, Sharing the best pratice, Participating in trade fairs, Provision of labels &amp; quality certificate from</td>
<td>Ministry of Information &amp; Broadcasting, GoI Invest India team</td>
</tr>
</tbody>
</table>
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Woollen Wear – Ludhiana, Punjab

Wool has been used by Indians since the Vedic era, but evidence suggests that wool fibres were knitted by the Babylonians as early as 4000 B.C., or over 6,000 years ago. (P.K. Jain n.d.) Wool is the only fibre created by nature specifically for the goal of keeping a human being dry and warm. Ludhiana's garment sector, often known as the Ludhiana hosiery industry, generates the majority of India's winter clothing. The bulk of India's woollen apparel businesses are headquartered here, thus it's recognised for its woollen sweaters. Ludhiana is also known for its shawl and stole business, which caters to the needs of major local and international companies. It is frequently referred to as the Manchester of India due to its supremacy in the textile sector. Ludhiana's hosiery and garment sector grew by 20% in 2013-14, and the overall size of the Ludhiana hosiery industry is around Rs. 14,000 crores in both the local and export markets. (Bartleby Research n.d.) Ludhiana is a large market with over 10,000 small and larger hosiery mills producing various sorts of garments.

Problems

(1) The colour dying stage in the textile production process creates wastewater (intensely coloured, High COD, dissolved solids and low SS), which is not safely disposed.

Proposed Interventions:

(a) Government can incentivize the manufacturers to implement Effluent Treatment Plants (ETPs) in their factories, which will treat the industrial wastewater for safe disposal and reuse. Incentives like tax benefits could be given to the producers if they spent on ETPs.

(b) Using bio-engineered and natural/organic dyes. Organic dyes can be extracted from plants, marine invertebrates, algae, bacteria and fungi. But since the natural dyes are expensive, producers are not able to afford them. Organic dyes can be made readily available and affordable and also promote their usage.

(2) The labour is not specialized and lack the expert skills needed for each stage in the production. For example, one single labour is handling multiple stages like buttoning, stitching, dying etc. On the other hand, there should be specialized labours for each step (in markets like China).

Proposed Intervention:
(a) Often what happens when concerned authorities provide training programs for young graduates is, they will end up doing other jobs or not able to find the right job in which they got trained. Instead, the Department of Skill Development can select labours already engaged in woollen wear manufacturing on a rotational basis and give them specialized training on a rotational basis.

(3) One of the manufacturers opined that the Indian technological advancements in the sector are lagging far behind the Chinese counterparts. High competition is faced from foreign products.

Proposed Intervention:

(a) Even if the producers wish to adapt to newer technologies, they cannot because of the cost. Small manufacturers in Ludhiana are expecting subsidies and support from the government for new projects with the latest machinery for the first one or two years. Tax subsidies can be given for new projects and can include these producers under the Credit Guarantee Schemes.

(4) Many players have shifted towards the production of non-woollen garments like t-shirts and trousers. (Sharma, Hindustan Times 2016) This is mainly because of the higher profit margin of these products and the fluctuations in the Indian winter season, thus affecting the domestic demand predictions.

Proposed Intervention:

(a) Currently, around 30% of the produced woollen wear is exported to foreign countries. (Sharma, Hindustan Times 2016) Uncertainties from the local market can be covered by promoting more exports. Wool and Woollens Export Promotion Council (WWEPC) can conduct awareness programs to make small producers aware of the export opportunities and international market demand.

(5) Many producers wish to be an exporter, but they face difficulties getting export licenses. When interacted with one of the stakeholders, he mentioned that only big players could export their products. Most of the producers sell their products to exporters; instead, they should be able to export directly.

Proposed Intervention:

(a) Export facilitating centres can be implemented in the district, a one-stop solution for everything related to exports. The complexities related to acquiring an export license can be simplified by making the process simpler. These centres must also facilitate trade by connecting buyers and producers.
(6) Ludhiana manufacturers are facing tough competition from products made in countries like China. According to manufacturers, Chinese hosiery goods have occupied approximately 20% of the Ludhiana market due to their superior appearance and material quality and the vast range of patterns and low costs (around 15% to 20% cheaper than locally manufactured products). (PCTE n.d.)

Proposed Interventions:

(a) The sector needs young talent with knowledge in the latest trends, new pattern and drafting techniques and also graphic designing and draping. If the authorities are able to connect young talent and the Ludhiana woollen cluster, that will result in world class product. For making this happen, design institutes like NIFT can offer internships and live projects which gives hands-on experience for the students. These institutes can also try to bring the industry expertise into classrooms (knowledge transfer).

(b) The Ministry of Education can also implement government run public institute of higher education in this sector. (Like Indian Institute of Handloom Technology, Indian Institute of Carpet Technology)

(7) Payments are getting stuck in the market, affecting the businesses of small producers. If the payment is delayed, it will impact other subsequent orders, and small players won’t be able to handle the situation. At times, producers approach the Court for settlement, but again it is a time-consuming process.

Proposed Intervention:

(a) Government can release payment guidelines that have to be followed by the clients when doing business with MSMEs. Strict actions like license cancellations can be taken in case of not following these rules. Fast track courts can be implemented for these types of trade conflicts. For instance, a new guideline can be released by the Ministry of Trade which explains that the sellers should pay the producers within a fixed period of time.

(8) Many manufacturers are still stuck with old machinery, and the products of these kinds are losing demand in the market because of the availability of modern products.

Proposed Intervention:

(a) Implementing rules for easy scraping of old machinery and providing the opportunity for the producers to upgrade to newer technologies. Authorities can allow the manufacturers to make the book value of their old and obsolete
machinery as zero which would then enable the manufacturer to save on the salvage value tax which can be utilized as an upfront subsidy to upgrade to the new machinery.

Agency List for Proposed Interventions

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Proposed Intervention</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Implementation of ETPs</td>
<td>Ministry of Environment, Forest and Climate Change</td>
</tr>
<tr>
<td>2</td>
<td>Skill Development programs</td>
<td>Ministry of Skill Development and Entrepreneurship</td>
</tr>
<tr>
<td>3</td>
<td>Subsidies and incentives for technological adaptions</td>
<td>(1) Ministry of MSMEs (2) Ministry of Textile (3) Ministry of Commerce and Industry</td>
</tr>
<tr>
<td>4</td>
<td>Export promotion</td>
<td>Wool and Woollens Export Promotion Council</td>
</tr>
<tr>
<td>5</td>
<td>Implementing export facilitation centres</td>
<td>Ministry of Commerce and Industry</td>
</tr>
<tr>
<td>6</td>
<td>Institutes and, Live projects and internships</td>
<td>Ministry of Education Ministry of Textile</td>
</tr>
<tr>
<td>7</td>
<td>Payment guidelines and rules</td>
<td>Ministry of Commerce and Industry</td>
</tr>
<tr>
<td>8</td>
<td>Easy scrapping old machinery</td>
<td>Ministry of Textiles</td>
</tr>
</tbody>
</table>

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Works Cited


Pear, Tarn Taran, Punjab

About Tarn Taran

Tarn Taran is one of the border districts which lies in the North West frontier of Punjab and is bounded by district Amritsar in the northeast, district Kapurthala in the east and district Ferozepur in the south. It comprises of 3 tehsils, and community development blocks, 4 assembly constituencies and one Lok Sabha constituency. The district has about 240 Km International boundary with Pakistan. It is bounded by river beas in the south eastern side.

Tarn Taran dates to the times of the fifth sikh Guru Shri Arjan Dev ji (1563-1606). He laid the foundation of this city in 1596 and the milestone was laid for the welfare of people with the establishment of Shri Tarn Taran Sahib temple. Tarn Taran Sahib was part of the Bhangi Misl ruled by a powerful Sikh family of Dhillon clan from 1716-1810. In 1947, the year of the Partition of India and the Partition of Punjab, Tarn Taran was the only tehsil (district) in Punjab along with Shiekhupura, Ludhiana, Jalandhar, Hoshiapur, Kapurthala, Amritsar, Lyallpur, Patiala with a majority Sikh population. The city was a center of the sikh insurgency during the 1980s and early 1990s

Guru Sahib created this city for the welfare of people. He was the first to initiate the noble cause of curing leprosy patients. It was later strengthened by the set up of leprosy home by Church Missionary society in 1885.

Tarn Taran is the pivot of Sikh culture and has many historical Gurudwas. With so many Gurudwas of historic importance, this makes the Majha belt a historic sikh centre of gathering and interest. The city has many historical Gurudwas which include Darbar Sahib Sri Arjan Dev ji, Gurudwara Guru ka Khuk (Gurudwara of the Guru’s Well), urudwaea Lakeer Sahib, Thatti Khara etc. The main occupation in this area is agriculture and agro industry with very few other Industries

About Pear

Pear is a typical fruit of temperate climates, with delicate pleasant taste and smooth, has a wide acceptable throughout the world. By its shape, it inspires designers and architects. The pear is mainly consumed in natura, pies, cakes, accompanying strong cheese or carpaccio, risotto, jams and ice creams and is a great fruit to be consumed in diets because of its low calorific value. It has high nutritional value with reasonable amounts of vitamins A, B1, B2, B3 and C and minerals like sodium, potassium, phosphorous, calcium, magnesium, and iron. It has a lot of fiber, giving excellent results in the treatment of constipation and intestine inflammation. Many recommend pears to cure anomalies such as cystitis and kidney stones. The name pear is derived from Latin, *pera* or *pira*, with some variants like in French as *poire*, in German as *peer*, and in Greece as *acras* as wild type and *apios* as cultivated pear.
Value chain of Pears (for reference)

Pear’s facts

1) There are more than 3000 varieties of pears
2) Pear trees grow best in volcanic soil and need plenty of water
3) Pear trees can live to be 100 years old
4) Pears do not ripen while on the tree
5) Pears ripen from inside out
Pear’s export from India

Pears is exported to over 87 countries. In the year 2020-2021 (Apr-Nov), India has exported, **Pears** worth of 20.53 USD million. The total volume of export in 2020-2021 (Apr-Nov) was around 26482410. The top 5 trading partners of India are Netherlands (5.79 USD Million), China (3.13 USD Million), United Kingdom (2.66 USD Million), USA (1.92 USD Million), Saudi Arabia (1.8 USD Million). The total export value of Pears in these countries is 15.3 USD million. These top 5 countries account for over 74.53% of the total Pears export from India.

Netherlands is the largest market for Pears export from India. In 2020-2021 (Apr-Nov), Netherlands imported 5.79 USD million worth Pears from India. The major ports for Pears export from India are Bhusaval ICD (80.3024 USD Million), Nhava Sheva Sea (3.5879 USD Million), Pipavav (Victor) Port (1.231 USD Million).

There are about 44 top exporting ports in India which trade Pears from India, Bhusaval ICD exports the majority of Pears shipments from India with the share of 30.0%, followed by Nhava Sheva Sea with 17.0%. Moving to top importing ports for Pears from India. Felixstowe port solely imports 170 shipments of Pears from India and holds the largest share of 9.0%.

**Problem 1**

*There is a lack of availability of quality labors and farmers for cultivating Pear. Also, the farmers are using traditional farming techniques with limited use of modern equipment. They also lack the knowledge of best practices followed across.*

**Proposed Intervention**

a) Government should create a knowledge repository and should start giving trainings on the Industry best practices like pH of the soil to be maintained less than 8.7 etc.

b) Training and skill building of labours needs to be done to further improve the productivity. Also, government can start the national labour force, which can cater to the time of need of farmers and build their skills to work at multiple avenues

c) Also, farmers should be exposed to and given access to latest equipment for farming and cultivation.

d) Also, new equipment can be designed to optimise the utilisation of water, as pear requires very small volume of water.

2. **Difficulty in cultivation in hilly terrains as the traditional farming methods are not applicable as it is to these areas.**

**Proposed Intervention**
a) Practice Zabo system i.e., impounding of water
b) Water regulations has to be done through design of drainage network for surface runoff.
c) Soil and water conservation through watersheds water harvesting initiatives

3. The problem of pests and diseases leading to alarmingly low yield. Pear rust and fire blight are major causes of disease to pears

Proposed Intervention

a) Mother plant selection from authentic sources with well-known ancestry with respect to health, vigour, regular bearing, high yield with good fruit quality
b) Promote the research and usage of biotechnological methods for developing new virus free, high yielding, biotic or abiotic stress-tolerant planting material. Hybrid crops to be tried out on a yearly basis. Farmers should be given incentive to try those crops, which only can promote and increase the productivity and yield
c) Also, organic manures and prescribed fertilizers has to be given to the farmers and SOP and its demo has to be given to the farmers for their benefit.
d) Foundational block should be obtained from STG (shoot tip grafting) plants.

4. Availability of orchards in the region leading to lesser potential to meet domestic and international market demands. The time taken for growth of pears is about 3 years, it implies that farmers have to wait for the fruit to grown and cycle time is high for the crop leading to their investments tied in the fruit, restricting them from utilizing them for other purposes.

Proposed Intervention

a) Intercropping of orchards - will help in maintain the soil nutrients & generate additional income for farmers.
b) Following proper spacing requirements for the plants in these orchards
c) Plant protection actions against major pests and diseases, also needs to be taken care along with maintaining the pH level of the soil

5. Problem of high cost and lack of availability of transportation and packaging of harvested material.

Proposed Intervention
a. Connectivity issues of orchards and main markets must be sorted, which can help gain better access to the markets for the farmers and it can eliminate/reduce the role of middlemen and get good margins to the farmers
a. Subsidized rent for freight vehicles to be provided by government for easy and low-cost transportation of farmer’s yield.
b. Also, training and upskilling of farmers and stakeholders involved to done on the packaging, as it contributes to a damage of the pear fruit during transit. Labelling has to be created to ensure the product is handled with care during the transit

6. **Lack of marketing strategies to create awareness and the visibility of pear is also pretty low at Punjab as compared to other states which are more visible and are major pear producing states.**

**Proposed Intervention**

a) Advertising the nutritional as well as medicinal benefits of Pear through small ads in local channels pan India
b) Also, trade fairs and trademarks of the products can be given to the product, which helps in creating the visibility
c) To add to that cooperative society or working group can be created to improve the distribution channels of pears, specifically in Punjab, as it’s not close to any of the major ports, so transportation is a constraint for the exports
d) Print ads in local newspapers and magazines in the native languages.

7. **High initial investment, costly planting material & non-availability of credit facilities, as the cycle time of the plant is high**

**Proposed Intervention**

a. Provisions of subsidies for the farmers during the initial planting seasons in the procurement of planting materials

Promotion of development of co-operative credit societies. Land development banks for provision of low-interest loans on the mortgage of farmer’s land

b. Loans can also be provided by the banks based on the expected cash flows from the product. It also gives a monitoring benefit from the banks involved, which gives farmers additional focus to produce the product at highest efficiency
d. Loans by Regional Rural Banks to marginal farmers, landless laborers etc.

8. **Lack of adequate storage facilities making farmers prone to exploitation & distress sale.**

**Proposed Intervention**
a. Cold storage and small processing units in these areas should be established. The farmers should be made aware of the facilities involved and government can monitor and take such initiatives under their control for the initial years till the farmers get a grip on the new provisions available.

b. MSP should be set up for pears & strictly followed in the local markets to avoid exploitation of farmers.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed solutions</th>
<th>Agency</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Infrastructure support</td>
<td>Mother plant saplings, healthy rootstock, STG plants; Replenish fertilizers &amp; nutrients, provide crop protectants</td>
<td>Ministry of Agriculture &amp; Farmers welfare</td>
</tr>
<tr>
<td>2</td>
<td>Training &amp; Development</td>
<td>Promotion of biotechnological methods, Skill development of farmers on the best practices via training sessions and workshops</td>
<td>Department of Biotechnology Ministry of Science &amp; Technology, Government of India, Ministry of Skill Development &amp; Entrepreneurship + Ministry of Agriculture &amp; farmers welfare</td>
</tr>
<tr>
<td>3</td>
<td>Infrastructure support</td>
<td>Construction of roads for ease in access</td>
<td>Punjab, Public Works Department</td>
</tr>
<tr>
<td>4</td>
<td>Credit support</td>
<td>Easy carrier freight vehicles at subsidized charges; Credit support on the expected cash flow from the crops, Subsidies, loans, RRB (regional rural banks), cooperatives; MSP for Apples</td>
<td>Punjab Transport Department, Ministry of Agriculture &amp; Farmers’ Welfare; NABARD</td>
</tr>
<tr>
<td>5</td>
<td>Branding &amp; Marketing</td>
<td>Advertisements highlighting the nutritional &amp; medicinal benefits of pears; Access to trademarks and trade fairs to the stakeholders</td>
<td>Ministry of Information &amp; Broadcasting, GoI</td>
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<tr>
<td>6</td>
<td>Packaging</td>
<td>Cold storage and local processing unit’s establishment and sharing of knowledge about the facilities and how to use them to their</td>
<td>Ministry of Agriculture &amp; Farmers’ Welfare</td>
</tr>
<tr>
<td></td>
<td>Advantage</td>
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<tr>
<td>7</td>
<td>Quality Assurance: Availability of proper pesticides and insecticides for the crops</td>
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</tbody>
</table>

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Ajmer marble, Rajasthan

About Ajmer

Ajmer is a city in central Rajasthan state in northwestern India. The city is on the lower slopes of Taragarh Hill, on the summit of which stands a fortress. The city was founded by Ajaydeva, an 11th century Rajput ruler. It was annexed to the Delhi sultanate’s Slave dynasty in 1193. Upon payment of tribute, it was returned to its Rajput rulers, but it was taken in 1556 by the Mughal emperor Akbar (reigned 1556-1605).

In 1770, it was annexed by the Marathas, after which the area was a continual Rajput-Maratha battleground until it was ceded to the British in 1818. In 1878, the region of Ajmer constituted as a chief commissioner’s province known as Ajmer-Merwara and was divided into two separate tracts. The larger of these comprised Ajmer and Merwara subdivisions, the smaller, to the southeast comprised Kekri subdivision. Ajmer became a part of the state of Rajasthan in 1956.
Problems

1. Government benefits and incentives on exports have been going down year on year due to which the local sellers find it costly to keep up their exports and stop exporting eventually. Also, tax or other benefits are not given to manufacturers wanting to set-up units in the region, which could potentially, improve development in the region. China has a free import policy; it imports huge quantity of dimensional blocks from all over the world and re-exports them after value addition. They have the advantage of government support.

Proposed Interventions

a) There is no incentive on marble/granite exports at present. Earlier, for exports, income tax exemption was given under 80 HHC which has been discontinued. Further, royalty and other taxes are very high and have to be rationalised if government wants us to compete with other countries. Export packing credit interest has to be reduced. Incentives should be given for new market exploration.

b) Provide credit facilities at cheaper rates to sellers who want to export their products to promote their exports.

c) Reduce the regulatory and export hurdles and barriers for a class of such products, thereby promoting exports.

2. The local sellers and units do not have any exposure and information required to make exports.

Proposed Interventions

a) Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

b) Develop a system to enroll various sellers and international buyers on a system similar to an online marketplace to facilitate easier matching.

Export Guidance
1) Register one’s business as a legal entity
2) Obtain company PAN after registering the company with Ministry of Corporate Affairs. Then bank account needs to be opened in company’s name for the financial transactions
3) Registration with Director-General of Foreign Trade and obtain an import-export code
4) Companies must register with export promotion councils and commodity boards to avail various benefits provided by the government
5) Company needs to contact a reputed shipping or freight agency to ensure their product reaches the buyers on time.
6) The last step involves customs clearance which can be made easier by availing the services of a customs housing agency.

Documents required to Export Marble from India

1. Incorporation Certificate.
2. Company PAN.
3. GST and other tax registrations.
5. DGFT registration certificate.
6. Registration-cum-membership certificate from the EPCs.
7. Customs clearance documents, such as Bill of Lading and packing list.

2. As marble products can be damaged during transportation, it is leading to significant cost increase as most of the time, the cost is being borne by the shop owner/merchandise. A standard, cheap packaging material should be suggested to reduce the wastage.

Proposed Interventions

a) Conduct a survey to understand the packaging requirements for the product.
b) Enable tie-ups with packagers to understand and develop a sturdy packaging material at reasonable prices.
c) Choose the correct box size & wrap every item
d) Use dunnage to fill any remaining space between the product and the box
e) Label the box as fragile
f) In case of a big item, it can be dismantled and folded and then can be assembled at the required destination.
3. There are no quality assured signs for the Ajmer marble and is generally sold based on the customer’s requirements. The major threat to the natural stone industry is the entry of artificial stones, which have captured the market in a big way. Artificial stones have acquired more than 30% share in US market, 40% in Australia and about 60% in Canada. This is because the granite/marble industry is not able to ensure continuous supply to major markets, which is not the case with artificial stone industry.

Proposed Interventions

a) Develop some quality assurance and measures to assure purity and greatness of the green marbles. Geographical Indicator/Trademark can be provided to differentiate the product, which would enhance the Industry reputation. It will also reduce the role played by the middlemen and increases the profitability of the manufacturers.

b) Develop testing infrastructure in the district to facilitate easy and quick testing and quality control procedures. Such infrastructure is lacking to a large extent in Ajmer.

4. The local sellers and producers cannot afford going to the trade fairs due to the high charges as well as due to competition from the more funded competitors.

Proposed Interventions

a. Promote local fairs specifically for the granite/marble suppliers’ lower prices to encourage attendance.
b. Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

5. There is a major supply chain issue, getting a truck, or vehicle to transport the granite/ marbles across the state or country is very costly. This leads to logistical hindrances and prevents development of the industry. Factories are unable to ship processed material to various countries due to the current logistic distress at various supply chain points. The shipping lines have increased ocean freight rates sky-high. They have been facing a shortage of empty containers for the past one year, and now due to high ocean freight rates buyers are moving their cargo slowly and are in a kind of dilemma about product landing cost.

Proposed Interventions

a) Provide tax incentives to trucking and transportation companies to promote movement.
b) Explore other medium of transportation, which can be used to move the marbles locally.

c) Facilitate tie-ups with trucking companies and set-up seller groups to enable easier transportation for the seller groups.

6. **Skilled labor is not available easily to treat, polish and develop the marble to export quality which hinders the production**

**Proposed Interventions**

a) Set-up a skilling department to train and upgrade existing labour as per the requirements.

b) Provide subsidised and/or free skill development training to encourage local sellers to train the labour under them.

c) Training/ workshops can be held so that different prototypes or theme-based products can be made.

d) Various specialized organizations can help the local units to produce various value-added items which would not only help to penetrate the local market, but also help in exporting of such items to foreign countries.

**Under Type of Intervention:**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Infrastructure, Regulatory</td>
<td>State government should provide tax benefits, land at cheaper rates to incentivize producers and sellers to set-up units</td>
<td>Commercial Tax Department Rajasthan Government of Rajasthan</td>
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<td>2</td>
<td>Training and</td>
<td>Facilitate skill development of</td>
<td>Rajasthan Small Industries</td>
</tr>
<tr>
<td>Development (Upskilling)</td>
<td>the labor to enable easy transition to the newer, more efficient techniques, which can prevent future obsolescence and unemployment.</td>
<td>Corporation (RSIC) Ministry of MSME Ministry of Skill Development and Entrepreneurship</td>
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<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>3 Branding and Marketing</td>
<td>Promotion and trade fairs Giving trademark/Geographical Indicator Formation of Cooperatives</td>
<td>Ministry of MSMEs Invest India team</td>
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<tr>
<td>4 Value addition</td>
<td>Develop a system to enroll various sellers and international buyers on a system similar to an online marketplace to facilitate easier matching</td>
<td>Ministry of Commerce, Government-e-Marketplace (GeM)</td>
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<tr>
<td>5 Packaging</td>
<td>Enable tie-ups with packagers to understand and develop a sturdy packaging material at reasonable prices</td>
<td>Ministry of Commerce and Industry, Indian Institute of Packaging (IIP)</td>
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<td>6 Health Hazard</td>
<td>Providing PPEs &amp; Installation of sprinklers to reduce pollution Awareness to be created on the health hazards and the precautions needed to be taken</td>
<td>Invest India team</td>
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<td>7 Transportation</td>
<td>Explore other medium of transportation like drones, which can be used to move the marbles locally Facilitate tie-ups with trucking companies and set-up seller groups to enable easier transportation for the seller groups</td>
<td>Ministry of Road Transport and Highways of India Rajasthan Transport Department Ministry of Civil Aviation</td>
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Banswara, Synthetic Fibre

About Banswara

Banswara district is situated in south Rajasthan in India. Banswara princely state was founded by Maharawal Jagmal Singh. It is named for the bans or bamboo forests in the area. It is also known as City of ‘Hundred Islands’ due to presence of numerous islands in the Mahi River, which flows through Banswara. The district forms eastern part of the region known as Vagad or Vagwar. The district was formerly a princely state ruled by the Maharavals. It is said that a Bhil ruler Bansia or Wasnia, ruled over it and Banswara was named after his name. Bansia was defeated and killed by Jagmal Singh who became the first Maharaval of the princely state.

The district of Banswara got his name from the ‘bans or bamboo trees that once grew here in abundance. Located in southern Rajasthan, the city is also known as the Cherrapunji of Rajasthan (receives the highest rainfall in the state). Banswara is also the greenest city in Rajasthan.

Being in the southern part of Rajasthan, its boundary touches upon Gujarat and Madhya Pradesh. The culture is shaped as a result of this inter-regional neighborhood. The so called Vagdi culture is nothing but a mixture of Gujarati, Malwi, Rajasthani and Mewari cultures. Banswara district is rich of forests, hills and wildlife. Tribals are the natives of the region. The place is known “Lodhi Kashi” for its ancient temples and natural beauty.

About Synthetic yarn

Synthetic, artificial or man-made fibers can be described as totally synthetic. These fibers are made from crudes and intermediates, including petroleum, coal, limestone, and water. Semisynthetic, or part-synthetic fibers-like rayon are derived from plants, for instance from woods or bamboo.

Synthetic fibres include

1) Nylon
2) Rayon
3) Polyester
Synthetic yarn is traded all over the world. As per the export analysis, there are almost 146 countries and territories, which actively import synthetic yarn from India. The combined value of total export is 141.58 USD million as of 2020. The top five countries to export yarn from India are USA, UAE, Bangladesh, Belgium and UK.
Problems

1) There is lack of skilled labor and the new generation does not want to take up this profession since the income in the private sector is low. The number of designers in the industry has come down in the past few years since there is no regular high paying income

Proposed Intervention

a) Training camps and workshops within the mills or industries should be arranged to provide appropriate trainings to these workforces.

b) Skill development centers should be set up to help the locals with stable employment opportunities in these textile industries. It would ensure trained workforce well verse in new techniques and technologies

c) Independent Women should be taught CAD designing. This will help them make designs themselves when required and save on costs.

d) Build dedicated weaving committees/ blocks to provide minimum basic governmental support to the weavers during periods of distress.

e) Spread awareness regarding indulging in other jobs such as that of salesman for silk sarees etc. to remove the complete dependency on the handloom sector.

2) People are averse towards the adoption of the new technology and processes because of no clear understanding of the cost benefit analysis.

Proposed Intervention
a) Collaborations with private firms offering technology and consultants so that these details related to technology usage and breakeven analysis are understood to the small and medium entrepreneurs.

b) There should be proper availability of after sales service providers for these equipment’s, so that the maintenance work of machines is guaranteed.

3) *Non-availability of easy finances and it also contributes to people not able to access the latest technology*

**Proposed Intervention**

a. Lack of transparency from the banks side to disclose the list of required documents in the beginning becomes an impediment, this should be done away with.

b. Banks should refrain on keeping a subjective approach to granting of the loans.

Textile industry in Rajasthan has to buy electricity at exorbitant rates of Rs 7.5 to Rs 8 per unit. In comparison electricity is available in Maharashtra at Rs 4, in Punjab at Rs 5, and in Madhya Pradesh at Rs 3.5 per unit. Electricity forms 40 per cent to 50 per cent of production cost in textile industry.

**Proposed Intervention**

a) Government should consider electricity subsidy (it can be performance based) to the people involved in the Industry to compete with the locals and have a cost advantage for exports

4) *Occupational health issues of textile industry workers along with poor socio-economic conditions*
Proposed Intervention

a. Proper guidance on health, nutrition, and sanitation to the workers
b. Additional medical support to new mothers and appropriate work reliefs to attend their newly born by the assistance of women Self-help groups
c. Assurance of equal wages to both male and female workers for the same standards of work

5) Marketing and awareness of the product is not sufficient even in the domestic market

Proposed Intervention

a. The handloom and textile industry are required to develop a good branding system to maintain the quality and uniqueness of the different handloom products
b. The products should be developed in accordance with the demands of the target customers in both Indian & international markets

<table>
<thead>
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<tbody>
<tr>
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<td>Training &amp; development (Upskilling)</td>
<td>Training camps and workshops within the mills or industries should be arranged to provide appropriate trainings to these workforces. Skill development centres Farmers should be trained to properly take up cotton cultivation through self-help groups</td>
<td>Ministry of Human Resource development; Department of agriculture &amp; Farmers’ welfare</td>
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<tr>
<td>2</td>
<td>Service support</td>
<td>There should be proper availability of after sales service providers for these equipment’s, so that the maintenance work of machines is guaranteed.</td>
<td>Ministry of Textiles, Ministry handling Industrial equipment</td>
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<tr>
<td>3</td>
<td>Credit support</td>
<td>Banks should refrain on keeping a subjective approach to granting of the loans.</td>
<td>Ministry of Finance, GoI</td>
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<td>4</td>
<td>Healthcare services</td>
<td>Proper guidance on health, nutrition, and sanitation to the workers &amp; equal wages</td>
<td>Ministry of Textiles</td>
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<tr>
<td>5</td>
<td>Market</td>
<td>The products should be developed in accordance with the demands of the target</td>
<td>Ministry of Information &amp; Development</td>
</tr>
<tr>
<td>awareness</td>
<td>customers in both Indian &amp; international markets</td>
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<tr>
<td></td>
<td>Trademark or a tag can be given for the product to further increase the visibility of the product</td>
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</table>

References

1) [https://districts.ecourts.gov.in/banswara/history-banswara](https://districts.ecourts.gov.in/banswara/history-banswara)

2) [https://www.rajras.in/rajasthan/districts/banswara/](https://www.rajras.in/rajasthan/districts/banswara/)
Bhilwara Textile, Rajasthan

Bhilwara

Bhilwara is one of the 33 districts of Rajasthan. It was formed as a separate district in 1949 on merge of the princely State of Mewar and the Shahpura Thikana in the erstwhile United Rajasthan. The district is full of remains of Stone Age civilization Bagor in the district is the most prominent place of Stone Age Art. The district is also full of old historic temples of the 12th century. Bhilwara is the industrial town. It is famous country wide for the textiles industry. It is well connected with roads, rail.

The industrial town of Bhilwara, situated in the Mewar region of Rajasthan, is a famous hub for textiles in India. The textile industries of the Bhilwara district displays an annual growth rate of 8 to 10 percent and are widely popular for exporting textile products like synthetic yarn, woollen commodities, cotton yarn, and fabrics. With textile being the main industry in the district, the area has more than 400 manufacturing units, making it a major textile centre specialising in synthetic fabrics for trousers.

Textile operations such as spinning, weaving, and processing are carried out in the mills in Bhilwara and hence the industry is also the largest employer in the unorganized and organized sector, with over 75,000 individual working in the sector to boost the state's economy. The district is a home to as many as 16 spinning mills in a large sector along with 5 open spinning units, which manufacture around two lakh tonnes of polyester/viscose and cotton yarn every year. With such a large production churning out per annum, Bhilwara district alone is said to meet 44 percent of the State's yarn production capacity. Bhilwara has a strong history of textiles dating back to the 60s when 200 second-hand looms from the British Raj were being run and large number of cotton yarn producing plants was operating. But it was only when in 1988, the Industrial licenses were withdrawn to give an impetus to the industrial development the textile industry flourished. Between the years 1988 to 1990 over 70 weaving units were established.
Textile Value Chain

Problems

1) There is lack of skilled labor and the new generation does not want to take up weaving as a profession since the income in the private sector is low. The number of designers in the industry has come down in the past few years since there is no regular high paying income and hence independent weavers continue with the same design for a few months.

Proposed Intervention

a) Training camps and workshops within the mills or industries should be arranged to provide appropriate trainings to these workforces.
b) Skill development centers should be set up to help the locals with stable employment opportunities in these textile industries teaching dyeing and processing methods. This would ensure trained workforce well verse in new techniques and technologies
c) Independent Women weavers should be taught CAD designing. This will help them make designs themselves when required and save on costs.
d) Build dedicated weaving committees/ blocks to provide minimum basic governmental support to the weavers during periods of distress.
e) Spread awareness regarding indulging in other jobs such as that of salesman for silk sarees etc. to remove the complete dependency on the handloom sector.
2) People are averse towards the adoption of the new technology and processes because of no clear understanding of the cost benefit analysis.

Proposed Intervention

a) Collaborations with private firms offering technology and consultants so that these details related to technology usage and breakeven analysis are understood to the small and medium entrepreneurs.
b) There should be proper availability of after sales service providers for these equipment’s, so that the maintenance work of machines is guaranteed.

3) Non-availability of easy finances and it also contributes to people not able to access the latest technology

Proposed Intervention

a. Lack of transparency from the banks side to disclose the list of required documents in the beginning becomes an impediment, this should be done away with.
b. Banks should refrain on keeping a subjective approach to granting of the loans.

4) Scarcity and inferior quality of the raw materials for the textile industry.

Proposed Intervention

a. Farmers should be trained to properly take up cotton cultivation through self-help groups
b. Establishment of careful cotton harvesting units so that the wastage is reduced to minimal
c. A raw material bank may be established where all kinds of inputs for textile manufacturing are made available for effective and timely distribution to the mills
Textile industry in Rajasthan has to buy electricity at exorbitant rates of Rs 7.5 to Rs 8 per unit. In comparison electricity is available in Maharashtra at Rs 4, in Punjab at Rs 5, and in Madhya Pradesh at Rs 3.5 per unit. Electricity forms 40 per cent to 50 per cent of production cost in textile industry.

Prohibited Intervention

a) Government should consider electricity subsidy (it can be performance based) to the people involved in the Industry to compete with the locals and have a cost advantage for exports

5) Occupational health issues of textile industry workers along with poor socio-economic conditions

Proposed Intervention

a. Proper guidance on health, nutrition, and sanitation to the workers
b. Additional medical support to new mothers and appropriate work reliefs to attend their newly born by the assistance of women Self-help groups
c. Assurance of equal wages to both male and female workers for the same standards of work

6) Marketing and awareness of the product is not sufficient even in the domestic market

Proposed Intervention

a. The handloom and textile industry are required to develop a good branding system to maintain the quality and uniqueness of the different handloom products
b. The products should be developed in accordance with the demands of the target customers in both Indian & international markets

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<td>Ministry of Textiles, Ministry handling Industrial equipment</td>
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<tr>
<td>3</td>
<td>Credit support</td>
<td>Banks should refrain on keeping a subjective approach to granting of the loans.</td>
<td>Ministry of Finance, GoI</td>
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<td>4</td>
<td>Healthcare services</td>
<td>Proper guidance on health, nutrition, and sanitation to the workers &amp; equal wages</td>
<td>Ministry of Textiles, RJ</td>
</tr>
<tr>
<td>5</td>
<td>Market awareness</td>
<td>The products should be developed in accordance with the demands of the target customers in both Indian &amp; international markets</td>
<td>Ministry of Information &amp; Broadcasting; Invest India</td>
</tr>
</tbody>
</table>

References


https://www.indiantextilemagazine.in/indias-weaving-industry-a-need-to-become-globally-competitive/
India possesses a wide spectrum of natural stone including granite, marble, sandstone, limestone, and quartzite. The overall global market share for natural stone and natural stone products generated a trade flow of EUR 25.7 billion (INR 1811.1 billion) in 2015, out of which India’s share was 9.8%. Over 20% of the world’s granite resources are located in India and granite constitutes the bulk of India’s natural stone export. Granite is a high value structural and decorative stone. Due to its high compressive strength, longevity and beauty, it is the most sought-after stone to be used as building material as well as decorative stone. India’s granite deposits are rich, with a variety of over 200 shades.

The state wise breakup of granite resources in India reveals that Karnataka with about 25% resources has the highest concentration followed by Jharkhand (24%), Rajasthan (23%), Andhra Pradesh (6%) and Odisha (5% each). Tamil Nadu has 1.7% of the deposits. Each state has different varieties of granite that have a wide market in and outside the country.

State wise production of Granite in India
Policies and Procedures for granite quarrying

As the granite industry falls under the category of ‘minor minerals’, state governments are the owners of the minerals within their geographical territory. The Departments of Geology and Mining of the respective state governments oversee the administration, licensing and exploration of minerals and mining. Prospecting is the first step in opening a new quarry. Prospectors can obtain a two-year license to do research into new areas for sourcing minerals. If they locate a granite deposit, they can lease the area from the Department of Geology and Mines for a period between twenty and thirty years. State governments also conduct quarry operations through their own enterprises. The state governments do not have a uniform policy of licensing quarry operations. Royalty rates and the leasing period vary from state to state. The state governments are pursuing an aggressive mines and minerals development policy, and, in many states, the mineral sector is considered crucial for economic growth. States focus on the sourcing of specific, often high value, minerals like granite.

Granite constitutes the bulk of India’s export of natural stone and accounted for 79% of the total natural stone exports from India in 2014-2015. India is the largest exporter of raw granite that is crude or roughly trimmed (52%) and ranks fifth in the export of processed granite products worldwide. With deposits and varieties in abundance, the granite industry has evolved into an export-thrust sector. According to industry data, about 85-90% of the total granite produced in the country is exported. It is exported from India either as crude or raw blocks or after cutting into blocks or slabs, as granite for monuments or buildings, as polished granite blocks and tiles and as carved or processed granite. In terms of both quantity and value China is the biggest market for Indian granites followed by the USA and
European countries. China accounted for 64% of the quantity and 31% of the value of granite exported from India in 2014-2015. Germany is India’s biggest European export market for granite. Italy is the second most valuable European export market for India both for worked granite exports as well as for building stone. The UK is the third most valuable European granite export market for India followed by Poland and Belgium.

### Export of Granite from India to different countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Quantity (KG *1000)</th>
<th>% to total</th>
<th>Value (INR *1000)</th>
<th>% to total</th>
<th>Value (EUR *1000)</th>
<th>% to total</th>
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<tbody>
<tr>
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<td>16,004,513</td>
<td>16.3</td>
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<td>4,309,348</td>
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<td>61,150</td>
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<td>Germany</td>
<td>83,251</td>
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<td>4,051,034</td>
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<td>57,484</td>
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<td>Italy</td>
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<td>3,116,493</td>
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<td>Taiwan</td>
<td>163,692</td>
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<td>1,894,617</td>
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</tr>
<tr>
<td>Other countries</td>
<td>1,033,534</td>
<td>15.7</td>
<td>27,870,986</td>
<td>28.3</td>
<td>395,489</td>
<td>28.3</td>
</tr>
<tr>
<td>All countries</td>
<td>6,563,271</td>
<td>100.0</td>
<td>98,322,398</td>
<td>100.0</td>
<td>1,395,195</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Indian Minerals Yearbook 2015

### End Uses

The end-users of granite in the importing countries include the granite processing industry, the building and construction industry, the funeral industry and the retail/consumer market. The processing industry includes wholesalers and retailers involved in cutting to size, polishing, carving and decorating granite. These companies mainly use semi-finished granite products, whilst the other industries mainly use finished products, like polished slabs. The building and construction sector uses different granite products, for example, floor and wall tiles for interior and exterior coverings, window and door sills, kitchen countertops, fireplaces, fountains, balustrades, street furniture and municipal furnishing like setts and curb stones. In the funeral industry, granite products are tombstones, gravestones and urns. The retail sector covers a wide variety of market segments, like garden centres, specialised interior shops for bathrooms and kitchens. Granite waste stone pieces, a by-product, is processed in granite cobbles, pebbles and blue metal chips and used for paving, ballast for railway tracks or road construction. As granite is widely used in public buildings and for paving public spaces, governments are an important customer of the granite industry.
Problems

a) Government benefits like drawbacks and incentives on exports have been going down year on year due to which the local sellers find it costly to keep up their exports and stop exporting eventually. Also, tax or other benefits are not given to manufacturers wanting to set-up units in the Chittorgarh region, which could potentially, improve development in the region. China has a free import policy; it imports huge quantity of dimensional blocks from all over the world and re-exports them after value addition. They have the advantage of government support. Besides, many quarry lease applications in our country are pending for over decades. Even working quarries have stopped because of non-issuance of Environment Clearance certificate.

Proposed Interventions

a) There is no incentive on granite exports at present. Earlier, for exports, income tax exemption was given under 80 HHC which has been discontinued. Further, royalty and other taxes are very high and have to be rationalised if government wants us to compete with other countries. Export packing credit interest has to be reduced. Incentives should be given for new market exploration.

b) Provide credit facilities at cheaper rates to sellers who want to export their products to promote their exports.

c) Reduce the regulatory and export hurdles and barriers for a class of such products, thereby promoting exports.

d) State governments need to follow long-term, uniform liberal policies for issuing quarry leases. Quarrying has to be given industry status so that those in the trade can avail the facilities provided under this status. Granite cannot be treated as a mineral in line with iron ore, manganese, coal, bauxite, etc. All other major minerals are graded at par with ore, while granite is tagged under decorative ornamental stones. This is not a graded product and individual variety of granite has to be promoted individually.

e) Also, forest conservation and environmental norms need to be suitably amended. Moreover, the government needs to amend the EXIM policy and allow import of granite blocks to the country, which will enable the industry to have alternate/additional supply of raw material for processing industry to work in full capacity.

The local sellers and units do not have any exposure and information required to make exports.

Proposed Interventions

a) Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

b) Develop a system to enroll various sellers and international buyers on a system similar to an online marketplace to facilitate easier matching.

Export Guidance
1) Register one’s business as a legal entity  
2) Obtain company PAN after registering the company with Ministry of Corporate Affairs. Then bank account needs to be opened in company’s name for the financial transactions  
3) Registration with Director-General of Foreign Trade and obtain an import-export code  
4) Companies must register with export promotion councils and commodity boards to avail various benefits provided by the government  
5) Company needs to contact a reputed shipping or freight agency to ensure their product reaches the buyers on time.  
6) The last step involves customs clearance which can be made easier by availing the services of a customs housing agency.  

**Documents required to Export Granite from India**

1. Incorporation Certificate.  
2. Company PAN.  
3. GST and other tax registrations.  
5. DGFT registration certificate.  
6. Registration-cum-membership certificate from the EPCs.  
7. Customs clearance documents, such as Bill of Lading and packing list.  

As stone products can be damaged during transportation, it is leading to significant cost increase as most of the time, the cost is being borne by the shop owner/merchandise. A standard, cheap packaging material should be suggested to reduce the wastage.

**Proposed Interventions**

   a) Conduct a survey to understand the packaging requirements for the product.  
   b) Enable tie-ups with packagers to understand and develop a sturdy packaging material at reasonable prices.  
   c) Choose the correct box size & wrap every item  
   d) Use dunnage to fill any remaining space between the product and the box  
   e) Label the box as fragile  
   f) In case of a big item, it can be dismantled and folded and then can be assembled at the required destination.

There are no quality assured signs for the Chittorgarh granite and is generally sold based on the customer’s requirements. All exports happen from more developed cities like Udaipur that generally process and polish the granite to export. The major threat to the natural stone industry is the entry of artificial stones, which have captured the market in a big way. Artificial stones have acquired more than 30% share in US market, 40% in Australia and about 60% in Canada. This is because the granite industry is not able to ensure continuous supply to major markets, which is not the case with artificial stone industry.

**Proposed Interventions**
b) Develop some quality assurance and measures to assure purity and greatness of the green marbles. Geographical Indicator/Trademark can be provided to differentiate the product, which would enhance the Industry reputation. It will also reduce the role played by the middlemen and increases the profitability of the manufacturers.

c) Develop testing infrastructure in the district to facilitate easy and quick testing and quality control procedures. Such infrastructure is lacking to a large extent in the Chittorgarh.

The local sellers and producers cannot afford going to the trade fairs due to the high charges as well as due to competition from the more funded competitors.

Proposed Interventions

a. Promote local fairs specifically for the granite suppliers’ lower prices to encourage attendance.
b. Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

There is a major supply chain issue, getting a truck, or vehicle to transport the granite/ marbles across the state or country is very costly. This leads to logistical hindrances and prevents development of the industry. Factories are unable to ship processed material to various countries due to the current logistic distress at various supply chain points. The shipping lines have increased ocean freight rates sky-high. They have been facing a shortage of empty containers for the past one year, and now due to high ocean freight rates buyers are moving their cargo slowly and are in a kind of dilemma about product landing cost

Proposed Interventions

a. Provide tax incentives to trucking and transportation companies to promote movement.
b. Explore other medium of transportation, which can be used to move the marbles locally.
c. Facilitate tie-ups with trucking companies and set-up seller groups to enable easier transportation for the seller groups.

Skilled labor is not available easily to treat, polish and develop the granite to export quality which hinders the production.

Proposed Interventions

a) Set-up a skilling department to train and upgrade existing labour as per the requirements.
b) Provide subsidised and/or free skill development training to encourage local sellers to train the labour under them.

c) Training/workshops can be held so that different prototypes or theme-based products can be made.

d) Various specialized organizations can help the local units to produce various value added items which would not only help to penetrate the local market, but also help in exporting of such items to foreign countries.

Proposed Interventions

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<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Infrastructure, Regulatory</td>
<td>State government should provide tax benefits, land at cheaper rates to incentivize producers and sellers to set-up units</td>
<td>Commercial Tax Department Rajasthan Government of Rajasthan</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Facilitate skill development of the labor to enable easy transition to the newer, more efficient techniques, which can prevent future obsolescence and unemployment.</td>
<td>Rajasthan Small Industries Corporation (RSIC) Ministry of MSME Ministry of Skill Development and Entrepreneurship</td>
</tr>
<tr>
<td>3</td>
<td>Branding and Marketing</td>
<td>Promotion and trade fairs Giving trademark/Geographical Indicator Formation of Cooperatives</td>
<td>Ministry of MSMEs Invest India team</td>
</tr>
<tr>
<td>4</td>
<td>Value addition</td>
<td>Develop a system to enrol various sellers and international buyers on a system similar to an online marketplace to facilitate easier matching</td>
<td>Ministry of Commerce, Government-e-Marketplace (GeM)</td>
</tr>
<tr>
<td>5</td>
<td>Packaging</td>
<td>Enable tie-ups with packagers to understand and develop a sturdy packaging material at reasonable prices</td>
<td>Ministry of Commerce and Industry, Indian Institute of Packaging (IIP)</td>
</tr>
<tr>
<td>6</td>
<td>Health Hazard</td>
<td>Providing PPEs &amp; Installation of sprinklers to reduce pollution Awareness to be created on the health hazards and the precautions needed to be taken</td>
<td>Invest India team</td>
</tr>
<tr>
<td>7</td>
<td>Transportation</td>
<td>Explore other medium of transportation like drones, which can be used to move the marbles locally</td>
<td>Ministry of Road Transport and High ways of India Rajasthan Transport Department</td>
</tr>
</tbody>
</table>

References/Sources
Beekeeping, Hanumangarh, Rajasthan

Beekeeping (or apiculture) is the maintenance of bee colonies, commonly in manmade hives, by humans. Most such bees are honeybees in the genus, Apis, but other honey producing bees such as Melipona stingless bees are also kept. A beekeeper (or apiarist) keeps bees in order to collect their honey and other products from their hive products (including beeswax, propolis, flower pollen, bee pollen and royal jelly), to pollinate crops, or to produce bees for sale to other beekeepers. A location where bees are kept is called an apiary.

Beekeeping Market

The apiculture market is estimated to register a CAGR of 4.3% during the period 2020–25, with Asia-Pacific as the dominant producer. As per a report by IMARC, the Indian apiculture market size is expected to reach a value of Rs 33,128 million by 2024, expanding at a CAGR of nearly 12% by 2024. India is the sixth major natural honey exporting country. During 2019–20, the recorded export of natural honey was 59,536.75 MT for Rs 633.82 crore. The major export destinations were USA, Saudi Arab, Canada, and Qatar. The demand for organic honey in the international market could be leveraged for promoting organic beekeeping guidelines. For propagating the sector, the landscape for beekeeping and the species could be expanded on a commercial scale.

India is home to four of the seven known bee species. Two of these are domesticated, Apis cerana (oriental honey bee) and Apis mellifera (European honey bee), and the other two are wild, Apis dorsata (giant/rock honey bee) and Apis florea (dwarf honey bee). Bees play a crucial role in pollination. Oilseeds, orchard crops, legumes, vegetables, timber trees and ornamental flowers are some of the major crops that benefit from bee pollination.

The conservation and multiplication of bees depend on the density and composition of local flora, which acts as the food base for these pollinators.

Around 500 flowering plant species are major or minor sources for foraging, which provides varieties of natural honey flavours: rapeseed/mustard honey, eucalyptus honey, lychee honey, sunflower honey, karanj/pongamea honey, multi-
flora Himalayan honey, acacia honey and wild flora honey. This provides lucrative opportunities for beekeeping industries.

**Indian Exporters**

According to honey export data 2017-18, we understand that 17 states of India are exporting natural honey to various countries across the world. Delhi is the largest honey exporter state of India as maximum shipments have been departed from this state. Delhi has departed 75.98% value of the honey shipments to the global market which is followed by Rajasthan, Maharashtra, Uttar Pradesh and Punjab. As per the estimates of honey production in India, West Bengal, Uttar Pradesh, Punjab and Bihar are the biggest honey producing states of the country.

India has exported natural honey to the more than 65 countries across the world. United States is the biggest market purchasing honey majorly from India and recorded 79.71% of the total value. The maximum shipments have arrived at the USA from various Indian states like Delhi, Rajasthan and Maharashtra. As per honey export data, it is noted that around 55 honey exporters in India have supplied to United States. Saudi Arabia, United Arab Emirates, Bangladesh and Canada are other largest honey export partners of India.

**Sweet Revolution**
Sweet revolution is an ambitious initiative of the Government of India, which is aimed at promoting apiculture, popularly known as ‘beekeeping’, for accelerating the production of quality honey and other related products.

The demand for good quality honey has grown over the years as it is considered a naturally nutritious product. Other apiculture products such as royal jelly, beeswax, pollens, etc., are also used extensively in different sectors like pharmaceuticals, food, beverage, beauty, and others.

Scaling up beekeeping will double farmers’ income, generate employment, ensure food security and bee conservation, and increase crop productivity and pollination. To provide a booster shot to Sweet Revolution, the government launched the National Beekeeping and Honey Mission, for the overall promotion and development of scientific beekeeping in mission mode.

GoI has taken initiatives like new Farmer Producer Organizations (FPOs), FPO’s of honey producing farmers are also created. Also, labs have been set to test the quality of honey properly and processing facilities are also increased to support the growth of beekeeping in India. To state a few facts the collective efforts of the beekeepers and the government has increased the production of honey in the country from 76150 MT in 2013-14 to 125000 MT in 2020-21. Also, the exports of honey have been increased from 28000 MT in 2013-14 to 60000 MT in 2020-21. India is exporting around 5% of the world’s exports. With the increasing demand and the improvements which is being done in the Indian sector over the last few years, we can expect the business to grow significantly in the coming years.

Hanumangarh District

The Hanumangarh district was formed on 12.7.1994 from the than Ganganagar district as 31st district of Rajasthan state. Seven tehsils of Ganganagar districts of Bikaner division viz. Sangaria, Tibi, Hanumangarh, Pilibanga, Rawatsar, Nohar and Bhadra were included into the newly created district of Hanumangarh. The district headquarter Hanumangarh is situated on the bank of Ghaggar River which is the present form of the last mythological river Saraswati. Ghaggar River, which is called as ‘Nali’ in local dialect divides the district headquarter into two parts. In the north of Ghaggar River, Hanumangarh Town and in the south the habitation of Hanumangarh Junction is situated. Hanumangarh Town is the main centre of commercial activities and all the other main offices including office of the district collector are situated in Hanumangarh Town.

Problems:

1) The maximum percentage of beekeepers in possessed knowledge and general information about common beekeeping practices but lack the scientific aspects of these practices.

Proposed Interventions:
Honey testing, rearing of queen bee, method of wax production and management of bee enemies, insect/mite pests and diseases were observed the important thrust areas in which beekeepers require training.

The trainings from Indian Council of Agricultural Research have already giving training to bee farmers under Krishi Vigyan Kendra, Hanumangarh. More exhaustive and comprehensive training van be provided as a part of the initiative where farmers can understand the need from the customer’s perspective and the way to resolve the issue. The feedback from the customers should go to the farmers and they should be provided training to overcome the customer specific challenges. Though the bigger corporates are able to do a better job, this scenario is difficult for the Medium scale farmers

2) The honey export is coming under scrutiny due to the duplication and the influx of contaminated products in the market. Despite government efforts and the implementation of the certifications, adulteration still exist in the Industry.

The government should focus on increasing the awareness of certification and can introduce a trademark concept for honey. To prove the quality of honey, the suppliers have to take private certifications now, which all the farmers can’t afford. Government can intervene and give them access to quality testing of honey at affordable rates

3) The migratory system of beekeeping is more economical than stationary bee-keeping system. But lack of public and private support; weak research and development; insufficient support for small beekeepers are the main constraints in promoting migratory beekeeping in the state. Beekeepers reported major constraint as interference by the police department at check posts during migration of beehives.

Proposed Interventions:

- Promoting research and development about migratory system of beekeeping. Government can give bee farmers a pass, which they can use it to show to officials for smooth transit

4) People in the business of beekeeping across the country suffer losses due to large quantity pesticides sprayed on crops in almost all the parts of Rajasthan. Several bees have died, and thousands of bee colonies affected due to poisoning.

Proposed Interventions:
There is dire need of mass awareness camps on the issue from the apiculture department to educate farmers. Governments can restrict or impose penalty to restrict the use of some fertiliser/allow the use of certain variety of pesticides after research and development.

5) Lack of modern honey processing unit and problem of transport facility were the main important constraints faced by the apiculturists. The technological constraints include lack of awareness about management of honeybee enemies and diseases and new technologies.

Proposed Interventions:

- Setting up of Modern honey processing units in the district. Awareness campaigns on management of honeybee enemies and diseases and new technologies need to be run by Ministry of Agriculture & Farmers Welfare.
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<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed Intervention</th>
<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Training and Development</td>
<td>Training required for honey testing, rearing of queen bee, method of wax production and management of bee enemies, insect/mite pests and diseases. Additional training modules on the customer/market perspective</td>
<td>Krishi Vigyan Kendra, Hanumangarh</td>
</tr>
<tr>
<td>2</td>
<td>Product Improvement</td>
<td>Research and development about migratory system of beekeeping.</td>
<td>Ministry of Food Processing Industries</td>
</tr>
<tr>
<td>3</td>
<td>Regulatory</td>
<td>Pass to be given to the bee farmers to ensure a smooth transit between places during migration</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
<tr>
<td>4</td>
<td>Efficiency improvement</td>
<td>Mass awareness camps on the harmful effects of pesticides from the apiculture department to educate farmers. Setting up working groups to identify areas where migrations can happen and restrict uses of harmful pesticides and encouraging ways to use organic/harmless fertilisers</td>
<td>Ministry of Food Processing Industries. Krishi Vigyan Kendra, Hanumangarh</td>
</tr>
<tr>
<td>5</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Setting up of Modern honey processing units in the district. Bee’s farmers should be trained on and introduced to latest technologies</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>6</td>
<td>Leveraging Data Analytics/Blockchain to market the paintings on social media.</td>
<td>The development of an organised bee-farming sector from local to high-tech apiaries can a play significant role in this regard. IoT, AI, mobile sensors and smartphone apps can help beekeepers in raising healthy bee colonies and</td>
<td>Ministry of IT</td>
</tr>
<tr>
<td>commerce</td>
<td>timely extraction of quality honey and other products. Algorithm-based predictive models could be designed for commercial beekeepers for providing operational support to large-scale apicultural practices. The development of cost-effective indigenous technology that enables farmers to raise healthy bees on farms and assess their hive fitness through sensors or cloud information can also be introduced to this sector.</td>
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Jhunjhunu Copper (Rajasthan)

Comprise of Forty-six million tonnes reserves; (50 percent) Rajasthan, (24 percent) Madhya Pradesh, (19 %) while Jharkhand, AP, Gujarat, Haryana, Karnataka, etc. have remaining 7 percent. Madhya Pradesh stands first with (59.85 percent) in production. The Balaghat district's Malanjkhand copper mines are the most significant. Moderately-sized reserves are also located in the Betul district. Rajasthan stands second with (28 percent) in production, with reserves discovered along with the Aravali range. The districts of Ajmer, Alwar, Bhilwara, Chittorgarh, Dungarpur, Jaipur, Jhunjhunu, Pali, Sikar, Sirohi, and Udaipur.

The most significant copper production region in the Khetri-Singhana belt in the Jhunjhunu district. Khetri Nagar was established by and is under the ownership of Hindustan Copper Limited, a public sector undertaking under the Government of India, and is well known for its Copper Project. Khetri Nagar is well known by the name of 'Copper,' too.

Problem 1

Groundwater is also being polluted day-by-day by effluents generated from mineral wastes and beneficiation processes in the vicinity of mining sites.

Proposed Intervention

a. Government intervention to investigate the influence of copper mining on environment.
b. Regular inspections of pollutant concentration on ground water level.
c. Recognize that the extraction and processing of metals, both primary and secondary, can impose significant burdens on society. Also, recognize that these burdens can be mitigated to a great extent through the use of established techniques for worker safety, pollution prevention, etc.
d. Recognize that many companies already operate to high standards in the competitive global marketplace. This demonstrates the affordability of actions to protect workers and the local environment.

Problem 2

Loss of vegetation cover or agricultural land because of opencast mining.

Proposed Intervention

a. Copper is easily absorbed by plants and animals, making sure there is a safe level of copper available in water and plants/animals consumed is necessary.
b. Updating the mining techniques to extract the maximum possible metal and reduce the wastes.
c. Collaboration with manufacturing industry to ensure the traceability of supplied metals.

Problem 3

Temporal changes dues to mining in Khetri Copper complex (KCC).

Proposed Intervention

a. Studies/research to be conducted on the effect of mining on temperature.
b. Understanding the geographical & climatic conditions to better provide the suggestions to deal with temperature changes.
Problem 4

*Elevated levels of copper are toxic in aquatic environments and may adversely affect fish, invertebrates, plants, and amphibians. Acute toxic effects may include mortality of organisms; chronic toxicity can result in reductions in survival, reproduction, and growth.*

**Proposed Intervention**

a. Provisions to ensure a better aquatic life as the majority of population depends on fishes/water life for livelihoods.

b. Penalties/fines to be imposed for releasing more than threshold concentration of waste metals in water by manufacturing companies.

c. Regular water treatment plans to be executed.

Problem 5

*Smelting often produces large volumes of low concentration sulfur dioxide that is not worth further processing to remove the sulfur. Acid rain resulting from the combination of rain and SO2 can cause damage to crops, trees and buildings for many miles down-wind.*

**Proposed Intervention**

a. Reusing cooper slag - Copper slag can be used either as sandblast grit or an admixture in concrete.

b. Developing a circular economy strategy that includes systems for improved waste management. Recognize that delaying this action will generate substantial costs of environmental remediation in the near future in addition to the harm being caused at present.

c. Manufacturing goods that can be disassembled easily to facilitate recycling generally, but specifically to assist the recovery of materials for which supplies are limited.

Problem 6

*Accidents that cause injury, illness and death to workers, in mining particularly, but also elsewhere in the production process.*

**Proposed Intervention**

a. Enforcing good governance of mining and metals processing activities to ensure that hazards are rigorously controlled.

b. Adoption of best practice to minimize exposure of workers to hazardous substances and risks of accidents and to minimize environmental contamination and other risks.

c. Investment in R&D for the recycling of novel materials and new applications of materials.

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<tr>
<th>Sr. N</th>
<th>Type of Intervention</th>
<th>Proposed solutions</th>
<th>Agency</th>
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<tbody>
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</tbody>
</table>
|   | Infrastructural support with information | Provide government support to the industry at the local level by giving them information, useful tips, marketing support etc. | Department of Mineral Resources and Energy  
1. |   | Infrastructural support | Government should look after the establishment of research centers, institutes, directorates and entire departments devoted to providing support to the manufacturing units | Department of Mineral Resources and Energy  
2. |   | Policy Support | Proper guidelines as per the use of land and resources for mining related activities | Department of Mineral Resources and Energy  
3. |   | Policy Support | Designing policies to make sure there is a minimal damage to environment. | Ministry of Environment, Forest and Climate Change  
4. |   | Policy Support | Awareness among Labours and designing policies to protect their rights | The Ministry of Labour & Employment  
5. |   | Market Linkages | Provision of proper screening package and practices to create awareness about market requirements | Ministry of Information & Broadcasting, GoI  
6. |

References:

- [https://www.researchgate.net/publication/279804914_Temporal_Changes_Due_to_Mining_in_Khetri_Copper_Complex_Rajasthan/link/55e0775408aecb1a7cc444fa/download](https://www.researchgate.net/publication/279804914_Temporal_Changes_Due_to_Mining_in_Khetri_Copper_Complex_Rajasthan/link/55e0775408aecb1a7cc444fa/download)
- [https://jpoll.ut.ac.ir/article_52925.html](https://jpoll.ut.ac.ir/article_52925.html)
- [http://forests clearance.nic.in/writereaddata/Addinfo/0_0_41111261291KOLI HAN_Subsidence_REPORT_Q3.pdf](http://forests clearance.nic.in/writereaddata/Addinfo/0_0_41111261291KOLIHAN_Subsidence_REPORT_Q3.pdf)
- [https://www.oecd.org/greengrowth/Reducing%20the%20health%20risks%20of%20the%20copper,%20rare%20earth%20and%20cobalt%20industries.pdf](https://www.oecd.org/greengrowth/Reducing%20the%20health%20risks%20of%20the%20copper,%20rare%20earth%20and%20cobalt%20industries.pdf)
Pali Textiles, Rajasthan

Pali is a district of the state of Rajasthan in western India. The town of Pali is also the district headquarters. It is bounded by eight districts, Nagaur District to the north, Ajmer District to the northeast, Rajsamand District to the east, Udaipur District to the southeast, Sirohi District to the southwest, Jalore District and Barmer District to the west and Jodhpur District to the northwest. Pali has been famous for its textile industries. Cotton and Synthetic clothes and yarn was exported to other states of India on very cheap rate. Some new industries have also been developed like Bangles, Marble cutting, marble finishing etc. There is a cotton mill here named as Maharaja Shree Umaid Mills. This is the biggest cotton mill of Rajasthan. It employs 3000 workers. One of the biggest composite textile mills of India 'Maharaja Shri Umaid mills' is also situated at Pali. Main production of this mill is cotton, Hank yarn etc. which is used for preparing different cloths.

Problems

1. The influx of untreated industrial effluents into Bandi river has ruined most of the wells in the vicinity. Village residents have been forced to stop agricultural activities within two-three km of the river.

   Proposed Interventions

   a. Pollution control boards appointed in the region should keep a check on the effluents released from these mills.
   b. There should be proper transfer of knowledge and techniques to use established quality Effluent treatment plants (ETPs).
   c. Adopting to zero liquid discharge system.

2. People are averse towards the adoption of the new technology and processes because of no clear understanding of the cost benefit analysis.

   Proposed Interventions

   a. Collaborations with private firms offering technology and consultants so that these details related to technology usage and breakeven analysis are understood to the small and medium entrepreneurs.
   b. There should be proper availability of after sales service providers for these equipments, so that the maintenance work of machines is guaranteed.

3. Non-availability of easy finances and also financial incentives would trigger and also accelerate adoption of the technology.
Proposed Interventions

a. Lack of transparency from the banks side in order to disclose the list of required documents in the beginning becomes an impediment, this should be done away with.
b. Banks should refrain on keeping a subjective approach to granting of the loans.

4. Lack of skilled manpower in terms of no trained Dye Master, no trained electrician, no trained boiler operator or no trained maintenance man.

Proposed Interventions

a. Training camps and workshops within the mills or industries should be arranged in order to provided appropriate trainings to these workforces.
b. Skill development centers should be set up to help the locals with stable employment opportunities in these textile industries teaching dyeing and processing methods. This would ensure trained workforce well verse in new techniques and technologies.

5. Scarcity and inferior quality of the raw materials for the textile industry.

Proposed Interventions

a. Farmers should be trained to properly take up cotton cultivation through self-help groups
b. Establishment of careful cotton harvesting units so that the wastage is reduced to minimal
c. A raw material bank may be established where all kinds of inputs for textile manufacturing are made available for effective and timely distribution to the mills

6. Occupational health issues of textile industry workers along with poor socio-economic conditions

Proposed Interventions

a. Proper guidance on health, nutrition and sanitation to the workers
b. Additional medical support to new mothers and appropriate work reliefs to attend their newly borns by the assistance of women Self-help groups
c. Assurance of equal wages to both male and female workers for the same standards of work

7. Marketing and awareness of the product is not sufficient even in the domestic market
### Proposed Interventions

a. The handloom and textile industry is required to develop a good branding system in order to maintain the quality and uniqueness of the different handloom products

b. The products should be developed in accordance with the demands of the target customers in both Indian & international markets

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<tbody>
<tr>
<td>1</td>
<td>Skill, expertise transfer</td>
<td>There should be proper transfer of knowledge and techniques to use established quality Effluent treatment plants (ETPs).</td>
<td>Rajasthan State Pollution Control Board</td>
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<tr>
<td>2</td>
<td>Service support</td>
<td>There should be proper availability of after sales service providers for these equipments, so that the maintenance work of machines is guaranteed.</td>
<td>Ministry of Textiles, Ministry handling Industrial equipments</td>
</tr>
<tr>
<td>3</td>
<td>Credit support</td>
<td>Banks should refrain on keeping a subjective approach to granting of the loans.</td>
<td>Ministry of Finance, GoI</td>
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<tr>
<td>4</td>
<td>Training &amp; development (Upskilling)</td>
<td>Training camps and workshops within the mills or industries should be arranged in order to provide appropriate trainings to these workforces. Skill development centres</td>
<td>Ministry of Human Resource development</td>
</tr>
<tr>
<td>5</td>
<td>Training &amp; development (Upskilling)</td>
<td>Farmers should be trained to properly take up cotton cultivation through self-help groups</td>
<td>Department of agriculture &amp; Farmers’ welfare</td>
</tr>
<tr>
<td>6</td>
<td>Healthcare services</td>
<td>Proper guidance on health, nutrition and sanitation to the workers &amp; equal wages</td>
<td>Ministry of Textiles, RJ</td>
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<tr>
<td>7</td>
<td>Market analysis</td>
<td>The products should be developed in accordance with</td>
<td>Ministry of Information &amp;</td>
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<td>the demands of the target customers in both Indian &amp; international markets</td>
<td>broadcasting</td>
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**References:**

- Detailed Project Report on Residual Moisture measurement and Control system in Stenter by Bureau of Energy efficiency
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Sri Ganganager Kinnow, Rajasthan

About Sri Ganganagar

Ganganagar, formerly Sri Ganganagar, is a city in the extreme northern Rajasthan state in the northwestern India. It lies in a level plain of irrigated farmland about 20 Kms southeast of the Pakistan border. During the 1970s, it grew rapidly as an agricultural distribution center. The city has textile sugar and rice mills. About 70-75% of the people are dependent on farming.

About Kinnow

Kinnow is a high yield mandarin hybrid from the citrus family. It is a hybrid variety of two kinds of citrus cultivators—King (Citrus nobilis) and Willow Leaf (Citrus deliciosa). Kinnow is a rich name among fruits and one of the most famous fruit grown all over the world. India is the third largest producer of citrus fruit. The major producing states in India are Maharashtra, Punjab, Andhra Pradesh & Madhya Pradesh, which collectively have about 71.45% of total area under mandarin (Kinnow) cultivation.

Kinnow has become extremely popular among growers and consumers from the citrus family of fruits because of its rich fruit quality and economic significance. Kinnow is widely accepted and the most important form of mandarin in the Punjab region of India and Pakistan, where Kinnow fruit trees constitute about 80%.

Kinnow harvesting usually starts in November and goes on till March. Due to longer duration of winter in Punjab, late harvesting of Kinnow, the fruit’s market share is lost to Nagpur oranges. To export the Kinnow in its potential market, it requires waxing, packaging, grading and transportation. The prices of Kinnow ranges from Rs 18-20 per Kg on the season, however in the upsurge or in off season it can go as high as Rs 30 per Kg.

Kinnow Vs Orange
Kinnow is juicier than orange and has more sour taste, while orange tastes sweeter. Both oranges and kinnow are vitamin C rich fruits found in abundance during the winter months.

It’s not just they look identical, but they also belong to the same citrus family of fruits Rutaceae.

Kinnow is generally darker in colour and has thicker skin. Kinnows in general have higher yield hence they are cheaper compared to oranges.

Problems

1. The farmers in the harvest of kinnow gets a lower income as the processing Industries or those who do value addition gets a greater share of money. Also, there is a lack of an organized market in the state.

Proposed Interventions

a) Processing industry for kinnow to give better prices to its growers. If the variety of is rare and the government needs to protect it, minimum support price must be increased, and the price should give reasonable profit for the farmers to continue in the sector. Also, there is huge competition from the orange growers, as it is perceived that orange offers more health benefits and easy to eat (less seeds)

b) Organising weekly mandis for the product to ensure fair price to the farmers.

c) To add to this, the producers can be trained/educated about the uses of the product and provide them with the details (range of customers who can buy at higher prices and try to reduce/eliminate the need for middlemen)

2. Labour intensive farming method. It depends a lot on the availability of timely labour.

Proposed Interventions

a) More research and latest technologies can be introduced to help the farmers pluck the fruit with minimal damage. The scope of innovation needs to improve in this area.

b) Also, the farm tools and machinery introduced for use in hilly terrain

3. High rainfall with favorable temperature regime and cultivation leads to several fungal, bacterial and viral diseases of Citrus. Major damage is infested by Citrus Canker, Scab, Dieback and fruit dropping which greatly affects its export quality & quantity. Also the cost o insecticides are also quite high in this field
Proposed Interventions

a) Spray against insect pest particularly in nursery for leaf miner and scab should be scrupulously followed and regularly done

b) SOP must be prepared, and the training must be provided to the people involved in the farming to ensure farmers are aware about the counter measures when faced with an adversity

c) Government can facilitate the formation of FPC (Farmer producer company). Pooled purchased can be done through FPC at bulk price and onward sale to member farmers at wholesale price keeping minimum operating margins

4. Area under cultivation usually has a high rainfall due to which the soils become highly leached, acidic and are generally poor in fertility and water holding capacity. They tend to lose nutrients

Proposed Interventions

a) Additives to be added to neutralize the soil acidity (for example lime) and increase the nutrients of the soil. Farmers has to be trained on improving the soil quality by consultants/experts in the field.

b) Organic manures can also be tried as against the chemical fertilizers. The application of well decomposed organic matter helps to prevent sudden fluctuation of soil pH and improves the buffer capacity of soils.

5. Promotion of this specific variety of kinnow and training on methods of preservation needs to be done

Proposed Interventions

a) As this variety of product already has a geographic indicator, it has to be promoted to the foreign market stating the benefits of this.

b) Skill training and capacity building for producers has to be done, so that they can promote the product well on their own. Government can also look into new uses of the product.

c) As we are looking to the export market, proper choice of cold storage has to be made and the farmers has to be educated on the same

d) Collaborative interventions to support private entrepreneurs in branding and packaging of their products and to onboard them on to e-commerce.

6. Packaging is also an area of concern which can lead to damage of fruits resulting in loss of revenue. Also, high transportation cost is a challenge for the stakeholders involved

Proposed Interventions
a) Government should train the producers involved in the Industry about the packaging of kinnows to avoid/prevent the damages of the fruit during transit, as it a critical area of concern
b) Tie up with FPC can be done to have a budgeted contract for transportation

7. Lack of information on availability of good quality Vs scrummed planting material. Farmers don’t follow the best practices of production like maintaining a plant-to-plant gap

Proposed Interventions

a) Crop demonstration to be given for usage of seeds developed by researchers and proper SOP has to be laid out for the same
b) Awareness must be created for farmers to use recommended best practices like soil testing, land preparations, line sowing, and seed rate

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<tbody>
<tr>
<td>1</td>
<td>Training and development</td>
<td>Use of Additives; Use of Organic manures and Training for farmers to use suggested fertilization methods; Skill training and capacity building for producers</td>
<td>Indian Council of Agricultural Research (ICAR), Directorate of Horticulture (Rajasthan)</td>
</tr>
<tr>
<td>2</td>
<td>R&amp;D</td>
<td>More research has to be done on Pest &amp; Disease Control; Implementation of better pest management practices</td>
<td>Indian Council of Agricultural Research (ICAR)</td>
</tr>
<tr>
<td>3</td>
<td>Marketing</td>
<td>Branding &amp; Packaging support needs to be provided; Better marketing strategy – On boarding brands or startups onto e-commerce</td>
<td>Ministry of Commerce &amp; Industry and Invest India team</td>
</tr>
<tr>
<td>4</td>
<td>Supply Chain</td>
<td>Supporting small entrepreneurs through arranging buyer-seller meets, expediting applications, etc.</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
</tbody>
</table>

References
Dholpur Stone Tiles & Slab (Rajasthan)

Dholpur has witnessed some of the oldest civilizations and is extremely rich in cultural heritage. The history of this princely state is known to date back to Buddha’s time. Several centuries ago, Dholpur was a part of the Mauryan Empire and came under the rule of various rulers all along the Mughal period. Around the 8th to the 10th century, Dholpur was known to be ruled by the Chauhans. Until 1194, it continued to be under the rule of Mohammed Gauri. Dholpur was initially known as Dhawalpuri named after the ruler Raja Dhawal Deo, also known as Dholan Deo Tomar who established the city in 700 AD (historians have dated the formation to 1005 AD). Later, it came to be known as Dholpur. Dholpur, remained a princely state, till it became a separate district in 1982 comprising four tehsils of Bharatpur — namely Dholpur, Rajakhera, Bari and Baseri. Carved out of Bharatpur district, Dholpur is surrounded by Agra on the north, Morena district of Madhya Pradesh on the south and Karauli on the west.

Dholpur stone is natural sand stone it has three color- pink, beige & red, it is availabe in natural surface and sawn finished, cut-to-size & slab of all type of dholpur stone. They are thought about to be one of the very best natural stones for the market being commercial or household objective. To specifying a good quality natural stone we have to defined it by resilience as well as hardness, toughness, amenability to dressing, appearance, weight, fineness of grain and also building and construction and also density as well as porosity and also absorption that being thought about

Problems:

Raw material Issues:

Availability of capital to buy the mines in auction. One common problem raised by the people involved in the Industry is the security deposit involved in the mining auction. It used to be in First Come First serve basis a few years back. Now, as the auction demands a security deposit of around Rs 20 lakhs, it became difficult for the manufacturing people to pay upfront. Plus, there is an issue of high electricity prices and also the merchandise people involved in the Industry has to pay taxes to buy the product whereas there is no GST while selling it to the export market

Proposed Intervention:

The major change the government can do is to make the region an SEZ Zone. It will help the Industry to grow and enhance the reputation of the Industrial region. Also, due to which there will be inherent reduction in electricity prices and tax reduction. Also, as the reputation increases which leads to reduced risk (as government intervention is decreased. It will lead to a decreased security deposit (due to back up or support provided by the government)

No government patronization. There is no such specific scheme for this craft by the Government. There are some Govt. organizations working in the crafts are not working properly as the administrators have no direct link with the artists and their work
Proposed Intervention:

State specific schemes needs to be devised to improve the Industry. Training programs can be increased on the how to make the craftsmen and the MSMEs understand the customer’s need and develop products based on their need.

The process of making a product remains the same as the past. The technique is typical and traditional, which is very hard and laborious. The artisans still make conventional products. They were unaware of modern machines and techniques. New technologies like 3D printing and their impact on livelihood and scalability on workers needs to be studied. Also, there is lack awareness of market across India and abroad if they make innovative designs/products. Also, there is no differentiating factors for this product. Middlemen have a major role to play for this Industry.

Proposed Intervention:

a) Training/workshops can be held so that different prototypes or theme-based products can be made. They should be exposed to the practical uses and benefits of the latest technologies like 3D printing. Government can plan on giving subsidies and more focus on the latest technology to the practitioners.

b) Various specialized organizations can help the local units to produce various value-added items which would not only help to penetrate the local market, but also help in exporting of such items to foreign countries.

c) Geographical Indicator/Trademark can be provided to differentiate the product, which would enhance the Industry reputation. It will also reduce the role played by the middlemen and increases the profitability of the manufacturers.

Lack of a big cooperative/channel for the Industry

Proposed Intervention:

Cooperatives can be set and monitored by the government, till the time the Industry get streamlined and can be left to act on its once after achieving a stability.

Health Hazard. The dust from stone slabs enters the lung and leads to respiratory problems like bronchitis.

Proposed Intervention:

Functional sprinklers must be installed so that the dust doesn’t remain in the air.

PPE kits to be made mandatory for the workers/laborers involved in the production.
As stone products can be damaged during transportation, it is leading to significant cost increase as most of the time, the cost is being borne by the shop owner/merchandise

**Proposed Intervention:**

Ensuring proper transportation guidelines like

a. Choose the correct box size
b. Wrap every item
c. Use dunnage to fill any remaining space between the product and the box
d. Label the box as fragile
e. In case of big item, it can be dismantled and folded and then can be assembled at the required destination (IKEA model)

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<td>Invest India team (Ministry of Commerce &amp; Trade)</td>
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<td>2.</td>
<td>Training and Development</td>
<td>Skill development training programs/Export Assistance</td>
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<td>Formation of Cooperatives</td>
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<td>5.</td>
<td>Packaging</td>
<td>Packaging training/workshops</td>
<td>1. MSME</td>
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<td>Awareness to be created on the health hazards and the precautions needed to be</td>
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References/Sources:

Surender Singh Charan.2019. An economic study of the various aspects of Sandstone sector in the Dholpur district of Rajasthan. Rajasthan


https://medium.com/@kotastoneflooring/dholpur-stone-in-rajasthan-a7485e4806e9
The yellow limestone and sandstone of Jaisalmer, famous as golden stone, have been extensively used in architectonic heritage of western India. The golden yellow limestone and sandstone built architectonic heritage impart an exquisite character to Jaisalmer city, which is popularly known as 'The Golden City'. The Jaisalmer Fort built by limestone and sandstone has been listed as a world UNESCO heritage site—locally referred to as 'Sonar Qila' meaning 'Golden Fort'. Jaisalmer is renowned for architecturally distinctive Jaisalmer Fort, Palace of Maharawal (now Fort Palace Museum), Jain and Lodurva temples, Nathmalji-ki-Haveli, Patwon ki Haveli and Salim Singh ki Haveli and Bada Bag cenotaphs (burial monuments, locally known as chattris) constructed by yellow limestone and sandstone.

The limestone and sandstone used in the architectonic heritage are decorated by fine and minute ornate carvings. The yellow limestone and sandstone, well exposed around the Jaisalmer city, belong to the Jaisalmer Formation of Jurassic age. The golden-yellow Jaisalmer limestone is hard, compact with low porosity and smooth surface which has been classified into microfacies varying from oolitic to bioclastic grainstone, wackestone, mudstone and packstone. In general, these limestones have fossil fragments as skeletal allochems whereas pellets, ooids and intraclasts as non-skeletal allochems, having micritic cement. The golden-yellow to grey coloured, dominantly fine to medium grained, well-bedded, hard sandstones are largely classified as calcareous arenites by a wide array of researchers.

The framework quartz grains are dominantly monocrystalline, cemented largely with carbonates and in some with iron oxides. The quarrying of ornamental yellow limestone and sandstone has been going around the city of Jaisalmer for decades, which are sought by various countries due to their pleasing color, texture and aesthetics. The yellow limestone and calcareous sandstone are commonly traded as yellow marble and generally used as flooring tiles, wall claddings, counter tops and most importantly as an ornamental stone. The yellow limestone and sandstone of Jaisalmer Formation from India can be designated as 'Global Heritage Stone Resource' and together they can lay claim for the designation of 'Global Heritage Stone Province'.

**Problems:**

1. The process of making a product remains the same as the past. The technique is typical and traditional, which is very hard and laborious. They were unaware of modern machines and techniques. New technologies like 3D printing and their impact on livelihood and scalability on workers needs to be studied.

**Proposed Intervention:**

- People in the Industry are getting the required trainings and they should be exposed to the practical uses and benefits of the latest technologies like 3D printing. Government can plan on giving subsidies and more focus on the latest technology to the practitioners.

1. **Raw material Issues:**
Availability of capital to buy the mines in auction. One common problem raised by the people involved in the Industry is the security deposit involved in the mining auction. It used to be in First Come First serve basis a few years back. Now, as the auction demands a security deposit of around Rs 20 lakhs, it became difficult for the manufacturing people to pay upfront. Plus, there is an issue of high electricity prices and also the merchandise people involved in the Industry has to pay taxes to buy the product whereas there is no GST while selling it to the export market

Proposed Intervention:

a. The major change the government can do is to make the region an SEZ Zone. It will help the Industry to grow and enhance the reputation of the Industrial region. Also, due to which there will be inherent reduction in electricity prices and tax reduction. Also, as the reputation increases which leads to reduced risk (as government intervention is decreased. It will lead to a decreased security deposit (due to back up or support provided by the government)

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a. Training/ workshops can be held so that different prototypes or theme-based products can be made.

a. Various specialized organizations can help the local units to produce various value added items which would not only help to penetrate the local market, but also help in exporting of such items to foreign countries.

b. Geographical Indicator/Trademark can be provided to differentiate the product, which would enhance the Industry reputation. It will also reduce the role played by the middlemen and increases the profitability of the manufacturers

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Proposed Intervention:

a. Cooperatives can be set and monitored by the government, till the time the Industry get streamlined and can be left to act on its once after achieving a stability.

5. Health Hazard. The dust from stone slabs enters the lung and leads to respiratory problems like bronchitis.

Proposed Intervention:

a. Functional sprinklers must be installed so that the dust doesn’t remain in the air.
b. PPE kits to be made mandatory for the workers/laborers involved in the production

6. As stone products can be damaged during transportation, it is leading to significant cost increase as most of the time, the cost is being borne by the shop owner/merchandise

Proposed Intervention:

Ensuring proper transportation guidelines like

a) Choose the correct box size
b) Wrap every item
c) Use dunnage to fill any remaining space between the product and the box
d) Label the box as fragile
e) In case of big item, it can be dismantled and folded and then can be assembled at the required destination (IKEA model)

7. The artisans are less aware about Government schemes (Credit facility, Land/ Shed facility, Trade fair participation etc)

Proposed Intervention:

a. The craftsmen should be made aware about the current schemes related to their products through training workshops.
b. They should be made aware of HSN of their product and potential their products have for exports.
c. Videos of their progress (from scheme benefits) can be further promoted to motivate the craftsmen to further expand their product range.
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<td>7.</td>
<td>Certification</td>
<td>GST Registration and Brand Registration</td>
<td>District Industries Centre</td>
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<td>8.</td>
<td>Packaging</td>
<td>Packaging training/ workshops</td>
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References/Sources:
West Godavari (Andhra Pradesh) – Processed Shrimp

West Godavari District is well developed in Fisheries with Resources of Fishery wealth in Marine, Brackish Water, Reservoir and Inland Fisheries. It is in fact the aqua hub of Andhra Pradesh. It has coastline of 19 kilometers with total culture area of 67,518 hectares both brackish and fresh water culture with 26580 farmers registered and the aquaculture exists in 29 Mandals. The aqua potential area contributed from West Godavari district is 22,261 hectares (25 %) to that of Andhra Pradesh. At present there are 09 registered Aqua societies in West Godavari District and there are 179 farmers involved in shrimp farming with a total WSA of 140 Hectares

Problems

1. The lack of availability of quality seed is the major problem for sustainability of the shrimp farming in the West Godavari region. Disease outbreaks also appeared to be the major threat to shrimp farming

   **Proposed Intervention**
   a. Mechanism for seed certification by the State fisheries department has to be developed to ensure supply of healthy and quality shrimp seed (Venkatrayalu, 2016)
   b. There is need to bring a comprehensive legislation on the practice of BMPs (better management practices) in general and quality of seed in particular in the shrimp farming.

2. Viral and bacterial disease outbreaks were considered as the major constraint for the shrimp industry. The most common diseases observed are Black gill disease, IHNNV White muscle disease and White gut disease

   **Proposed Intervention**
   a. Implementation of Information and communication technologies, price information should be disseminated to farmers
   b. Shrimp farmers should be educated on the importance of Better Management Practices (BMPs) particularly on water quality
   c. Ensuring the contents and proximate composition of chemicals and probiotics on the label of the packet to be used for shrimp farming

3. Though Shrimp aquaculture has contributed significantly in employment generation and infrastructure development of the coastal community, yet small and marginal farmers are still to be benefited from the shrimp farming
Proposed Intervention

a. Organizing the farmers into Farmer Producer Organizations (FPOs) in order to develop a bargaining entity for the community
b. There is a need to bring Insurance particularly for small and marginal farmers and the Government should contribute certain percentage of the premium to reduce economic risks involved in the shrimp farming
c. Regularization of shrimp farming in non–regularized areas (where shrimp farming is practiced in Government vacant and assigned lands)
d. Government should establish Aquatic Quarantine Facilities (AQF) and Brood Stock Multiplication Centers for sustainability of Shrimp farming in Andhra Pradesh (Patnaik, 2019)

4. Increased cost of production on account of feed creates burden on the farmers eventually resulting in many of them exiting the industry

Proposed Intervention

a. Subsidizing raw materials for feeds to ease out the financial burden of the shrimp farmers
b. Developing alternatives feeds which are relatively cost effective and can be available in large amounts

5. The shrimp industry near West Godavari region suffers from lack of proper infrastructure around transportation, logistics and other such operational activities

Proposed Intervention

a. Central and state government must collaborate to provide suited infrastructure in terms of roads, functional trade centers and rest houses for the buyers
b. Warehousing and transportation should also be facilitated either by the help of governments of by involvement of a reliable private partner
c. Sufficient tax breaks, rebates and subsidies in order to make them self-sufficient for providing wages and salaries to the workers

6. Lack of organized markets and trade fairs results in manufacturers having little understanding about changing consumer preferences and contemporary products

Proposed Intervention

a. Exposure to intra-national and international markets can help sellers to reach out to the larger markets and eventually increasing the sale
b. Organizing regular trade fairs would aware the manufacturers about new products and their quality
c. Collaboration with Ministry of fisheries to understand the landscape and newer technologies adopted
7. Lack of exposure to foreign buyers, international selling standards and little idea of buyer's preferences

Proposed Intervention

a. Frequent global BSMs (Buyer-seller's meetings), administrative and logistical support from authorities and a well-researched and elaborate about foreign consumer preferences can help rectify the issue of foreign market penetration
b. Leveraging Digital mediums to connect the manufacturers with the large scale sellers around the world

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<td>Regulatory</td>
<td>Seed Certification, bringing legislation</td>
<td>Ministry of environment, Ministry of agriculture</td>
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<td>2.</td>
<td>Regulatory/Training and development</td>
<td>Implementation of Information and communication technologies, BMP training for farmers</td>
<td>Ministry of commerce and industries, Ministry of Agriculture</td>
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<td>3.</td>
<td>Value Addition</td>
<td>Organizing the farmers in FPOs, providing insurance to the small farmers</td>
<td>Ministry of commerce and industries, Ministry of Agriculture</td>
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<td>4.</td>
<td>Administrative</td>
<td>Subsidizing raw material for feeds</td>
<td>Ministry of commerce and industries, Ministry of Agriculture</td>
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<td>5.</td>
<td>Infrastructure and manufacturing</td>
<td>Providing suitable infrastructure and promoting the products</td>
<td>Ministry of commerce and Industries, State industry center</td>
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<td>6.</td>
<td>Value addition</td>
<td>Organizing Trade Fairs</td>
<td>Ministry of commerce and industries</td>
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<tr>
<td>7.</td>
<td>Branding</td>
<td>Buyer seller meets and administrative support</td>
<td>Ministry of commerce and industries, Invest India</td>
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</table>

References


Shivamogga Banana, Karnataka

Shimoga, officially known as Shivamogga, is a city and the district headquarters of Shimoga district in the central part of the state of Karnataka, India. The city lies on the banks of the Tunga River. Being the gateway for the hilly region of the Western Ghats, the city is popularly nicknamed as "Gateway of Malnad". Banana crops are grown in the drier portion of the district east of the Western Ghats. The fruit is variable in size, color, and firmness, but is usually elongated and curved, with soft flesh rich in starch covered with a rind.

Export bananas are picked green, and ripen in special rooms upon arrival in the destination country. These rooms are air-tight and filled with ethylene gas to induce ripening. The vivid yellow color consumers normally associate with supermarket bananas is, in fact, caused by the artificial ripening process. Flavor and texture are also affected by ripening temperature.

Problems

1. Most of banana products except chips are not very popular among the consumers. It is basically due to lack of awareness on the potential of using banana in various forms both among growers and consumers. In some states like Kerala where more number of banana based products are popular, and it has remained as a household profession. Many have not attempted to commercialize it.

Proposed Interventions

a. Leveraging cross-promotions by the retailers can help people make aware of the various banana products available.

b. Integrated promotional strategies can be used by retailers with the use of use of different promotional tools to maximize volume lift, from depth of discount, seasonality, frequency, ad length, product mix and secondary placements.

c. Participating in themed promotions, encouraging home producers to participate in trade fairs, workshops can also be effective.

2. India is yet to develop a technology to process banana on commercial scale to meet out international quality standards and to compete in the global market.

Proposed Interventions

a. Farmers need to be educated about export requirements and international quality standards.

b. Agri-export Zones (AEZ) need to be setup in these areas in order to educate the farmers about export requirements and international quality standards.

c. Farmers need expert guidance in order to maintain export quality standards, understand the modes of packaging and the criteria that need to be satisfied.

3. There are some scientific constraints like browning of the products like pulp / puree juices after processing.

Proposed Interventions
a. Currently, good facilities are available where the temperatures can be tweaked to maintain cold storage. A study of available cold storages needs to be carried out to understand the use and extent of requirement of the farmers.
b. Researches to understand and delay and prevent browning processes should be commenced by the National Research Centre.

4. **Lack of proper advertisement and product promotion in domestic market and poor promotional efforts in the international market for Indian banana.**

**Proposed Interventions**

a. Steps should be taken to link production, marketing and processing of Bananas to avoid seasonal gluts in the markets.
b. Considering the fragility of the fruit, careful harvesting and handling of harvested fruits are of critical importance to maintain their “Sales appeal” and delicate flavour.
c. Advance marketing credit/loan facilities should be provided by the banks to the Bananas producers.

5. **Though 97% farmers adopt drip irrigation, fertigation is not carried out. Soil application and drenching with fertilizer solution is done manually, this consumes more labour increasing the cost of productivity.**

**Proposed Interventions**

a. Agricultural Engineering College and Research Institutes of Karnataka can make the farmers aware of the fertigation techniques where water and fertilizer are provided through drip irrigation technique as and when required. The duration of supply should be closely monitored to prevent excess use of water.
b. Soil and Water Conservation Engineering Institute can carry out soil sampling to understand soil quality of plantations, methods to improve productivity, fertilizers and pesticides to farmers, and good practices to farmers.

6. **Collusion between the brokers and the buyers at price fixation, Delay in the payment of amount due to farmers and even dragging payment, Chain of intermediaries between the producers and the final consumer’s viz., village merchant, itinerant traders, wholesalers, commission agents, pre-harvest contractors and the retailers. At all levels a margin is cut which is due to the farmers.**

**Proposed Interventions**

a. Producer’s organisations and co-operative societies should be formed for marketing of Bananas fruit.
b. Co-operative Marketing Societies can be set up to enable direct marketing to consumers. A co-operative marketing society can eliminate some or all of the intermediaries and can reach to the consumers and establish direct trade relations with them. This will make commodities cheaper to the consumers and also ensure good quality of produce to them because much of the handling is avoided.

c. Co-operative marketing society can also provide finance to farmers and thus ensuring better returns for their produce. Besides marketing society can act as an agent of credit co-operative society and help to recover loans advanced by credit societies.

7. *Banana harvest is also affected by pest such as Sigatoka, which is a fungus which occurs in some plantations due to climate changes leading to quality and production loss to the cultivators. Farmers lack skill training in terms of storage, financing, grading, loading/unloading are costlier as per export standards.*

**Proposed Interventions**

a. Producer’s organisations and co-operative societies should be formed for marketing of Bananas fruit.

b. Farmers can be sufficiently skilled through the National Skills Development Corporation Limited in order to understand integrated pest and disease management in Banana Cultivation.

c. Practical sessions can be facilitated to aid further skill training and make them aware of the best suited variety for a particular type of cultivator

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<th>Sr. No</th>
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<th>Proposed solutions</th>
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<tbody>
<tr>
<td>1</td>
<td>Training &amp; awareness</td>
<td>Farmers need to be educated about export requirements and international quality standards. Agri-export Zones (AEZ) need</td>
<td>Ministry of Agriculture, Ministry of Commerce and Industry, National Horticulture Board, APEDA AgriXchange</td>
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<td></td>
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<td>to be setup in order to educate the farmers about export requirements and international quality standards.</td>
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<tr>
<td>2</td>
<td>Infrastructural support</td>
<td>Producer’s organisations and co-operative societies should be formed for marketing of Bananas fruit.</td>
<td>Ministry of Agriculture, Ministry of Commerce and Industry, National Horticulture Board</td>
</tr>
<tr>
<td>3</td>
<td>Training &amp; Development</td>
<td>Farmers can be sufficiently skilled in order to understand integrated pest and disease management in Banana Cultivation, and also training is required in terms of storage, financing, grading, loading/unloading are costlier as per export standards.</td>
<td>National Skill Development Corporation (NSDC), Agriculture Skill Council of India (ASCI), Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Skill India</td>
</tr>
<tr>
<td>4</td>
<td>Training &amp; Development</td>
<td>Make the farmers aware of the fertigation techniques where water and fertilizer are provided through drip irrigation technique as and when required.</td>
<td>National Research Centre (NRC)</td>
</tr>
<tr>
<td>5</td>
<td>Research &amp; Development</td>
<td>Need to carry out soil sampling to understand soil quality of plantations, methods to improve productivity, fertilizers and pesticides to farmers, and good practices to farmers.</td>
<td>Indian Council of Agricultural Research (ICAR), Soil and Water Conservation Engineering Institute</td>
</tr>
<tr>
<td>6</td>
<td>Women empowerment</td>
<td>Need to encourage participation of women in Banana Cultivation processes.</td>
<td>Directorate of Research on Women in Agriculture</td>
</tr>
<tr>
<td>7</td>
<td>Training &amp; Development, Institutional support</td>
<td>Farmers need expert guidance in order to maintain export quality packaging standards, understand the modes of packaging and the criteria that need to be satisfied.</td>
<td>Indian Institute of Packaging (IIP), The Agricultural and Processed Food Products Export Development Authority (APEDA)</td>
</tr>
</tbody>
</table>

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Product: South Andaman Tuna, Andaman & Nicobar Islands

Tuna is a species of saltwater fish that ranges in habitat from the Atlantic Ocean all the way to Indonesia. The most commonly known species of tuna in the United States are Skipjack, also known as “light” tuna, and Albacore, also known as “white” tuna. Albacore is the only kind of tuna that can legally be sold under the label “white meat tuna.”

Tuna fish is one of the most popular varieties of seafood in the world. In addition to its abundance and meaty flavor, tuna is also extremely nutritious.

**Health Benefits**

Tuna is an excellent source of **vitamin B12**, an essential vitamin needed to make DNA. Vitamin B12 also helps you to form new red blood cells and prevent the development of **anemia**.

The health benefits of eating tuna also include:

- **Lower Risk of Heart Disease**

  The high levels of **omega-3 fatty acids** in tuna fish may help to reduce the level of **omega-6 fatty acids** and **LDL cholesterol** that can accumulate inside the arteries of the heart. Studies have shown that eating more omega-3 is associated with reduced rates of cardiovascular disease, including heart attacks.

- **Prevent Vision Problems**

  The omega-3s in tuna also seem to have a positive effect on eye health. In a study of 40,000 female health professionals, women who ate multiple servings of tuna per week had as much as a 68% lower risk of developing **dry eye**. Omega-3s are also thought to contribute to the overall health of the retina.

- **Reduced Risk of Cancer**

  Tuna’s omega-3 fatty acids are also believed to slow the growth of tumor cells and reduce inflammation in the body. This is important because many types of cancer are correlated with chronic inflammation.

- **Support Weight Loss**

  Tuna is a lean meat. It’s relatively high in protein, but low in calories, which means that it keeps you full longer and stops you from eating more. In one study, adolescents who regularly ate lean fish like tuna for several weeks lost an average of two pounds more weight than the control group that didn’t eat fish.

**Nutrition:** Tuna is one of the best dietary sources of **vitamin D**. Just 3 ounces of canned tuna yield as much as 50% of the recommended daily level. Vitamin D is necessary for **bone health**, strengthening the **immune system** against disease, and ensuring optimal growth in **children**.

Tuna is also a great source of other vitamins and minerals, such as:

- **Iron**
- **Vitamin B6**
- **Potassium**
- **Selenium**
Nutrients per Serving

A 4-ounce serving of white tuna contains:

- Calories: 145
- **Protein**: 26.77 grams
- **Fat**: 3.37 grams
- **Carbohydrates**: 0 grams
- **Fiber**: 0 grams
- **Sugar**: 0 grams

Portion Sizes

- Because of its potentially higher mercury content, pregnant women and young children should consult with a doctor before eating tuna. Canned tuna contains less mercury than fresh tuna because of the smaller sized fish used for canning.
- The FDA recommends about two or three servings per week of light tuna and only one serving per week of white tuna. This is because of the higher mercury content in white tuna.
- The serving size of tuna for a typical adult is about 4 ounces.

How to Prepare Tuna

- Tuna can be found fresh or canned at grocery stores across the country. Since canned tuna contains less mercury than fresh tuna, it may be a better option for some. Canned tuna is always cooked beforehand and can be eaten directly upon opening.
- Tuna steaks purchased at the grocery store can be baked, grilled, or sautéed in a skillet. Apply the seasoning or marinade of your choice prior to cooking. You can buy frozen tuna steaks year round or wait for tuna to be in season.

Andaman and Nicobar Island Fishery and types of Tuna

- South Andaman seas represented by vast continental shelf (4,336 km²), lagoons (4,200 km²), territorial waters (20,000 km²) and oceanic zone (400,000 km²) is rich in tuna resources, especially oceanic species.
- Tuna production from the region varied between 7,550 t and 8,738 t, with an annual yield of 8,149 t and contributed 15.2% of the national landings.
- Fishery was supported by six species with the major portion by oceanic species (90.2%). Major gears landing tuna are pole and lines, troll lines, hand-lines and gillnets.
- Fishery is carried out with small Pablo boats and motorised or non-motorised traditional crafts and fishing activity is restricted in the near shore waters within 40 km from the islands. Fishery scenario, indicate that near shore waters are well exploited and scope for enhancing production from the underexploited oceanic waters needs to be explored for expanding the fishery.
- The fishery in India is confined to shallow inshore waters. In Lakshadweep Island, the Skipjack Tuna and small fraction of juvenile Yellowfin tuna which enters the surface waters are caught by pole and line and troll lines.

Problems
1. The proximity of our country to the resources facilitates profitable exploitation of the fishery

Proposed Intervention

Centrally Sponsored Scheme on Development of Inland Fisheries and Aquaculture

a. Pradhan Mantri Matsya Sampada Yojana (PMMSY)

Introduction

- Water bodies have immense scope for development of fisheries to strengthen the food security, generate employment opportunities and earn foreign exchange with the ultimate objective of improving the socio-economic status of fishers and other people engaged in the sector.
- In this direction, the Government of India formulated and launched the Centrally Sponsored Scheme on “Development of Inland Fisheries and Aquaculture” under macro-management approach in States/UT’s during the 10th Plan.

PMMSY Objectives

- Harness the potential of the fisheries sector in a sustainable, responsible, inclusive and equitable manner.
- Enhance fish production and productivity through expansion, intensification, diversification and productive utilization of land and water.
- Modernize and strengthen the value chain including post-harvest management and quality improvement.
- Double fishers and fish farmers’ incomes and generate meaningful employment.
- Enhance the contribution of the fisheries sector to Agricultural GVA and exports.
- Ensure social, physical and economic security for fishers and fish farmers.
- Build a robust fisheries management and regulatory framework.

Targets of PMMSY

- Fish Production and Productivity
  - Increasing fish production to 22 million metric tons by 2024-25 from 13.75 million metric tons in 2018-19.
  - Enhancing aquaculture productivity to 5 tons per hectare from the current national average of 3 tons.
  - Augmenting domestic fish consumption from 5 kg to 12 kg per capita.

Economic Value Addition

- Increasing contribution of fisheries sector to the Agriculture GVA to about 9% by 2024-25 from 7.28% in 2018-19.
- Doubling export earnings to Rs.1,00,000 crores by 2024-25 from Rs.46,589 Crores in 2018-19.
- Facilitating private investment and growth of entrepreneurship in the fisheries sector.
- Reduction of post-harvest losses from the reported 20-25% to about 10%.
Enhancing Income and Employment Generation

- Generating 55 Lakh direct and indirect employment opportunities along the value chain.
- Doubling the incomes of fishers and fish farmers.

2. The pace of development is rather unsatisfactory even after the enactment of the Law of the Sea (1976) and subsequent withdrawal of the foreign fleet from the sea

**Proposed Intervention**

a. May 2: World Tuna Day

Every year, World Tuna Day is observed by the United Nations to spread the importance of conservation of the Tuna Fish species. The tuna and tuna like species are economically important for both developing and developed countries.

**Highlights**

The United Nations passed a resolution in 2016 and the world Tuna Day is being observed since 2017. The day is marked to prevent tuna fish stocks from crashing.

**Sustainable Development Goal 14 (SDG 14)**

Several countries are dependent on tuna resources for nutrition and food security, revenue, livelihood, recreation, economic development. The day hence helps to achieve Sustainable Development Goal 14 that is Life below water. It aims to conserve and sustainably use seas, oceans and marine resources.

**Significance**

Every year more than 7 million tonnes of tuna fishes are harvested. The tuna fish account to 20% of marine capture of fisheries and 8% of globally traded sea food. The United Nations suggests implementing legal framework of the UNCLOS (United Nations Convention on the Law of the Sea) as the tuna stocks in the world oceans are declining.

According to Food and Agriculture Organization there are more than 96 countries that are involved in conservation of tuna fishes.

**COVID-19**

The COVID-19 has increased the demand for canned Tuna in the world.

*Predatory European ships push Indian Ocean tuna to the brink*

**Proposed Intervention**
a. Underwater ROV (Remotely Operated Vehicles)
- Proven, Durable and Portable Remotely Operated Vehicles.
- Deep Trekker ROVs are portable, affordable and easy to use, providing solutions to various underwater projects.
- As innovators in the ROV industry, our team can provide you with the right robotic system for your application.
- Government can deploy underwater ROV in the Indian Ocean region. The Under Water ROV can be used for naval surveillance.
- It can operate for months under the sea.

3. Yellow-fin tuna ‘heading for collapse’ by 2026: A 20% reduction in catch would turn the tide
- Stocks of Yellowfin tuna in the Indian Ocean are on a knife-edge.
- Forecasts from Planet Tracker predict that, if things carry on as they are, ‘collapse’ – defined as a 70% reduction in biomass over a decade – will take place by 2026.

Proposed Interventions

a. Indian Ocean Tuna Commission (IOTC) Proposal on a Management Procedure for Yellowfin Tuna

Objectives

To promote cooperation among the Contracting Parties (Members) and Cooperating Non-Contracting Parties of the IOTC with a view to ensuring, through appropriate management, the conservation and optimum utilisation of stocks covered by the organisation’s establishing Agreement and encouraging sustainable development of fisheries based on such stocks.

Function and responsibilities

The Commission has four key functions and responsibilities which enable it to achieve its objectives. They are drawn from the United Nations Convention on the Law of the Sea (UNCLOS), and are:

To keep under review the conditions and trends of the stocks and to gather, analyze and disseminate scientific information, catch and effort statistics and other data relevant to the conservation and management of the stocks and to fisheries based on the stocks to encourage, recommend, and coordinate research and development activities in respect of the stocks and fisheries covered by the IOTC, and such other activities as the Commission may decide appropriate, such as transfer of technology, training and enhancement, having due regard to the need to ensure the equitable participation of Members of the Commission in the fisheries and the special interests and needs of Members in the region that are developing countries; to view the current capacity building activities of the Commission to adopt – on the basis of scientific evidence – Conservation and Management Measures (CMM) to ensure the conservation of the stocks covered by the Agreement and to promote the objective of their optimum utilisation throughout the Area to keep under review the economic and social aspects of the fisheries based on the stocks covered by the Agreement bearing in mind, in particular, the interests of developing coastal States.

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<td>Credit and Product Improvement</td>
<td>Pradhan Mantri Matsya Sampada Yojana (PMMSY)</td>
<td>Development of Inland Fisheries and Aquaculture (GOI)</td>
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<td>3.</td>
<td>Anti-Counterfeit</td>
<td>Underwater ROV (Remotely Operated Vehicles)</td>
<td>Department of Science and Commerce Government of India</td>
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<td>4.</td>
<td>Quality Assurance and value Addition</td>
<td>Indian Ocean Tuna Commission (IOTC) Proposal on a Management Procedure for Yellowfin Tuna</td>
<td>Development of Inland Fisheries and Aquaculture (GOI)</td>
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Moonj is a type of wild grass that grows near the banks of rivers. It is basically outer layer of 'Sarpat' grass. Locals here make various types of decorative and household products from Moonj such as foot mats, carry bags, stools, ropes, pen stands, chairs, tables etc. This craft is practised mostly by women without using any advanced equipment. The craft also has traditional significance as the products are given as gifts to women in ritual functions and weddings.

The raw material is available once a year, so the craftsmen purchase it to meet the demand for the entire year. It is harvested during winters in October-November month. It grows up to 2 meters in height and carries white flowers.

The whole plant holds potential value for natives. The hard inner stalk is suitable for making ropes, furniture, brooms, and thatched roofs. The soft outer peel or Moonj is perfect for weaving daily-use products like baskets and containers. The plant also has medicinal value and plays a vital role in stabilizing erosion-prone land.

Process:

The first step is to make knots of green layers of Moonj, locally known as Balla. Then keep in the open sun for drying. It’s dipped into water for a few hours so that it becomes more flexible for weaving. Some Ballas are boiled in water mixed with desired colors to make colorful patterns in weaving. The Ballas are coiled around the dried Kaasa grass very tightly which makes it almost waterproof. Salai, the needle-like tool is used for weaving.

Problems

1. The Moonj grass grows only once in a year in October around the banks of Ganga and Yamuna rivers, that creates a big problem of raw-material as remains supply oriented. Moonj (Balla) is not available throughout the year. Due to the uncertainty of market demand and traders’ orders, Moonj-craft makers are not able to maintain sufficient stock of raw-material. And when they get order from any trader, they had to pay higher price for the 'Balla'(raw-material) that further increases the cost of making craft and reduces profit.

Proposed Interventions
a. Setting up of a moonj bank - a unique storehouse that would ensure these artisans do not run out of the raw materials throughout the year, in the district boosting their financial independence.

b. This moonj bank can be set up by National Institute for Micro, Small and Medium Enterprises which is also setting up a similar moonj bank in Naini, Prayagraj.

2. The forms of moonj craft explored in terms of design are primarily circular, singular, monochrome or in bright colours using artificial dyes. There is a gap in terms of design that is clearly seen.

**Proposed Interventions**

a. Design interventions are an interface between traditional and modernity, that matches craft production to the needs of modern living. Creating everyday urban products like purses, bags, folders etc using moonj would ultimately increase demand for these products and enhance the incomes of the artisans by generating continuous and meaningful involvement and help sustain their livelihoods.

b. Value addition by using a mix of materials helps in enhancing quality as it makes up for the limitations of the moonj grass in terms of strength and appeal.

3. Due to a lack of appropriate marketing channels, Moonj-craft makers are not able to find true recognition of their skill and proper livelihood support from their products. There is a need for branding, advertisement and creating demand for these products.

**Proposed Interventions**

a. Promoting increased participation of these craftsmen in national and international trade fairs, exhibitions and seminars.

b. Regular exposure through collaborations with institutes through NGOs that collaborate with CSR initiatives.

c. Right training on marketing to the artisan cluster self-help groups and entrepreneurial skills will help enhance livelihoods and empower the artisans in a big way.

4. Lack of availability and access to bank credit makes these artisans vulnerable and their production (making) process more uncertain. When these artisans get any big order for their products, they cannot buy raw-material in view of the financial constraints. As a result, there are delays in completing the order, and sometimes they are forced to cancel the order.

**Proposed Interventions**

a. At present, there are online loan application portals for MSMEs like PMEGP portal and ‘psbloansin59minutes’ portal. However, these portals have utility limited to a particular scheme or a group of banks (e.g. PSU banks). Commissioning a single universal portal subsuming the existing portals to act as a single window for entrepreneurs and provide an online marketplace for lenders.

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<tr>
<td>1</td>
<td>Logistics</td>
<td>Setting up of a moonj bank in the district.</td>
<td>National Institute for Micro, Small and Medium Enterprises</td>
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<tr>
<td>2</td>
<td>Product Improvement</td>
<td>Design intervention by creating everyday urban</td>
<td>National Skill Development Corporation (NSDC)</td>
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<tr>
<td>No.</td>
<td>Category</td>
<td>Description</td>
<td>Implementing Authority</td>
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<tr>
<td>3</td>
<td>Product Improvement</td>
<td>Value addition by using a mix of materials helps in enhancing quality</td>
<td>Ministry of Commerce &amp; Industry</td>
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<td>4</td>
<td>Branding and Marketing</td>
<td>Promoting increased participation of these craftsmen in national and international trade fairs, exhibitions and seminars.</td>
<td>Government of Uttar Pradesh</td>
</tr>
<tr>
<td>5</td>
<td>Branding and Marketing</td>
<td>Regular exposure through collaborations with institutes through NGOs that collaborate with CSR initiatives.</td>
<td>NGOs</td>
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<td>6</td>
<td>Training and Development</td>
<td>Right training on marketing to the artisan cluster self-help groups and entrepreneurial skills</td>
<td>National Skill Development Corporation (NSDC)</td>
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<tr>
<td>7</td>
<td>Credit</td>
<td>Commissioning a single universal portal subsuming the existing portals to act as a single window for entrepreneurs and provide an online marketplace for lenders.</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
</tbody>
</table>

**Sources:**

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Budaun is in the Bareilly Division. It was an independent local kingdom before 11 Dec. 1949. The Budaun district covers an area of 5168 Sq.km within six sub-Division and 18 Blocks. Out of 520039 Hectare total area, forest covers 6899 hectares. In Budaun there are more than 5,000 registered industrial units. The major Industry that has been established here is of Zari-Zardozi and there are also small-scale industries like Agro Based Industries, Garment Industries, Wooden Furniture based Industries etc.

Budaun is famous for its Zari-Zardozi products. This work is prominent in tehsil Budaun, Bisoli, and Dataganj. Almost 35 per cent of the families are engaged in this industry. The Zardozi industry is largely cottage industry. Raw materials used for this craft include silk, kardana pearl, kora kasab, fish wire, nakshi, nos, pearls, tubes, chanla, jarkan nori, leaves, mirrors, golden chain etc. Locally, this work is also known as Karchobi.

Problems

1. *There is a lack of easy flow of finance and the required raw material.*
   
   **Proposed Interventions**
   
   a. Collaborate with various credit granting bodies to provide cheaper credit facilities.
   b. Provide project and working capital financing at differential rates based on the creditworthiness of the companies.
   c. Develop units to facilitate bulk raw material acquisition at cheaper costs and subsequent distribution.

2. *The cluster lacks on strategies for publicity and marketing their products both nationally and internationally.*
   
   **Proposed Interventions**
   
   a. Promote and facilitate training and education of artisans and sellers in the area of Digital Marketing and show them cheaper ways of marketing nationally and internationally.
   b. Work towards tie-ups and MOUs with various online marketplaces to enable cheap selling of these products on the online platforms.
   c. Develop a scheme to develop the market by organizing virtual fairs, seller/artisan meets under the said scheme.
3. There is a lack of trust among the various sellers and artisans which creates an environment of unhealthy competition in the market.

**Proposed Interventions**

a. Conduct a trust survey to gauge the relationship between various sellers and artisans.

b. Facilitate formation of self-help groups (SHGs) to build trust and develop trustworthy helpful relationships.

4. Duplication in the products is relatively high as there is no quality assured signage or quality guaranteeing signs.

**Proposed Interventions**

a. Develop some quality assurance and measures to assure purity and greatness of the actual products.

b. Develop testing infrastructure in the district to facilitate easy and quick testing and quality control procedures. Such infrastructure would also reduce costs in the long run and provide a further boost to the industry.

5. The local artisans and producers cannot afford going to the trade fairs due to the high charges as well as low interest in the products in the fairs seen generally.

**Proposed Interventions**

a. Promote local fairs specifically for the wood and related products at lower prices to encourage their attendance.

b. Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

c. Provide incentives such as lower credit terms if the artisans visit these trade fairs and showcase their products.

6. Although many government schemes are present which can be used by the artisans for their benefit, they fail to reach the grassroot level. Additionally, credit is not available for any business purpose easily and therefore expanding or upgrading is an extremely difficult process.

**Proposed Interventions**

a. Develop certain smaller schemes specifically focused to this industry within a larger scheme so that clarity is maintained.

b. Analyse why credit is not available easily to the artisans and provide incentives to local banks and NBFCs to provide cheaper loans to creditworthy customers.

c. Try to develop a concept similar to self-help groups (SHGs) within the artisans’ circle so that internal help is present.

**Under Type of Intervention:** Infrastructure & Manufacturing, Regulatory, Credit, Product Improvement, Value addition, Branding and Marketing, Packaging, Anti counterfeite, Logistics, Distribution, E-commerce, Training and Development (Upskilling), Quality Assurance.

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<td>1</td>
<td>Credit</td>
<td>Provide incentives such as lower</td>
<td>Department of Financial</td>
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<tr>
<td></td>
<td></td>
<td>credit terms if the artisans visit these trade fairs and showcase their products Collaborate with various credit granting bodies to provide cheaper credit facilities Analyse why credit is not available easily to the artisans and provide incentives to local banks and NBFCs to provide cheaper loans to creditworthy customers</td>
<td>Services, Ministry of Finance SIDBI</td>
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</tr>
<tr>
<td>2</td>
<td>Raw material</td>
<td>Develop units to facilitate bulk raw material acquisition at cheaper costs and subsequent distribution</td>
<td>National Small Industries Corporation</td>
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<tr>
<td>3</td>
<td>Training and Development</td>
<td>Promote and facilitate training and education of artisans and sellers in the area of Digital Marketing and show them cheaper ways of marketing nationally and internationally</td>
<td>Ministry of Skill Development And Entrepreneurship Directorate of Training and Employment, Government of Uttar Pradesh</td>
</tr>
<tr>
<td>4</td>
<td>E-commerce</td>
<td>Work towards tie-ups and MOUs with various online marketplaces to enable cheap selling of these products on the online platforms</td>
<td>Ministry of Commerce and Industry</td>
</tr>
<tr>
<td>5</td>
<td>Branding and Marketing</td>
<td>Develop a scheme to develop the market by organizing virtual fairs, seller/artisan meets under the said scheme</td>
<td>UP Handicrafts Development And Marketing Corporation Ltd.</td>
</tr>
<tr>
<td>6</td>
<td>Value addition</td>
<td>a. Conduct a trust survey to gauge the relationship between various sellers and artisans. b. Facilitate formation of self-help groups (SHGs) to build trust and develop trustworthy helpful relationships</td>
<td>National Rural Livelihood Mission</td>
</tr>
<tr>
<td>7</td>
<td>Quality Assurance</td>
<td>Develop testing infrastructure in the district to facilitate easy and quick testing and quality control procedures.</td>
<td>Standardisation Testing and Quality Certification Directorate Quality Council of India</td>
</tr>
<tr>
<td>8</td>
<td>Quality Assurance</td>
<td>Standardize the testing procedures to ensure uniformity in quality checking between organized and unorganized players</td>
<td>Standardisation Testing and Quality Certification Directorate Quality Council of India</td>
</tr>
<tr>
<td>9</td>
<td>Value addition</td>
<td>Promote local fairs specifically</td>
<td>Department of Economic Services</td>
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</tbody>
</table>
for the wood and related products at lower prices to encourage their attendance. Promote and facilitate both organized and unorganized producers to visit international fairs by setting up a system to inform them of any such event to showcase their products and build a network both nationally and internationally.

Affairs, India Trade Promotion Organization (ITPO)
Export Promotion Bureau, Uttar Pradesh

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Zari Zardozi, Chandauli, Uttar Pradesh

Chandauli district is a district of Uttar Pradesh state of India. In 2006 the Ministry of Panchayati Raj named Chandauli one of the country's 250 most backward districts (out of a total of 640). It is one of the 34 districts in Uttar Pradesh currently receiving funds from the Backward Regions Grant Fund Programme (BRGF). The district is at a 30Km distance from the city of Varanasi. Ganga, Karmanasa, and Chandraprabha rivers form the geographical and economic strategy of the district. Agriculture is the main occupation of the people of this district, and rice and wheat are the main crops.

The Handicraft industry plays an important role in the economy of India. It provides employment opportunities to a huge segment of artisans and has the potential to earn foreign exchange for the Indian economy while preserving its cultural lineage. Handicraft provides an alternative or and additional source of income to rural households across the country. The handicraft industry is an important segment of the unorganized sector of the Indian economy. Zari-Zardozi is a type of hand embroidery and is usually done on apparel for embellishment with the help of needles, threads, and metal wires. The artisans engaged in Zari-zardozi work produce exquisite masterpieces and are in great demand locally and overseas. The said work is known for its perfection of craftsmanship, the excellence of design/form, and an unparallel sense of color. The craft thriving through generations is critically valued in India. Zardozi can be interpreted as needlework with gold and silver strings — with Zarin meaning 'gold' and dozi signifying 'embroidery' in Persian. It's believed zardozi has existed in India from the time of Rig Veda, and the use of Zari embroidery as ornamentation on the attire of Hindu deities is often found mentioned in scriptures.

Problems

1. The main raw materials for weavers are dyed yarn and hank yarn. A small proportion of households buy dyes and chemicals. Most of the raw materials are sourced from the open market. The cost of these raw materials is exorbitantly high, eating away the profit margins.

   Proposed Interventions
   
   a. The government could arrange for a low-interest credit facility for the weavers to procure raw materials.
   
   b. Alternatively, the government can even provide these materials on subsidy to registered weavers in the interest of promoting the craft.
   
   c. The credit facilities make it easier for the weavers to get raw materials in bulk and produce the products on a scale.
   
   d. They can capitalize efficient tools and techniques using this credit to produce quality products.
   
   e. The subsidy helps the weavers in increasing the profit margin and hence encourages more people to take up the trade.

2. The Zari Zardozi work is often carried out in rooms with faint lighting facilities. This results in weavers losing eyesight, color blindness, and other vision-related issues at a very young age. The appalling health hazards of this work are very evident from the numerous cases of near blindness among Zardozi workers in their late 30's. Other health hazards related to back pain and weakness are also often reported.

   Proposed Interventions
a. Regulations need to be laid out regarding the working conditions of the weavers on par with industrial works.
b. Awareness campaigns should be conducted about the correct and safe practice of pursuing the craft.
c. The health issues of the weavers will be resolved, and their productivity increases.
d. Due to the reduced risk, more people will be attracted to the craft.

3. Almost all the weavers and artisans work on these Zari Zardozi products from their homes. They then sell the products to middlemen or traders who sell them to markets. The weavers are disconnected from the markets and are unaware of the fair prices for their products. The losses owing to this are a major reason for the reduced number of weavers in the area.

Proposed Interventions

a. Local Handicraft and weavers' associations can be established which can collect the produce from weavers directly at market price and transport to markets
b. These associations can collect the product and sell it in bulk to the markets.
c. These associations can lobby with the local governments for subsidies and incentives.
d. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

4. There are no available online platforms for buying the products directly from weavers. Most of the sales are made in local and domestic markets through middlemen and traders. The products are then sold in retail stores for heavy prices.

Proposed Interventions

a. Demand for handmade handicrafts is increasing.
b. A Local Handicraft and weavers association can be established and made responsible for listing products on existing platforms and conducting workshops on packaging and shipping.
c. This increases visibility for the product and opens new markets.
d. This also provides better market penetration and reach.
e. Branding and marketing can also be done easily for the products on e-commerce platforms.

5. Currently, most of the weavers are focused on clothing like Sari, lehenga, etc. While this has been the case for ages, now the market is flooded with machine-made products with greater precision and lower costs. This reduced the demand for handmade Zari Zardozi works.

Proposed Interventions

a. To create differentiation among products, the weavers can focus on using this Zari Zardozi work on products other than clothing.
b. They could be encouraged to work on alternate products like pillow covers, carpets, etc., whose market competition is fairly deserted today.
c. The new products offer a differentiation over the other market products. These products can reach newer markets, and hence marketing for the conventional works can also be done through these.
d. Overall market penetration and reach increases for the Zari Zardozi work.
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<tbody>
<tr>
<td>1</td>
<td>Regulatory, Credit</td>
<td>The government could arrange for a low-interest credit facility for the weavers to procure raw materials. Alternatively, the government can even provide these materials on subsidy to registered weavers in the interest of promoting the craft.</td>
<td>Development Commission for Handicrafts of the Labour Ministry, Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>2</td>
<td>Regulatory, Training and Development (Upskilling)</td>
<td>Regulations need to be laid out regarding the working conditions of the weavers on par with industrial works. Awareness campaigns should be conducted about the correct and safe practice of pursuing the craft.</td>
<td>Development Commission for Handicrafts of the Labour Ministry, Ministry of Skill Development &amp; Entrepreneurship, ODOP</td>
</tr>
<tr>
<td>3</td>
<td>Regulatory, Logistics-Distribution</td>
<td>Local Handicraft and weavers’ associations can be established which can collect the produce from weavers directly at market price and transport to markets</td>
<td>Development Commission for Handicrafts of the Labour Ministry, Ministry of Skill Development &amp; Entrepreneurship, Department of MSME &amp; Export Promotion</td>
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<tr>
<td>4</td>
<td>Regulatory, E-Commerce</td>
<td>A Local Handicraft and weavers association can be established and made responsible for listing products on existing platforms and conducting workshops on packaging and shipping.</td>
<td>Development Commission for Handicrafts of the Labour Ministry, Department Of Handicrafts (Ministry of Textiles), Ministry of Skill Development &amp; Entrepreneurship, Department of MSME &amp; Export Promotion, ODOP</td>
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<tr>
<td>5</td>
<td>Value</td>
<td>The Weavers could be</td>
<td>Development Commission for Handicrafts of the Labour Ministry</td>
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</table>
addition, Branding, and Marketing encouraged to work on alternate products like pillow covers, carpets, etc., whose market competition is fairly deserted today.

**Ministry of Skill Development & Entrepreneurship ODOP**

**References/Sources**

- Study Report on Problems and Prospects of Handloom Sector in Employment Generation in the Globally Competitive Environment by Dr. Sudhanshu K K Mishra, Rakesh Srivastava and K I Shariff, Dy General Managers/Faculty Members
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- https://chandauli.nic.in/about-district/
Firozabad Glass wares (Uttar Pradesh)

Firozabad is a city near Agra in the state of Uttar Pradesh in India. It is the center of India's glassmaking industry and is known for the quality of the bangles and also glass wares produced there. Famous for all sorts of glass work, not only in India but also globally, Firozabad glass industry has a fair share in the sector: in 2012, according to ASSOCHAM, it was estimated to be around Rs 150 billion. City is home to at least 200 organized manufacturing units out of which 130 units are manufacturing bangles, about 40 are practicing mouth blown technique and rest are automated, either manufacturing bottle or glass tumblers.

Firozabad is the largest producer of glass bangles in the world. The Sadar Bazar of Firozabad is most famous for bangle shops and because of bangle industry development the economic life of Firozabad has been totally changed.

Problem 1

_Firozabad has not been able to establish a strong reputation in the international market due to a clear lack of the availability of most modern technology, promotion and a lack of product innovation/variation. There is a continued use of primitive technology in glass melting, forming and shaping._

Proposed Intervention

a. In order to be competitive in the world market it has to improve its infrastructure.
b. Undertake more rigorous marketing and brand building activities.
c. The industry needs to be cost competitive as compared to other markets such as China and Thailand.
d. There is great need for design development and quality improvement in the utility and decorative items.

Problem 2

_Workers work in so much heat and high temperature that a normal person can’t work. They do not get the wages according to the environment in which they work, people earn between Rs 250 and Rs 300 daily._

Proposed Intervention

a. All such glass and bangle workers who fall in BPL Category can be enrolled under the Government Bima yojnas.
b. Under the provisions of Minimum Wages Act, fix, review and revise the minimum wages of the workers employed in the Scheduled employments under their respective jurisdiction.
c. Free education for the worker’s children and access to schools in the nearby areas.
d. Upgrading the technology & infrastructure to reduce human efforts.

Problem 3

_Natural gas fuel price is another issue which businesses are fighting against._

Proposed Intervention

a. New-efficient technology - Running an old, inefficient boiler or heating system, it may be wasting much of the energy it produces.
b. Adequate insulation - natural gas heating system supplies will escape through cracks, doors, windows, and even the attic and garage.
c. Discover other energy sources in your area that are more economical than natural gas or install efficient, affordable solar panels that help save as well.
d. Check for Blockages - If air cannot flow freely, the heating system will expend precious energy trying to warm a machine that refuses to warm up.

**Problem 4**

*Consumers are buying plastic over glass as it is easily available and is not expensive and, most importantly, unbreakable.*

**Proposed Intervention**

a. ASSOCHAM recommends that the people should be made aware about the benefits of using glass for various purposes through awareness campaigns
   - extremely energy efficient industry
   - every tonne of glass recycled saves 322KwH of energy, 246 kg of CO2 and 1.2 tonnes of virgin raw material
b. Decrease fixed costs which will eventually result in low overall costs to become competitive
c. Government initiative to reduce use of plastic as part of environment protection programs
d. Financial support by Government to promote the glass industry over plastics.

**Problem 5**

*There is a shortage of skilled workers. As the working conditions are so harsh and the wages are low, people do not prefer working in this industry.*

**Proposed Intervention**

a. Basic facilities like toilets near the place of work, canteens, lunch break, recesses, leave and shift duties etc.
b. Ministry could consider providing Primary Health care to these workers by sending para-medics from ESIC to undertake periodic health surveys of these workers and provide necessary medical relief to them
c. Opening training institutes for upskilling and safety trainings.
d. Strict laws for working conditions, proper wages, health monitoring and other measures are required to ensure workers are not exploited, and their health is prioritized.

**Problem 6**

*One of the biggest challenges for the bangle market is to shift factories somewhere else as it falls in TTZ (Taj trapezium zone) region. TTZ is a defined area of 10,400 sq km around the Taj Mahal to protect the monument from pollution*

**Proposed Intervention**

a. Government should consider that Bangle industry already is using natural gas – the best possible nonpolluting fuel available in India.
b. The priority should be other more polluting source in the TTZ region to be relocated first.
c. Focusing on the fact that it has been proved by recent report by National Environmental Engineering Research Institute (NEERI) that city emissions do not even reach Taj Mahal
d. Modernize the industry to further reduce its negative impacts on the environment.

**Problem 7**
The industry is facing lots of issues regarding marketing of the product, lack of knowledge towards the consumer preference and taste, inappropriate product mix etc. Lack of appropriate marketing of the products leading to less visibility of the processed products pan India.

**Proposed Intervention**

a. Promote certifications for organically procured products to create a competitive advantage and avoid the problem of duplication.
b. Provision of proper screening package and practices to create awareness about market requirements
c. Formation of co-operative organizations may further help in safeguarding the interest of the producer/growers and enable them to control the marketing of their products.
d. Strengthening of market intelligence network which may provide advice to the producers regarding demand/supply position in the market, latest practices in grading, packing and consumer preferences.

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<td>Branding &amp; Marketing</td>
<td>Marketing of the products and increasing brand awareness of success stories</td>
<td>Ministry of Commerce &amp; Industry</td>
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<td>Research &amp; development</td>
<td>Training and development of the young generation</td>
<td>Government of Uttar Pradesh</td>
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<td>3.</td>
<td>Infrastructural support with information</td>
<td>Investment in the marketing infrastructure of the products</td>
<td>Ministry of Commerce &amp; Industry</td>
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<td>4.</td>
<td>Infrastructural support</td>
<td>Construction of common facility centre</td>
<td>Government of Uttar Pradesh</td>
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<td>5.</td>
<td>Credit support</td>
<td>Provisions of subsidies, loans</td>
<td>Government of Uttar Pradesh</td>
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<td>6.</td>
<td>Market Linkages</td>
<td>Provision of proper screening package and practices to create awareness about market requirements</td>
<td>Ministry of Information &amp; Broadcasting, GoI</td>
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<td>7.</td>
<td>Implementation &amp; inspection of Labor law</td>
<td>Proper inspection &amp; implementation of Labor laws to ensure dignified working conditions</td>
<td>Ministry of Labor</td>
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Teracotta, Gorakhpur, Uttar Pradesh

Gorakhpur is one of the major and largest districts of Uttar Pradesh that comes under Gorakhpur Division and Gorakhpur city is the administrative headquarters of the district. Gorakhpur lies in the eastern part of Uttar Pradesh near the border of India and Nepal.

Terracotta is a unique and special kind of ceramic craft. It is the term normally used for sculptures made in earthenware, and also for various utilitarian products including vessels (notably flower pots), water and waste water pipes, roofing tiles, bricks, and surface embellishment in building construction. Traditionally, what makes it different from other terracotta crafts is that it involves ornamentation, use of natural colours / dyes and experimentation with innovative shapes. The raw material used for this craft is a type of soil available locally. It gives the item a natural colour. Around 200 households are engaged in this work. It has bagged the GI tag very recently in 2020.

Problems

1. *It is a very difficult task to maintain and preserve the terracotta items* in a proper place from changing weather conditions.

   **Proposed Interventions**

   a. Gorakhpur Potters’ Society possesses many preservation rooms dedicatedly allocated for their pottery work. This should be properly maintained and monitored to repair broken ceilings & walls from time to time.
   b. Certain well researched preservatives could be used along with the clay right at the time of manufacturing the handicrafts so that the chances of them getting destroyed during rainy seasons is minimized.

2. *Gorakhpur potters are not familiar with the modern forms of Terracotta. They are still practicing traditional art of craft. Actually, they are not aware of the modern techniques.*

   **Proposed Interventions**

   a. As per the market trends there should be reformations and new innovations, up-gradation should be on time based upon the changing global needs.
   b. Provide better tools and equipment to reduce hard labour. Pug mill, kneading machines, grinder, filter press and other equipment are helpful for fine production. Traditional human tools are time consuming and not giving the finish works.
   c. Traditional techniques need to renovate with improved practices.

3. *There is a lack of raw materials. Government has banned excavation of clay. Clay is not easily provided to the craftsmen and rates are continuously increasing.*

   **Proposed Interventions**

   a. Government should easily provide soil and Reduce impurity, improve clay bodies and quality.
   b. Supervisors must encourage craftsmen to gain the knowledge of raw material in terms of perfect quality requirements and the proper legal channels through which procurement must be carried out.

4. *Very low daily average income of the craftsmen. Their families do not get good living standard and ample treatment for their health problems. They are suffering from many diseases and cannot get proper treatment.*

   **Proposed Interventions**
a. Government should intervene to provide fixed daily income to the artisans based on hourly working.
b. Provisions should be given for the medical facilities at cheaper costs to the family members of the artisans as well.
c. Proper educational facilities should be provided to the children of these artisans so that they are not denied from the basic right to education and there are no instances of child labour in these industries.

5. For the entire process of terracotta pottery production, from soil collection to final construction, total help is necessary for the family members. But many of the family members do not adopt that particular traditional art. This makes many of the potters to give up their traditional art of pottery. The youth migrate to the urban areas for other alternate option.

Proposed Interventions

a. Craft and design institutes and design education should be promoted in India with the options of getting a secured source of income after undergoing the training would help this sector to become lucrative for the youth population.
b. Chances of going to foreign nations as a part of learning through exchange of students or exhibitions would help the youth explore the option of visiting foreign land.
c. Development of course curriculum and trainings for master craftsmen and trainees.
d. Provide the monitoring, assessment and certification based on the training.

6. They sold their articles to middlemen and brokers at very low rate. These terracotta products are then sold in the Indian metros, foreign market and loyal customers at very high cost. Now Global demand is increasing day by day for handmade articles, but profit does not saturate to the artisans.

Proposed Interventions

a. Provide Guidelines for proper marketing procedures and expand the whole feature of this traditional art.
b. Indian craftsmen producing export quality craft objects should find timely export opportunities and their artwork and efforts are appreciated by giving proportionate margins to the craftsmen.
c. Provide the facility of visual identity, grading and quality also creates brand identity for the cluster as well as awareness about the craft to consumers.

7. These craft products are highly delicate hence easily breakable. They face lots of problems related to breaking of product during their transportation.

Proposed Interventions

a. Stop the improper careless packing on local carts and handheld manual transportation modes.
b. Make possibilities for better and safe means of transport and improve the road conditions so that they sustain throughout different seasons.

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<td></td>
<td>Infrastructure support</td>
<td>Gorakhpur Potters’ Society possesses many preservation rooms dedicatedly allocated for their pottery work. This should be properly maintained and monitored</td>
<td>Department of MSME and Export promotion</td>
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<tr>
<td>2</td>
<td>Research &amp; Development</td>
<td>Certain well researched preservatives could be used along with the clay right at the time of manufacturing the handicrafts</td>
<td>Department of Expenditure, Procurement Policy division</td>
</tr>
<tr>
<td>3</td>
<td>Infrastructure support</td>
<td>Provide better tools and equipment to reduce hard labour</td>
<td>Development Commissioner (Handicrafts) department, Ministry of Textiles</td>
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<tr>
<td>4</td>
<td>Procurement</td>
<td>Government should easily provide soil and Reduce impurity, improve clay bodies and quality.</td>
<td>Department of Expenditure, Procurement Policy division</td>
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<tr>
<td>5</td>
<td>Income support</td>
<td>Fixed daily wage &amp; health facilities</td>
<td>Development Commissioner (Handicrafts) department, Ministry of Textiles</td>
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<tr>
<td>6</td>
<td>Training &amp; development (Upskilling)</td>
<td>Craft and design institutes and design education, monitoring &amp; certifications</td>
<td>Development Commissioner (Handicrafts) department, Ministry of Textiles</td>
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<tr>
<td>7</td>
<td>Market Relations</td>
<td>Provide Guidelines for proper marketing procedures and expand the whole feature of this traditional art.</td>
<td>Department of MSME and Export promotion</td>
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<tr>
<td>8</td>
<td>Infrastructure support</td>
<td>Make possibilities for better and safe means of transport and improve the road conditions so that they sustain throughout different seasons.</td>
<td>Public Works Department, UP</td>
</tr>
</tbody>
</table>

References:
- Terracotta pottery of Gorakhpur in Crises: A Case Study on Issues and Challenges of Potter’s Community in Gorakhpur by Dr. Sana, Aligarh Muslim University, Aligarh, (India)
Flute, Pilibhit, Uttar Pradesh

Pilibhit is a district in the Bareilly region of the state of Uttar Pradesh. It is known as the origin of the Gomati River and is covered with dense forests. This is also known as the Bansuri-Nagari, meaning the land of flutes. Almost 95% of India's flutes are manufactured in the region. The flutes, which are a major representation of the Hindu god Lord Krishna, are manufactured mainly by the Muslim community in the region. The bamboo for the flutes is procured from Assam and is wholly handcrafted. They make classical flutes priced at above Rs.2000/-, but the standard flutes primarily used as toys are priced at Rs.2 to Rs.3/- per piece.

Problems

6. The bamboo for the flutes is procured from the Silchar region in Assam and is traditionally transported via the narrow-gauge line. However, most parts of these lines are converted to broad gauge, which means the freight must be shifted from narrow gauge to broad gauge and broad gauge to narrow gauge repeatedly. This leads to increasing freight costs and damage due to handling.

   Proposed Interventions

   f. Instead of procuring from Silchar, which is 2000km far, local bamboo cultivation can be encouraged.
   g. This reduces the freight costs and also the lost raw material due to material handling damages.
   h. This move also increases local employment opportunities, and farmers can also be benefitted from persistent demand for bamboo.

7. The indexing on the flute is done by burning holes in the wood, emitting toxic fumes. Many flute makers were detected with respiratory diseases because of inhaling these fumes. Also, the polish used on the food is toxic and causes a lot of health concerns.

   Proposed Interventions

   e. Safety kits for the flute makers could be distributed for free or for a subsidized price.
   f. This reduces the health and hygiene issues in the flute makers and will encourage many more to take up the trade.

8. Only a few craftsmen know how to index music notes precisely, and the craft is in a grave situation. The trade has gone down from the largest supplier in the country to a few dozen families still making flutes.

   Proposed Interventions

   a. Skill development and training institutions can be established to train more people with quality and export standards.
   b. This increases the region's employment opportunities, and better quality products increase the export potential for the product.

9. Most flutes manufactured in the region are standard brown flutes with not much differentiation.

   Proposed Interventions

   a. The flute makers can be trained to develop make-to-order strategies.
b. They can offer different products with customizations with names and greetings for special occasions and events etc.

c. This attracts more customers, and the market reach of the product increases.

10. Most of the seller market is fragmented, and there's no unifying organization available to work for the flute manufacturers.

   Proposed Interventions

   e. District-level Flute makers association can be registered.
f. With the help of government and other organizations, this association can train and develop relevant skills in the local people to keep up the trade.
g. They can lobby with the local governments for subsidies and incentives.
h. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

11. The market is flooded with alternative plastic flutes from China into India at much cheaper rates. The wooden flute makers from Pilibhit, unable to maintain competitive pricing, are looking for alternate options leaving the trade altogether.

   Proposed Interventions

   a. The product should be marketed at trade fairs and large markets as indigenous hand-made products.
b. The product should be labeled as fair trade and a social-cause product so that the conscious consumers are willing to buy the product at a small premium, improving margins.
c. This opens new markets to the Pilibhit flute across and beyond the borders and increases the product’s visibility.
d. Subsidies and incentives are to be provided by the government under the Make-in-India scheme.

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<tbody>
<tr>
<td>1</td>
<td>Infrastructure &amp; Logistics</td>
<td>Instead of procuring from Silchar, which is 2000km far, local bamboo cultivation can be encouraged.</td>
<td>Department of Agriculture, U.P.</td>
</tr>
<tr>
<td>2</td>
<td>Quality Assurance</td>
<td>Safety kits for the flute makers could be distributed for free or for a subsidized price.</td>
<td>ODOP</td>
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<tr>
<td>3</td>
<td>Training and Development</td>
<td>Skill development and training institutions can be</td>
<td>Ministry of Skill Development &amp; Entrepreneurship</td>
</tr>
<tr>
<td>( Upskilling )</td>
<td>established to train more people with quality and export standards.</td>
<td>ODOP</td>
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<tr>
<td>4 Training and Development (Upskilling)</td>
<td>The flute makers can be trained and encouraged to develop customized products with names, special occasions, etc.</td>
<td>Ministry of Skill Development &amp; Entrepreneurship ODOP</td>
<td></td>
</tr>
<tr>
<td>5 Regulatory</td>
<td>District-level Flute makers association to be registered.</td>
<td>Ministry of Skill Development &amp; Entrepreneurship</td>
<td></td>
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<tr>
<td>6 Branding and Marketing</td>
<td>The product should be marketed at trade fairs and large markets as indigenous hand-made products</td>
<td>Department of MSME &amp; Export Promotion</td>
<td></td>
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<tr>
<td>7 Branding and Marketing</td>
<td>The product should be labeled as fair trade and a social-cause product so that the conscious consumers are willing to buy the product at a small premium improving margins.</td>
<td>Department of MSME &amp; Export Promotion</td>
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- [https://asiainch.org/craft/bamboo-flute-of-pilibhit-uttar-pradesh/](https://asiainch.org/craft/bamboo-flute-of-pilibhit-uttar-pradesh/)
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Aamla Products, Pratapgarh, Uttar Pradesh

Bela Pratapgarh is a town and a municipal Board in Pratapgarh district in the state of Uttar Pradesh. As of 2001 consensus, it has a population of 71,835. It has an average literacy rate of 73%, significantly higher than the national average of 59.5%. Bela pratapgarh cultivates 80% of Amla of UP and is famous for its Aamla products, i.e., Jelly, Murabba, Ladoo and Aamla Barfi etc. There are a number of food processing units in Pratapgarh which manufacture a variety of products including Murabba, Pickle, Jam, Jelly, Laddoo, Candy, Powder, Juice, Aamla Powder and more. Currently, a large number of small and medium enterprises are operational in this area. Thousands of people are employed by these units either directly or indirectly. Land of Pratapgarh is cultivable due to which food processing industry in area is flourishing day by day. At present total Registered Industrial Unit in Pratapgarh are near about 6510.

**Problem 1**

The farmers of Pratapgarh are shifting away from Aamla farming and moving to other alternative crops leading to the reduction in the area under cultivation for Aamla.

**Proposed Intervention**

- e. Provide government support to the farmers at the local level by giving them information, useful tips, marketing support etc.
- f. Government should look after the establishment of research centers, institutes, directorates and entire departments devoted to providing support to the farmers.
- g. Promote the nutritional benefit of Aamla as a rich Vitamin C supplement especially during the time of COVID-19 pandemic and post that as well.

**Problem 2**

The shortage of farm yard manure, unavailability of fertilizers and plant protection chemicals during the peak periods.

**Proposed Intervention**

- e. Promote the use of biotechnological methods for developing new affordable and cheaper fertilizers which are more organic and less chemical based to prevent pollution in the soil and water present in the nearby areas.
- f. Replenish fertilizers and nutrients in combination with the crop protectants.
- g. Make the fertilizers and other plant/ tree protection chemicals available in abundance well before the beginning of the peak seasons.

**Problem 3**

Shortage of human labour during peak period was another crucial problem faced by majority of the farmers.

**Proposed Intervention**

- e. Formation of co-operative organizations may further help in safeguarding the interest of the producer/growers.
- f. Spread awareness among labourers regarding high demand and thus profitability potential of Amla to conceive it as a stable source of income.
Problem 4

Aamla growers reported shortage of credit which become main reason for not adding the balance fertilizer, plant protection etc. to the plants.

Proposed Intervention

e. Provisions of subsidies for the farmers during the initial planting seasons in the procurement of planting materials
f. Promotion of development of co-operative credit societies
g. Land development banks for provision of low-interest loans on the mortgage of farmer’s land
h. Loans by Regional Rural Banks to marginal farmers, landless labourers etc.

Problem 5

The problem in controlling insect-pest and diseases was reported by more than 60% farmers in the region.

Proposed Intervention

e. Availability of pesticides and other pest repellents at subsidized rates and easily at the local markets or horticulture departments.
f. Promote the use of biotechnological methods for developing new virus free, high yielding, biotic or abiotic stress-tolerant planting material.

Problem 6

Lack of appropriate marketing of the products leading to less visibility of the processed products pan India.

Proposed Intervention

e. Provision of proper screening package and practices to create awareness about market requirements
f. Formation of co-operative organizations may further help in safeguarding the interest of the producer/growers and enable them to control the marketing of their products.
g. Strengthening of market intelligence network which may provide advice to the producers regarding demand/supply position in the market, latest practices in grading, packing and consumer preferences.

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<td>1.</td>
<td>Infrastructural support with information</td>
<td>Provide government support to the farmers at the local level by giving them information, useful tips, marketing support etc.</td>
<td>Department of Agriculture &amp; Farmers Welfare</td>
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<tr>
<td>2.</td>
<td>Infrastructural support</td>
<td>Government should look after the establishment of research centers, institutes, directorates and entire departments devoted to providing support to the farmers</td>
<td>Department of Agriculture &amp; Farmers Welfare</td>
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</table>
3. **Branding & Marketing**
   Promote the nutritional benefit of Aamla as a rich Vitamin C supplement
   Directorate of *Marketing & Inspection* (DMI), Ministry of *Agriculture* and *Farmers Welfare*

4. **Research & Development**
   Promote the use of biotechnological methods for developing new affordable and cheaper fertilizers
   Indian Council of *Agricultural Research* (ICAR)

5. **Supply Chain**
   Make the fertilizers and other plant/ tree protection chemicals available in abundance well before the beginning of the peak seasons.
   Department of Fertilizers, GoI

6. **Data Collection & Analysis**
   Awareness among labourers regarding high demand and thus profitability potential of Amla to conceive it as a stable source of income.
   Open government data platform (OGD)

7. **Credit Support**
   Provisions of subsidies, loans for the farmers and support from co-operatives
   NABARD

8. **Market Linkages**
   Provision of proper screening package and practices to create awareness about market requirements
   Ministry of Information & Broadcasting, GoI

9. **Data Intelligence & Analysis**
   Strengthening of market intelligence network which may provide advice to the producers regarding demand/supply position in the market
   Ministry of Information & Broadcasting, GoI

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- Economics of aonla production in district Pratapgarh (U.P.) by J. RAI, SHESH PRATAP SINGH AND ARUN KUMAR SINGH published in International Research Journal of Agricultural Economics and Statistics, Volume 8 | Issue 2 | September, 2017
**Woodcraft, Saharanpur, Uttar Pradesh**

Saharanpur (India) is internationally famous for wood carving. Saharanpur is a city in the Indian state of Uttar Pradesh with a rich heritage. Founded by Shah Ranveer Singh, the city got its name after the Sufi Saint Shah Harun Chisti. Wooden Handicraft is a trademark of the rich culture and heritage that the city claims to possess. The handicrafts carry the designs and complexity of its rich heritage. These were very universal during the Mughal rule. One can find the relics, which resemble the designs that are commonly seen even in today’s era. The Wooden handicrafts are famous in Saharanpur comprised of small and large products. The products vary from Kitchen tools to Temples and Handcrafted Furniture. Saharanpur Handicrafts are widely exported to every part of the world.

The end-to-end process for these wood crafted products is given below-

![Diagram of the end-to-end process for wood crafted products](https://journals.sagepub.com/doi/full/10.1177/2455929619876168)

**Problem 1**

The local artisans face challenges because of the lack of basic facilities and exposure to hazardous working environments for longer durations.

**Proposed Intervention**

- Strict implementation of norms for healthier working conditions by providing properly ventilated and lighted workspaces.
i. Artisans and other types of workers should use safety gears in the form of masks and gloves while doing their daily routine work.

j. Fix the average number of working hours and the minimum renumeration to avoid the chances of workers getting exploited due to overtime.

k. Set up special sections in the existing public as well private hospitals for these people so that they are provided with good health facilities at minimal costs.

Problem 2

*Income plays a vital role in the socio-economic condition of any person. A majority of artisans are just living on a subsistence level and the economic condition of the artisans is not satisfactory. They are getting very low wages and renumerations.*

Proposed Intervention

h. Governments should ensure that the minimum wages are ensured to the artisans and workers for their share of work and later on depending upon the work and the time devoted it should be kept increasing.

i. Income generation project should be developed in which women should be trained as artisans. In Saharanpur wood craft industry, women artisans were not involved in wood carving, chiseling, engraving etc. they were engaged in very small and less work like priming (fill the gaps and defects of goods) which is done before polishing. Whereas, they can also be involved in polishing, inlay and outlay work.

j. The artisans should be brought under the protective cover of the social security programs.

Problem 3

*Lack of Awareness of new technologies. Due to lack of information, a majority of artisans are not able to access these facilities and most of them are not aware of smart phone application, social media, and internet. They do not know that how to access internet for design advancement, to make new prototypes and to learn new techniques for wood craft.*

Proposed Intervention

h. There should be specialized and advanced programme for the artisans in which various issues would be addressed separately by creation of some skill development programmes that would teach and help the artisans practice the new, advanced and technological way of carrying forward their art. This would help them to be aware about the changing trend of consumers’ tastes, and facilitate their participations in national trade fairs.

i. Government/authorities should propose the exemption on import of duty-free items as an incentive to exporters of handicraft items to give a boost to the sector.

j. Easy access to the internet and smart phone devices by subsidizing their costs for these poor artisans so that they are connected through technology and can learn new skills.

Problem 4

*Lack of awareness of contemporary marketing techniques. Most of the artisans are not aware of smart phone application, social media, and internet for increasing their business reach and gain information about new age customer demands.*

Proposed Intervention
i. There should be awareness programmes for the artisans which would educate them about technological advancements, the changing trend of consumers’ tastes, and facilitate their participations in national trade fairs.

j. Promotional events and reward system should be implemented on different level like town, city, state, National and International level so that the new generation of artisans will be exposed in craft sector and the art will remain relevant and alive.

k. A social interaction platform should be provided to artisans where they meet their consumer face to face and understand their need. For this purpose stalls, shops, and traditional market-places must be set up where craftsmen can themselves sell their products which should be rent free.

Problem 5

Lack of Awareness of Government Schemes related to Artisans and Skill Development and Technology Up gradation Program

Proposed Intervention

  g. Local government authorities should ensure that they transfer the necessary knowledge to the local artisans from time to time so that they can take benefit of various government schemes.
  h. These government schemes should be properly highlighted and published in the local language newspapers as well as the local language TV channels to provide maximum benefits to the beneficiaries.

Problem 6

The problem of dearth of good quality raw material exists due to acute shortage of high quality Sheesham wood.

Proposed Intervention

  h. The core dependence on sheesham should be shifted to shared dependence on a variety of species such as papdi, kikar, jamun and primarily mango.
  i. The local farmers should be explained the importance of the good quality raw materials required and they should be aptly compensated for the raw materials they provide.

Problem 7

The woodcraft industry has remained badly hit due from the after effects of demonetization and GST. Majority of the workforce of skilled crafts persons have quit and joined other professions.

Proposed Intervention

  a. Some parts of the supply chain activities should be exempted from the taxation so that it gives a boost to the traders and marketers associated with this industry.
  b. Create more and more avenues for high grade export materials by making the export channels transparent and free from the elements of commission or bribery.
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<td>Provision of safety gear and healthier working environments</td>
<td>Department of health &amp; family welfare, UP</td>
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<td>2.</td>
<td>Infrastructure support</td>
<td>Set up of special sections in public and private hospitals for low-cost healthcare facilities and checkups of local workers</td>
<td>Department of health &amp; family welfare, UP</td>
</tr>
<tr>
<td>3.</td>
<td>Minimum wages support</td>
<td>Governments should ensure that the minimum wages are ensured to the artisans and workers for their share of work</td>
<td>U.P. Handicrafts Development and Marketing Corporation Ltd.</td>
</tr>
<tr>
<td>4.</td>
<td>Skill development &amp; training</td>
<td>Women should also be trained under this and promotion of social safety programmes</td>
<td>Ambedkar Hastshilp Vikas Yojna</td>
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<tr>
<td>5.</td>
<td>Branding &amp; Marketing</td>
<td>There should be awareness programmes for the artisans which would educate them about technological advancements, the changing trend of consumers’ tastes, and facilitate their participations in national trade fairs</td>
<td>Marketing promotion schemes under Ministry of micro, small, and medium enterprises</td>
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<tr>
<td>6.</td>
<td>Branding &amp; Marketing</td>
<td>These government schemes should be properly highlighted and published in the local language newspapers as well as the local language TV channels to provide maximum benefits to the beneficiaries.</td>
<td>Ministry of Information &amp; Broadcasting</td>
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<tr>
<td>7.</td>
<td>Supply chain</td>
<td>Some parts of the supply chain activities should be exempted from the taxation so that it gives a boost to the traders and marketers associated with this industry.</td>
<td>Ministry of micro, small, and medium enterprises</td>
</tr>
<tr>
<td>8.</td>
<td>Market analysis</td>
<td>A social interaction platform should be provided to artisans where they meet their consumer face to face and understand their need.</td>
<td>Ministry of Information &amp; Broadcasting</td>
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References:


A STUDY ON WORKING CONDITION OF ARTISANS IN SAHARANPUR WOOD CRAFT INDUSTRY by Aayushi Verma & Ila Gupta
Horn Bone, Sambhal, Uttar Pradesh

The district of Sambhal is located in Uttar Pradesh, 150 km from New Delhi and 350km from Lucknow.

"Handicraft is the second-largest source of employment in the country, after agriculture. Yet India's handicraft industries are in a crisis of misunderstanding." Crafts Council of India-2011. The district is famous for its bone-made handicraft products. The craft is followed mainly by the Muslim community in the region. The bone for the products is procured from dead animals, making it sustainable. Once the products are manufactured, they are marketed and sold in nearby cities. These products are exported to several countries across Europe, America, and Asia. Approximately one lakh population in the region is involved with horn-made handicraft production. Around 95 percent of the suburban population depends on this art for livelihood

Problems

12. The state government has ordered for closing down of several slaughterhouses, citing regulatory reasons. This led to a reduced supply of bone material from dead animals to the industry. The raw material prices have increased, shrinking the margins

Proposed Interventions

i. The remains from dead buffalo and dead oxen can be used instead of cows, whose slaughter is mainly banned.

j. The remains can also be imported from the nearby beef-eating states like West Bengal.

k. These moves reduce the supply side pressure and reduce the cost of material, thereby helping margins to improve.

13. The district authorities have recently shut down several plants, citing environmental concerns. They claim that the wastewater from the plants is contaminating local water bodies and destroying local crops.

Proposed Interventions

g. The plants can be installed with small-scale retrofitted purification and filtration units.

h. The government could subsidize these retrofitting to reduce the burden on the small and medium manufacturers.

i. This move reduces the overall environmental effects of the industry in the region and reduces regulatory pressures on the manufacturers.

14. Every horn is wholly handcrafted with tools and consumes a considerable amount of time. However, there's not much differentiation in the product manufacturers. A majority of them are standard designs with no differentiation.

Proposed Interventions

d. The craftsmen can be trained to develop make-to-order strategies.

e. They can offer different products with customizations with names and greetings for special occasions and events, theme-oriented designs, etc.

f. This attracts more customers, and the market reach of the product increases.

15. Most of the seller market is fragmented, and there's no unifying organization available to work for the flute manufacturers.
Proposed Interventions

i. District-level Bone craftsmen association can be registered.

j. With the help of the government and other organizations, this association can train and develop relevant skills in the local people to keep up the trade.

k. They can lobby with the local governments for subsidies and incentives.

l. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

16. Scarcity of the bone remains from animals has led to the high cost of materials. Supplementing materials like wood, adhesives, and other chemicals have also increased the overall cost of production.

Proposed Interventions

a. The government can provide subsidies over the raw material to reduce the cost burden of the manufacturers.

b. Logistical support from the authorities to import raw material from neighboring states reduce the cost of procurement.

c. This reduces the overall cost of the product and increases margins, encouraging more people to take up the trade.

17. The trade also comes with a range of health and safety concerns for the craftsmen involved. The city is covered with bone dust all day long. Inhaling this dust is leading to respiratory diseases. It is a common saying in the region that any craftsmen with more than 50 years of age suffer from tuberculosis in the region.

Proposed Interventions

e. The governments or local associations can arrange for safety kits like masks and gloves for the craftsmen.

f. If not entirely, the kits can be mandated and then subsidized.

g. This reduces the health and hygiene concerns of the trade and encourages more people to take up the trade.

18. The market is flooded with alternative plastic toys from China into India at much cheaper rates. The craftsmen from Sambhal, unable to maintain competitive pricing, are looking for alternate options leaving the trade altogether.

Proposed Interventions

e. The product should be marketed at trade fairs and large markets as indigenous hand-made products.

f. The product should be labeled as fair trade and a social-cause product so that the conscious consumers are willing to buy the product at a small premium, improving margins.

g. This opens new markets to the Bone ornaments across and beyond the borders and increases the product's visibility.

h. Subsidies and incentives are to be provided by the government under the Make-in-India scheme.
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<td>DC(Handicrafts), Ministry of Textiles</td>
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<td>2</td>
<td>Quality Assurance</td>
<td>The plants can be installed with small scale retrofitted purification and filtration units at subsidized prices</td>
<td>D.C. (Handicrafts), Ministry of Textiles</td>
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<td>3</td>
<td>Training and Development (Upskilling)</td>
<td>The flute makers can be trained and encouraged to develop customized products with names, special occasions, etc.</td>
<td>Ministry of Skill Development &amp; Entrepreneurship</td>
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<td>4</td>
<td>Regulatory</td>
<td>District-level Bone handicraftsmen association to be registered.</td>
<td>D.C. (Handicrafts), Ministry of Textiles, Ministry of Skill Development &amp; Entrepreneurship</td>
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<td>The government can provide subsidies over the raw material to reduce the cost burden of the manufacturers and provide logistical support to procure from nearby states.</td>
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References/Sources

- Safeguarding of Traditional Craftsmanship of Sambhal Handicrafts with Special Reference to Bone and Horn Artifacts by Farha* and Dr. Ameeza Zarrin, *M.Sc. Museology, A.M.U., Aligarh
- Abattoir by-Product Utilization for Sustainable Meat Industry: A Review by Irshad A. and Sharma B. D.
Tribal Craft, Shravasti, Uttar Pradesh

The district of Shravasti is located in Uttar Pradesh, 170 km away from Lucknow, the nearest city. The district also borders Nepal. The district has a dense forest cover and is located close to the River Tapti. Shravasti district is recognized as one of the country's most backward districts by the government of India. The district is well known for its tribal handicrafts. The Tharu tribe of the region is famous for their handmade crafts sold in local and domestic markets. The craft includes textiles, paintings, embroidery, baskets, toys, etc.

Problems

19. Many crafts used by the Tharu tribe require clay traditionally dug from lakes and ponds in forests. But in recent times, the forest authorities do not allow this digging citing environmental concerns.

Proposed Interventions

i. Recognizing the local way of life, the governments and forest departments can reserve a portion of forest land for the usage of tribes.

m. This helps locals to produce their crafts with ease and low costs improving their livelihood.

n. It further helps more people to pursue the trade without any obstacle, and more products can be crafted and sold.

20. Most of the craft in this region is done by household workers with no formal training. There is no organized training or formal knowledge transfer for the craft.

Proposed Interventions

j. Skill development and training organizations can be organized for the interested people to pursue the trade.

k. Regular workshops can be organized to upgrade the skills and match them with market requirements.

l. The skills can be well documented and passed onto the next generations.

m. More creative and innovative thinking can be cultivated, leading to better market-friendly products.

21. Most craftsmen are local tribes who make products in their households and sell in their local markets. The seller market is fragmented, and there's no unifying organization available to work for the flute manufacturers.

Proposed Interventions

m. District-level Tribal crafts associations can be registered.

n. With the help of the government and other organizations, this association can train and develop relevant skills in the local people to keep up the trade.

o. They can lobby with the local governments for subsidies and incentives.

p. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

22. No major exports of these products are currently done. Most of the output is sold in local domestic markets.

Proposed Interventions

f. The products can be marketed as fair trade and social-cause products highlighting local sourcing of raw materials, the eco-friendly lifestyle of the tribes, etc.

g. This opens the market of socially conscious consumers for the product across the planet.
h. This brings more visibility to the product beyond borders. Socially conscious consumers will be willing to pay a premium for such products, and hence the local tribes can flourish from improved margins.

23. There are no exclusive online platforms available. Most of the sales are made in local and domestic markets. Online presence for the Shravasti products is almost non-existent, limiting the market reach.

**Proposed Interventions**

h. The Demand for handmade handicrafts is increasing. A district-level association can be formed and made responsible for listing products on existing e-commerce platforms.

i. Workshops on packaging and shipping can be conducted to educate the tribes and help them take advantage of the e-commerce networks.

j. This increases visibility for the product and opens new markets. This also provides better market penetration and reach.

24. The Younger generations are not keen on taking up the trade and searching for alternate employment options. Older generations are not interested in transferring knowledge down the generations, leading to a reduction in craftsmen.

**Proposed Interventions**

i. A District level tribal crafts association can be established.

j. This association can be assigned to document these skills and crafts for transferring knowledge to future generations.

k. Workshops can be organized to encourage more people to take up the trade.

l. Better documentation leads to the transfer of knowledge to future generations. Formal skill development training help make better quality products and hence better market reach.

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<tbody>
<tr>
<td>1</td>
<td>Regulatory</td>
<td>Recognizing the local way of life, the governments and forest departments can reserve a portion of forest land for the usage of tribes.</td>
<td>Ministry of Tribal Affairs, U.P., Uttar Pradesh Forest Department</td>
</tr>
<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Skill development and training organizations can be organized for the interested people to pursue the trade. Regular workshops can be organized to upgrade the skills and match them with market requirements.</td>
<td>Ministry of Skill Development &amp; Entrepreneurship, ODOP</td>
</tr>
<tr>
<td>3</td>
<td>Regulatory</td>
<td>District-level Tribal crafts associations can be registered with the help of the government and other organizations</td>
<td>Ministry of Tribal Affairs, Ministry of Skill Development &amp; Entrepreneurship</td>
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<tr>
<td>4</td>
<td>Branding and Marketing</td>
<td>The products can be marketed as fair trade and social-cause products highlighting local sourcing of raw materials, the eco-friendly lifestyle of the tribes, etc.</td>
<td>Ministry of Tribal Affairs, Ministry of Skill Development &amp; Entrepreneurship, Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>5</td>
<td>Regulatory, Packaging, Value addition</td>
<td>A district-level association can be formed and made responsible for listing products on existing e-commerce platforms, and Workshops on packaging and shipping can be conducted</td>
<td>Ministry of Tribal Affairs, Ministry of Skill Development &amp; Entrepreneurship, Department of MSME &amp; Export Promotion</td>
</tr>
<tr>
<td>6</td>
<td>Regulatory</td>
<td>A District level tribal crafts association can be established, and This association can be assigned to document these skills and crafts for transferring knowledge to future generations.</td>
<td>Ministry of Tribal Affairs, Ministry of Skill Development &amp; Entrepreneurship, ODOP</td>
</tr>
</tbody>
</table>

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**Rice (Kala namak), Siddharthnagar, Uttar Pradesh**

Kalanamak rice is one of the finest quality scented rice found in India and Nepal. It derives its name from its black husk. This variety has been in cultivation since the Buddhist period (600 BC). It is also known as the scented black pearl of Uttar Pradesh. It was also featured in the book 'Speciality rices of the world' by Food and Agriculture Organization of the United Nations. Kalanamak was grown widely in Tarai belt of Uttar Pradesh, which comprised districts Siddharthanagar, Sant Kabir Nagar, Maharajganj, Basti, Gonda, and Gorakhpur. Until 30 years ago, the variety covered more than 10% of total rice cultivation area in Siddharthanagar. However, acreage growing this variety in this district has declined over the years. It is used for agricultural, natural and manufactured goods.

Kalanamak Rice has been granted the Geographical Indication (GI) Tag in 2012 by the Government of India and a geographical area has been defined where the Kalanamak rice can be produced. The initial GI Tag expired in 2020 but was renewed until 2030 now.

**Problem 1**

The _acreage_ under cultivation of Kalanamak variety has significantly declined over the years.

**Proposed Intervention**

1. Enhance farming capacity of the farmers through agriculture best practices for enhanced productivity of Kalanamak.
2. Introduction of new technologies in rice farming in order to increase the productivity on the available land.
3. Make the farmers aware about the export potential of this rare variety of rice and hence motivate to bring more and more land under cultivation of Kalanamak.

**Problem 2**

The tall stature of the crop which causes lodging in the farms leading to _crop damage and ultimately reduced yield._

**Proposed Intervention**

1. Promote the use of _biotechnological methods_ for developing new quality of crop type which prevents the issue of lodging.
2. Farmer Producer Organization (FPO) in the form of a Co-operative should come up in Siddharthnagar, which can act as the epicenter for production of Kalanamak in Siddharthnagar. The FPO will not only encourage farmers to produce but also provide and management training for the crops.

**Problem 3**

_Low Seed Replacement Ratio (SRR) and lower adoption of certified seed types_ because almost 80% of the farmers in Siddharthnagar are small and marginal.

**Proposed Intervention**

1. Increase the income level of small and marginal Kalanamak rice farmers.
2. Make quality input available to farmers timely, and at reasonable prices.
3. Enhance farming capacity of the farmers through agriculture best practices for enhanced productivity of Kalanamak.
n. Promote the use of **biotechnological methods** for developing best quality seeds which are highly resistant to attack by pests and insects as well as produce high yields.

**Problem 4**

*The soil health has become really poor* over the years leading to land degradation, and *unbalanced use of fertilizers* further aggravates the problem of reduced yield.

**Proposed Intervention**

1. Introduction of new technologies in rice farming carried out after rigorous farmer trainings.
2. Trainings given on judicious use of fertilizers for this type of rice crop and the rotation of crops in order to maintain the soil nutrition should be promoted and practiced.

**Problem 5**

*The slow pace of mechanization* is one of the major reasons behind yield gap in most of the crops produced in this region.

**Proposed Intervention**

1. Make quality inputs available to farmers timely, and at reasonable prices.
2. Enhance farming capacity of the farmers through agriculture best practices for enhanced productivity of Kalanamak.
4. Make available all agricultural related facilities for farmers at a minimal cost.

**Problem 6**

*The long duration of harvest* ranging from 6 to 7 months makes farmers to remain unemployed for this long duration once the cultivation season is over.

**Proposed Intervention**

1. Helping farmers enjoy various entitlements like Kisan Credit Card, Pradhan Mantri Krishi Sinchai Yojana, Pradhan Mantri Fasal Bima Yojana and social security measures like pension and insurance schemes.
2. Formation of co-operative organizations may further help in safeguarding the interest of the producer/growers and enable them to find alternative job options during periods of inactivity during rice cultivation.

**Problem 7**

*Lack of appropriate marketing* of the products leading to less visibility of the rice, its nutritional benefits and exemplary aromatic flavor across India and in the international markets.

**Proposed Intervention**

1. Provision of proper screening package and practices to create awareness about market requirements.
2. Formation of co-operative organizations may further help in safeguarding the interest of the producer/growers and enable them to control the marketing of their products.
3. Strengthening of market intelligence network which may provide advice to the producers regarding demand/supply position in the market, latest practices in grading, packing and consumer preferences.
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<tbody>
<tr>
<td>1.</td>
<td>Branding &amp; Marketing</td>
<td>Promote the nutritional and aromatic benefits of Kalanamak rice</td>
<td>Directorate of <em>Marketing &amp; Inspection</em> (DMI), Ministry of <em>Agriculture</em> and <em>Farmers Welfare</em></td>
</tr>
<tr>
<td>2.</td>
<td>Research &amp; development</td>
<td>Promote the use of biotechnological methods for developing best quality seeds which are highly resistant to attack by pests and insects as well as produce high yields.</td>
<td>Indian Council of <em>Agricultural Research</em> (ICAR)</td>
</tr>
<tr>
<td>3.</td>
<td>Training &amp; Development</td>
<td>Enhance farming capacity of the farmers through agriculture best practices for enhanced productivity of Kalanamak.</td>
<td>Department of Horticulture and food processing</td>
</tr>
<tr>
<td>4.</td>
<td>Research &amp; development</td>
<td>Farmer Producer Organization (FPO) in the form of a Cooperative should come up in Siddharthnagar, which can act as the epicenter for production of Kalanamak in Siddharthnagar</td>
<td>National Cooperative Development Corporation</td>
</tr>
<tr>
<td>5.</td>
<td>Supply chain</td>
<td>Make the fertilizers and other plant protection chemicals available in abundance well before the beginning of the peak seasons.</td>
<td>Department of Fertilizers, GoI</td>
</tr>
<tr>
<td>6.</td>
<td>Data Collection &amp; Analysis</td>
<td>Awareness among labourers regarding high demand and thus profitability potential of Kalanamak rice to conceive it as a stable source of income.</td>
<td>Open government data platform (OGD)</td>
</tr>
<tr>
<td>7.</td>
<td>Regulatory</td>
<td>Increase the income level of small and marginal Kalanamak rice farmers.</td>
<td>Department of Agriculture and Farmers welfare</td>
</tr>
<tr>
<td>8.</td>
<td>Market Linkages</td>
<td>Provision of proper screening package and practices to create awareness about market requirements</td>
<td>Ministry of Information &amp; Broadcasting, GoI</td>
</tr>
<tr>
<td>9.</td>
<td>Data Intelligence &amp; Analysis</td>
<td>Strengthening of market intelligence network which may provide advice to the producers regarding demand/supply position</td>
<td>Ministry of Information &amp; Broadcasting, GoI</td>
</tr>
<tr>
<td>10.</td>
<td>Welfare benefits</td>
<td>Helping farmers enjoy various entitlements like Kisan Credit Card, Pradhan Mantri Krishi Sinchai Yojana, Pradhan Mantri Fasal Bima Yojana and social security measures like pension and insurance schemes.</td>
<td>Department of Agriculture and Farmers welfare</td>
</tr>
</tbody>
</table>

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- [https://www.saveindianfarmers.org/project/kalanamak/](https://www.saveindianfarmers.org/project/kalanamak/)
Often known as the Switzerland of India, Almora is a cantonment town in Almora district which is the cultural heart of Kumaon. It is famous for its rich cultural heritage, unique handicrafts, toothsome cuisines, and wildlife. Almora is situated on a ridge at the southern edge of the Kumaon Hills of the Central Himalaya range in the shape of a horse saddle shaped hillock. The eastern portion of the ridge is known as Talifat and the western one is known as Selifat. The Almora Market is situated at the top of the ridge, where these two, Talifat and Selifat jointly terminate. Almora is many of handicraft rich locations from Uttarakhand. The town sits on a number of ancient copper plates and is located over a horse saddle-shaped ridge of a mountain. Almora is also known for its craftsmanship in copperware and many other unique crafts. In fact, there is a mohalla of copper artisans known as Tamtas, in Almora. Copperware is one of the traditional crafts of Almora and some of the best coppersmiths still work from Tamta mohalla. Some of the common crafts in Almora are Aipan (ritual floor painting), copperware, Likhai (wood carving), Bichhu Buti (nettle fiber craft), Ringal/bamboo craft, designer shawls, handloom, etc. The Woollen products such as a shawl, carpet, and thumla can range anywhere between 2000-20000 apiece. Due to the high inflow of foreign tourists, Uttarakhand artisans enjoy rich customer baskets. It also gives them an opportunity to explore possibilities of the export of products.

Problems:

1) Improvement in market linkages for these handicraft products can lead to better price discovery and market reach.

Proposed Solutions

a) Even though artisans are well versed with current market channels to sell their products, increasing market competition is pushing margins to the cliff, and the need for alternate market channels such as e-commerce, market expos, and export channels is urgent.

b) Uttarakhand Handloom & Handicraft Development Council, Uttarakhand has already put a plan in place for the development and promotion of handicraft products in districts such as Almora, Bageshwar, Nainital, Tehri Garhwal, etc. Market development is a major focus of this plan. The government is organizing block-level marketing campaigns, state-level exhibitions, buyer-seller meets, and international workshops.

c) E-commerce selling channels need to be included to reduce the cost of product marketing and increase market reach across the geographies. Under Handicrafts Mega Cluster Mission (HMCM), the MSME ministry, Ministry of Culture and State government should work together to align current state initiatives to address problems of artisans and microentrepreneurs.
2) Design improvement is required for better customer satisfaction and widening market reach across geographic and demographic customer baskets.

Proposed Solution

a) There is a need to keep the balance between emerging fashion trends and the preservation of authentic craft skills. Design workshops are one of the features of a development program for handicrafts promotion. Government should include national-level design institutes such as the National Institute of Fashion Technology (NIFT) and National Institute of Design (NID) to design coursework for artisans to capable them with contemporary skills aligning with traditional practices.

b) NGOs and Social marketing organizations should also be onboarded for designing market-acceptable products. Peoli is an apparel brand built on the principles of sustainable living through sourcing organic raw materials, honoring indigenous skills, and creating livelihood opportunities at the grassroots level in the Kumaon region of Uttarakhand. They operate at the intersection of being aesthetically unique, environmentally responsible, and generating livelihood for the women they employ.

3) Organising artisans under artisan cooperatives can give them better bargaining power and cushion against market shocks. It can also work as a point of attraction for a younger generation to adopt handicraft as a profession.

Proposed Solutions

a) Artisans are selling their products through local market channels such as fashion retailers, artifact sellers, and local market outlets. The majority of the time artisans lack the bargaining power in transactions with retailers due to the unorganized nature of trade. The concept of cooperation is mostly prevalent in areas that are closer to the market. There is a need to connect artisans from remote locations to markets in order to remove intermediaries from transactions and increase the income of artisans.

b) Government can include another task under the Handicraft promotion mission for the creation of artisan collectives. Artisans can become a member of these collectives and sell their products exclusively via them. Collectives can establish their own outlets in the market through which products of member artisans can be sold directly. This will reduce dependence on intermediate retailers and wholesalers.

4) Demand for handicraft products in international markets is quite high due to their authentic cultural touch. This demand can be exploited to improve the market opportunity for artisans and microentrepreneurs.

Proposed Solutions

a) Europe, the US, Canada, and Middle East countries are some of the major export locations for Indian handicraft products and artifacts. Tourists from western countries have always been drawn towards the cultural heritage and mystic nature of India. This attraction can be leveraged in export markets to charge a
premium for original handicraft products. Apart from Pashmina Shawl, copperware can also be promoted in export markets weighing on its authentic designs and cultural values.

b) For this, Government will have to create an identification mechanism for original Almora handicraft products. This identification mark can be promoted with products to draw customer attention towards original products and safeguard it against infiltration of duplicate products.

Implementation Responsibilities:

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<tbody>
<tr>
<td>1.</td>
<td>Development of Alternate Market Channels</td>
<td>Marketing</td>
<td>Uttarakhand Handloom &amp; Handicraft Development Council, Invest India</td>
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<tr>
<td>2.</td>
<td>Selling on E-commerce</td>
<td>Marketing</td>
<td>Uttarakhand Handloom &amp; Handicraft Development Council, Invest India</td>
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<tr>
<td>3.</td>
<td>Design Improvement Workshops</td>
<td>Research &amp; Development</td>
<td>NIFT, NID, Uttarakhand Handloom &amp; Handicraft Development Council</td>
</tr>
<tr>
<td>4.</td>
<td>Creation of Artisans’ Collective</td>
<td>Community Development</td>
<td>Uttarakhand Handloom &amp; Handicraft Development Council, Ministry of Cooperation</td>
</tr>
<tr>
<td>5.</td>
<td>Promotion of handicraft in export markets</td>
<td>Export</td>
<td>Uttarakhand Handloom &amp; Handicraft Development Council, Invest India</td>
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<tr>
<td>6.</td>
<td>Identification mechanism for original products</td>
<td>Marketing</td>
<td>Uttarakhand Handloom &amp; Handicraft Development Council</td>
</tr>
</tbody>
</table>

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Tucked away in the verdant valley of the Kumaon region lies the quaint temple town of Bageshwar. The town, surrounded by the majestic Bhileshwar and Nileshwar mountains, sits pretty at the confluence of rivers Saryu and Gomti. Not just natural and scenic vistas, Bageshwar is also home to the revered Bagnath temple. Dedicated to Lord Shiva, this temple is visited by devotees in large numbers all year round but witnesses a whopping footfall during the annual Shivratri festival. The annual Uttarayani fair, which is held on Makar Sankranti at the confluence of river Saryu and Gomti, is a grand affair and is attended by visitors from far and wide. This fair is considered one of Uttarakhand’s ancient events. As the headquarters of the Bageshwar district, the eponymous town attracts a steady stream of tourists and trekkers throughout the year. Uttarakhand is a state with an abundance of natural resources. Tourism is unarguably one of the most important sectors of the state’s economy. Tourism not only contributed for over 50% of the total GSDP from 2006-07 to 2016-17 but also provided livelihood across all parts of the state (including hinterland areas.) As the State moves on to its vision to become a Green Economy, the tourism sector will play an important role in realizing the State’s socio-economic goals.

Problems:

5) Exceptional high tourist inflow during vacations leads to rampant usage of natural resources and degradation of the same. There is a need for management of tourist inflow across the locations and natural resource management.

Proposed Solutions

a) Current planning for disaster-prone tourist places across the state is relatively poor. The majority of the popular destinations especially religious one which is more in Bageshwar suffer from problems of solid waste management, traffic problems, lack of basic healthcare facilities, and lack of modern amenities.

b) Many of these problems are covered under Uttarakhand Tourism Policy 2018. The government has committed to developing disaster-proof infrastructure and modern facilities at major tourist places. The government is constantly targeting to promote winter tourism based on religious themes after Char Dham yatra. Religious locations in Bageshwar will directly benefit from these developments. Government should focus on including local communities in order to develop solutions while keeping local citizens as important stakeholders.

c) Ministry of Tourism should work with state government departments to align state limited tourism development initiatives with central programs such as Swachh Bharat, Swadesh Darshan, and Hunar Se Rozgar. This will improve the scope of such initiatives as well as the spending capacity of the state government for infrastructure development.
6) Natural disasters in the last few years are impacting the public image of Uttarakhand tourism badly. There is a dire need to identify disaster-prone areas and plan tourist activities with private partners accordingly.

**Proposed Solution**

a) Technological solutions should be a major theme for the identification of disaster-prone zones. Geographical Information System (GIS) can be leveraged for mapping such places and planning infrastructural changes accordingly. Department of Geology and Mining, Department of Information Technology and Infrastructure Department should work together for such initiatives.

b) Connectivity of tourist places with all-season roads is a dire need for the Bageshwar district. Bageshwar district gets the minimal fund allocation from all infrastructure development funds. The majority of the investment is done via private players which are mostly concentrated in hotels and restaurant space.

7) Inflow of foreign tourists is decreasing continuously since 2000. Lack of modern facilities and promotion of local cultural and religious places is required.

**Proposed Solutions**

a) In 2010, Bageshwar observed only 112 foreign tourists throughout the year. The majority of the reason for low tourist inflow is an absence of modern facilities and promotion of local tourist places across the media platforms.

b) Government should include a national promotional drive under Tourism Development Policy. Bageshwar tourist locations can be promoted with national tourism expos and state-level tourism events. Social media platforms such as Facebook and Instagram should be leveraged for better visibility. Influencers can be involved in such promotions. Infrastructure Projects are already included in Tourism Policy 2018.

c) Development of adventure sports in a district can also usher in the growth of tourist inflow.

8) Forest conservation regulations are hampering the development of tourist activities in the region. Comprehensive policies and tourism plans need to be developed for building a business-friendly and tourist-friendly ecosystem.

**Proposed Solutions**

a) Ecotourism is one of the most suitable ways forward to make a balance between tourist growth and natural resource utilization. Uttarakhand Tourist Development Board should work with the Ecotourism Board of the department of forest to develop nature-friendly tourism activities. The inclusion of forest departments and local communities will ensure the efficient use and maintenance of natural resources.

b) Local guides and travel agencies should be trained under various government schemes to adept them with technical skills needed for ecotourism. Ecotourism programs can also be promoted to leverage climate awareness among tourists to increase tourist inflow across locations.

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<td>1.</td>
<td>Development of modern facilities</td>
<td>Infrastructure Development</td>
<td>Uttarakhand Tourism Development Board</td>
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<tr>
<td>2.</td>
<td>Identification &amp; planning of Disaster-prone clusters</td>
<td>Infrastructure Development</td>
<td>Department of Geology and Mining, Uttarakhand Tourism Development Board</td>
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<tr>
<td>3.</td>
<td>Increasing Road connectivity for remote locations</td>
<td>Infrastructure Development</td>
<td>Uttarakhand Road Development Agency, UTDB</td>
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<td>4.</td>
<td>Promotion of Bageshwar tourist locations</td>
<td>Marketing</td>
<td>Uttarakhand Tourism Development Board</td>
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<tr>
<td>5.</td>
<td>Development of Adventure Sports</td>
<td></td>
<td>Uttarakhand Tourism Development Board</td>
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<tr>
<td>6.</td>
<td>Ecotourism programs &amp; Skill development drives</td>
<td>Ecotourism</td>
<td>Uttarakhand Tourism Development Board, Forest Department, Ecotourism Development Board</td>
</tr>
</tbody>
</table>

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Sepahijala – Fresh Fruits

Banana, Mango and Pineapple are the three major fruit crops of Tripura. According to 2017-18 data, the area under Banana cultivation was around 10.8 thousand hectare which is 18.8 percent of the total area under fruit cultivation. Similarly, the area under mango cultivation is around 10.7 thousand hectare which is 18.7 percent of the total. Pineapple occupied third position with a total area of around 9.1 thousand hectares i.e., 16 percent of the area under fruit crops. Sepahijala contributes around 25 per cent to the total production of fruits in Tripura. However, it has a lot challenges to be dealt with in order to grow to its full potential. Below listed are some of the major challenges along with some proposed initiatives:

Problems:

A. Transportation and Storage Issues:

The requirement of cold storage post-harvest is integral to any horticultural system. The insufficiency in the storage capacity negatively affects the ability of farmers to store and sell the produce. As of a district report from 2017, Sepahijala has only one cold storage unit.

Proposed Interventions:

a. Promote R&D technologies for cultivation, production, post-harvest management and processing with special focus on cold chain infrastructure for extending the shelf life of perishables.
b. Increasing number of cold storage facilities in the district.
c. Enabling systems of private storage facilities to maximize avenue for storage.
d. Providing specified cooperatives with incentives to construct and run the cold storage units in the district.

B. Cultivation Area:

The current area under cultivation for fruits stand at 5,109 hectares in Sepahijala as of 2017-18.

Proposed Interventions:

a. To increasingly promote the identity of Sepahijala as a destination for fresh fruits it is important to maximize and increase land under cultivation for the same.
b. The Mission for Integrated Development of Horticulture (MIDH) has actively taken up engagements in maximizing cultivable area for specified crops such as bananas and pineapples. This programme could be extended to the other plants in the district.

C. Unorganized sellers

The sellers are not organized, there is greater potential to increase the number of farmers in fruits working as an organized cooperative, creating greater synergies and a more structured system of support.

Prospective Interventions:

a. Encourage aggregation of farmers into farmer groups like FIGs/FPOs and FPCs to bring economy of scale and scope.

b. The Directorate of Horticulture and Soil Conservation, Department of Agriculture, Government of Tripura can take up initiatives to highlight and educate farmers on the importance of cooperative structures and how they can benefit from it.

D. Lack of mechanisation

Small and Marginal Farmers lack the mechanisation tools for agriculture. The interventions should focus on ‘reaching the unreached’, that is, bringing farm mechanization to those villages within the district where the technologies deployed are decades old. Farm mechanization facilitates timely, precise and scientific farm operations, increasing farm input and use efficiency.

Proposed Interventions:

a. There is need of technology driven development for small and marginal farmers with successful entrepreneurial models.

b. Farm mechanization contributes in increase in crop intensity and yield thus ensuring better returns to the farmer, reduction of weather risk and risk of non-availability of labour thus minimizing post-harvest wastages, improved working conditions and enhanced safety for the farmer, conversion of uncultivable land to agricultural land through advanced tilling technologies as well as increase in rural employment owing to replacement of animal labour and provision of handling of farm.
c. Increasing the reach of farm mechanization to small and marginal farmers and to the regions where availability of farm power is low;

d. Promoting associations and cooperatives to offset the adverse economies of scale arising due to small landholding and high cost of individual ownership;

e. Creating hubs for high tech & high value farm equipment;

f. Creating awareness among stakeholders through demonstration and capacity building activities;

g. Ensuring performance testing and certification at designated testing centres located all country.

E. Nursery and Planting Material

1. Inadequate availability of certified quality seed/disease-free planting material and slow adoption of improved high yielding cultivars/hybrids is a major issue. The planting material is the key to quality produce as it forms the base of the orchard, greenhouse or farm produce. Hence the genuine quality in terms of genetic purity, healthy and disease and pest free plant material, be it seed or vegetative propagated material, needs to be assured. Some of the problems in ensuring production of quality planting materials are:

2. Absence of genetically uniform rootstocks,

3. Lack of variability for rootstocks;

4. Lack of information on rootstock-scion interactions;

5. Year round production through specialized structures;

6. Lack of tissue culture protocols for most crops, and lack of vegetative propagation technique for seed propagated crops.

Proposed Interventions:

a. Production & distribution of good quality planting material through establishment and up-gradation of nurseries and TC Units.

b. Recognition of nursery, practice of plant propagation and further hardening at nursery level are important issues.

c. Source of planting material i.e., mother plant, Rooting and growing media and technique followed for the same needs to standardized.

d. Nursery sanitization including tools and equipment also needs to be observed to facilitate proper operations and alleviate the harbouring of pests through weeds.

e. Highest priority should be given towards developments of sound scientific nursery network in the country.

f. There is a need to start rootstock breeding selection programme.
g. Production of healthy and genuine planting material should be intensified in major, commercial crops so that a sound horticulture industry could be established.

h. Further, adoption of recommended nursery standards by the nurseries operating throughout the country should be ensured.

i. Accreditation of nurseries and tissue culture laboratories should be made mandatory for production and sale of quality planting material

**F. Low Productivity: Proposed Interventions:**

Improve productivity by way of quality through:

a. Diversification from traditional crops to plantations, orchards, flowers, vegetable gardens.

b. Extension of appropriate technology to farmers for high-tech horticulture including protected cultivation and precision farming.

c. Increase of acreage of orchards and plantation crops

d. Improve productivity by way of quality germplasm, planting material and water use efficiency through Micro Irrigation. Support skill development and create employment generation opportunities for rural youth in horticulture and post-harvest management, especially in the cold chain sector.

e. Diversification, from traditional crops to plantations, orchards, vineyards, flowers, vegetable gardens and bamboo plantations.

f. Extension of appropriate technology to farmers for high-tech horticulture including protected cultivation and precision farming.

g. Increase of acreage of orchards and plantation crops including bamboo and coconut
Chilies Bhadradri, Telangana

The district of Bhadradri kothagudem is the largest district in the state of Telangana by area. This district is formed out of the erstwhile Khammam district. The district has the largest area under forest cover spread over many major areas of the district. The district is also home to major industries like coal and paper products. The river Godavari passes through the district. Bhadradri shares the historical significance with Ramayana.

Chili is the largest spice exported from India. India is the largest chili exporter in the world, serving almost half of the world's chili demand. The largest importers of Indian Chili include the USA, UAE, Saudi Arabia, and the UK. The world has turned more towards Indian Chili when the prices of Chili produced in China have increased. Interesting China started importing Chili from India.

Problems

25. There's a scarcity of manpower availability during the harvest season. Since its a seasonal demand, getting enough manpower during harvest has become a challenge. Due to lack of manpower, many farmers are just holding the crop at full yield without harvesting. The increased labor costs have also proven to be a burden on farmers.

Proposed Interventions

o. Although capital intensive, we could look into providing harvesting machinery on a rental basis to the farmer when needed.

p. Local Farmer associations can own the equipment and can provide it to farmers when needed for harvest.

q. They could be accountable for rental accounts and revenues.

r. The farmers will benefit from the harvest equipment. They need not wait for manpower to arrive.

s. The rental basis equipment will be economical for them to use and quick harvest on time implies better quality product reaches the markets.

26. Chili is a moderately water-intensive crop making it dependant on the available irrigation infrastructure. Lack of proper water feed in the initial stages reduces the yield.

Proposed Interventions

n. Farmers could be provided with Rainwater harvesting systems on subsidy to make water available without depending on the grid infrastructure.

o. This improves the self-sustenance of farmers and reduces the dependability on the irrigation infrastructure.

p. Alternatively, drip irrigation systems can be employed to reduce water usage.

q. Drip irrigation is known to reduce water usage by 40% and reduce the bottom line costs to the farmers.

27. Lack of storage units is also an issue with the farmers. The limited storage units available in the district often face technical faults and run out of order. The farmers have to resort to storing the produce on open lands, subjecting them to the risk of theft and spoilage.

Proposed Interventions

q. To improve exports and maintain yield quality in the long run, the government has to build enough cold storage facilities in the area.

r. The operations and maintenance have to be looked after properly to avoid technical faults and breakdowns.

s. The storage facility enables the farmers to transport the produce and store it properly in time.

t. This reduces the loss due to theft and spoilage. The quality of the product is also maintained.
28. Unseasonal rains are a cause of major concern for Chili farmers. The crop requires water in the initial stages and then followed by a period of dry land. Post-harvest, the Chilies are usually stored in open areas by the farmers. The harvested Chili stores in open areas get drenched in the rain and are spoiled, turning black in color and with a pungent sting. This means the price of harvest has gone down, and the only thing to do is salvage the produce.

**Proposed Interventions**

i. Tarpaulin sheets could be provided to the farmers as a low-cost solution for the farmers to protect the produce from drenching.

j. Electric dryers could be provided under subsidy to reduce the loss due to damage.

k. Tarpaulin sheets will protect Chili from unseasonal rains at a low cost.

l. Electric dryers help quick drying of drenched Chili and reduce damage.

29. The biggest restriction during exports is the prevention of pesticide residue and aflatoxin toxicity. Countries like Mexico have imposed compulsory certification against this. The European Union carries checks at 10% frequency on all the Chili imports from India.

**Proposed Interventions**

k. Organic alternatives to grow Chilies could be explored.

l. This way, we can achieve a reduction in the use of pesticides which might also fetch a higher price for the farmers.

m. Organically grown Chilies, by default, has no pesticide residue and hence have great export potential.

n. This might even fetch a higher premium price for the farmers from health-conscious customers, encouraging more farmers to join.

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<td>Telangana Department of Agriculture</td>
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<td>ODOP Telangana Department of Agriculture</td>
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<td>Infrastructure &amp; Manufacturing</td>
<td>Telangana Department of Agriculture</td>
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<th>Regulatory, Credit, Subsidy</th>
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<td>4</td>
<td>Tarpaulin sheets and electric dryers could be provided under subsidy to reduce the loss due to damage.</td>
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<tr>
<td>5</td>
<td>Organic alternatives to grow Chilies could be explored. Reducing the use of pesticides might also fetch a higher price for the farmers.</td>
<td>Telangana Department of Agriculture</td>
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</table>

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- https://kothagudem.telangana.gov.in/about-district/
IT & IT enabled services, Hyderabad, Telangana

The Indian state of Telangana has a significant amount of software export in India. While the majority of the industry is concentrated in Hyderabad, other cities are also becoming significant IT destinations in the state. In Hyderabad, the central region of the business happens in HITECH City, in the Madhapur suburb. Initiation and Development of HITEC City by the then-chief minister N. Chandrababu Naidu prompted several IT and ITES companies to set up operations in the city, and also rename the city as "Cyberabad" by Mr. Naidu. Mr. N. Chandrababu Naidu persuaded Microsoft CEO Bill Gates to set up its first development center out of Redmond, Seattle in Hyderabad. There have been extensive investments in digital infrastructure in Telangana. As of 2020, Hyderabad has 600,000 employees in the IT/ITES sector, working in more than 1500 companies.

Problem 1

The problem related to huge infrastructural requirements all of a sudden. Rapid development has increased demand for housing and resulted in urban sprawl.

Proposed Intervention

a. Infrastructure must be provided by demand driven institutions. Demand orientation means that all processes in organizations are responsive to consumers. The responsiveness must drive decisions such as what to deliver, what technologies to employ, and how prices should be set.
b. Infrastructure investments should be made in cases where a known demand for services exists. Investments should seldom be made prospectively, in hopes that demand will develop. This will help reduce the overshooting of infrastructural supply.
c. An inventory of existing infrastructure services should be maintained for evaluating current service delivery and for planning purposes. The inventory also is important because the existing physical and organizational structure will heavily influence how expansions of urban services can be undertaken.

Problem 2

Sudden surge in the demand for the transportation, leading to the lack of adequate amount of public transport and increase in the private transports on road.

Proposed Intervention

a. The construction of bypasses to divert through-traffic and increased production of public transportation systems so that the demand for these vehicles can be adequately addressed by the supply.
b. Making the daily commuters aware about the problems associated with private vehicles such as increased levels of pollution, congestions on the roads and longer commute durations which can be easily addressed by switching/relying on public vehicles.
c. On multi-lane highways that carry heavy volumes of commuter traffic, certain lanes can be allocated to incoming vehicles in the morning and to outgoing traffic in the afternoon, producing a tidal-flow effect. This can be done using IT based intelligent vehicle highway systems (IVHS).
d. Parking must be restricted and this is usually done by banning all-day parking by commuters or making it prohibitively expensive.

Problem 3
Increase in pollution levels due to increased construction of buildings, cutting forests for more land and greater number of petrol- or diesel-powered private vehicles on the roads generating a huge carbon footprint.

Proposed Intervention

a. Promote the use of electric vehicles mostly in the public domain followed by awareness for EV in private households as well so that the GHG emissions from these petrol- or diesel-powered vehicles are brought down.
b. A Pilot Green Transport Fund should be initiated to subsidize the testing of green innovative technologies relevant to the public transport sector and goods vehicles.
c. Retrofitting and controlling emissions from existing power plants with the shift away from coal and requiring new power plants to use cleaner fuel such as natural gas
d. Shift to more greener ways of construction such as those indicated by the LEED programs and initiate more tree plantation drives so that the land clearing process is compensated by the sequestering ability of these trees.

Problem 4

IT Hubs function by talent pooling. This results in increased migration and affects the local demography. At times, it creates an atmosphere of ‘us v/s them’ and contributes to social tension.

Proposed Intervention

n. Government agencies should maintain a decent level of transparency in the selection processes of these firms so that people are assured that the selections are purely capability based which can be earned by anyone regardless of the person being a local or not.
o. Some provisions for reservations can be made available to the locals that too in the special conditions such as a transgender or a handicap person’s vacancy.

Problem 5

Issues pertaining to safety and security of women have risen.

Proposed Intervention

e. Glasses or IoT-enabled personal devices with face recognition technologies connected to a database of criminals may be able to proactively warn when known offenders are in close proximity.
f. Peer-to-peer, location-based emergency communication technologies can enable victims to seek help from police or others nearby.
g. A 24 hours operational police booth must be set up to cater to the complaints of women on a rapid basis.
h. Women must be trained about the basic self-defense techniques so that they are able to protect themselves in case of any kind of threat to safety.

Problem 6

Significant reduction in the green cover of the city due to rapid developmental activities.

Proposed Intervention
a. Tree plantation drives or such initiatives should be taken up by the government in collaboration with certain NGOs so that these events are widely publicized and more and more people join for such initiatives.

b. For the proper growth and development of these trees, ministry guidelines should be followed like an area of 6x6 inches is to be left un-cemented around trees to let them grow. They also specify that digging near trees is to be avoided.

c. For the growth and development activities, trees have to be cut, also trees too die, hence the focus should remain on replacing those trees which are being cut by new ones.

**Problem 7**

*Extended work timings, competition and, most importantly, insecurity at work are contributing to an increase in people’s stress levels—People working as per client timing in foreign countries have disturbed life and sleeping patterns, and in many cases, have almost no family life.*

**Proposed Intervention**

a. Provisions by regulators to fixate on fixed working hours and imposing penalties in case of non-adherence to these working hours. These working hours can be decided based on the different shifts followed in the organizations.

b. Proper provision of government and paid holidays for employees so that they can relax and spend some quality time with their near and dear ones.

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<td>Market analysis</td>
<td>The demand must drive decisions such as what to deliver, what technologies to employ, and how prices should be set.</td>
<td>Industries &amp; Commerce department of Telangana Government</td>
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<td>The construction of bypasses to divert through-traffic</td>
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<td>IT based IVHS services for road congestion control</td>
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<td>Infrastructure support</td>
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<td>5</td>
<td>Credit support</td>
<td>A Pilot Green Transport Fund should be initiated to subsidize the testing of green innovative technologies</td>
<td>Government of Telangana, Directorate of Treasuries &amp; Accounts</td>
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<td>6</td>
<td>Infrastructure support</td>
<td>Shift of power generating organizations to RE</td>
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<td>7</td>
<td>IT support</td>
<td>Glasses or IoT-enabled personal devices with face recognition</td>
<td>Ministry of Electronics &amp; Information Technology, GoI</td>
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<td></td>
<td>Technologies to detect criminals</td>
<td>Women must be trained about the basic self-defense techniques</td>
<td>Women &amp; Child development department, Telangana</td>
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<td>9</td>
<td>Training &amp; Development</td>
<td>Women &amp; Child development department, Telangana</td>
<td>Women &amp; Child development department, Telangana</td>
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<td>10</td>
<td>Institutional support</td>
<td>Tree plantation drives in collab with NGOs and follow post planting guidelines</td>
<td>Environment, Forest, Science &amp; Technology department, Telangana</td>
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<td>11</td>
<td>Human resource</td>
<td>Provisions of fixed working hours &amp; paid holidays</td>
<td>Environment, Forest, Science &amp; Technology department, Telangana</td>
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</table>

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**Jogulamba Gadwal Groundnuts**

Groundnut, any of several plants that bear edible fruit or other nutlike parts. Three are members of the family Fabaceae (or Leguminosae): Arachis hypogaea, the peanut, the fruit of which is a legume or pod rather than a true nut; Apois americana, also called wild bean and potato bean, the tubers of which are edible; and Lathyrus tuberosa, also called earth-nut pea.

**Problems**

1. *Deplorably low productivity in India mainly due to non-availability of improved seeds, high cost of seeds and high yielding varieties*

**Proposed Intervention**

a. Importing quality seeds from competitive markets are the best way to significantly increase the production. Reduction on import duty, easy access to these quality seeds to the producer would eventually rise the production
b. Investment in agricultural researches in specialized institutions can result in high yielding varieties

c. Authorities should promote replacement of old and traditional seeds for increasing production

2. *The concerns related to pest management and excess uses of pest result in degradation of groundnut*

**Proposed Intervention**

a. Leveraging integrated pest management techniques to reduce and limit excess use of pests in the farms
b. Increasing awareness among farmers regarding managed use of pests can reduce bad use of pests
c. Uses of organic fertilizers and sustainable harvesting techniques such as pruning can prove useful

3. *The high cost of labor during harvesting and non-existence of cost-effective technologies increases the cost burden*

**Proposed Intervention**

a. Government should promote adoption of cost-effective techniques for harvesting leveraging newer technologies like interlock farming and mechanization
b. Authorities should provide financial incentive at different levels to the farmers in order to reduce the cost burden from farmers
c. Availability of gypsum and fertilizers for the life cycle of groundnut is very important in context of quality of produce

4. *Lack of access to capital and credits for groundnut farmers inhibits the real growth of crops since the farmers are not able to invest*

**Proposed Intervention**

a. Despite the availability of different credit policies and financial institution the credit ecosystem still lacks in reaching the eligible set of farmers. Utilizing the present infrastructure, government should collaborate with cooperative and private banks for credit disbursement
b. Specialized schemes for groundnut farmers would help the farmers for increased access of capital

5. *There are increasingly high concerns regarding natural calamities like flood, drought and erosion*

**Proposed Intervention**
a. Crop insurance for such scenarios (natural calamity) can be an effective solution to these issues  
b. Developing a community trading platform for groundnuts in order to delimit the risks is very important  
c. Leveraging the online future markets and selling the produce before harvesting can protect from undesired risks

6. Despite the presence of exporters in the area, groundnut have not been able to make its appropriate place in the global markets due to lack of definite and committed export policies

Proposed Intervention

a. APEDA and other horticulture and agro based authorities should come together to catalyze the groundnut industry in Telangana  
b. Regular promotion and reaching out to the target buyers can establish buyer base  
c. Providing easy access to the administrative offices and facilitating exporters in paper work and other formalities can remove the barrier of low export in groundnut industry

7. Despite the increased demands farmers are not able to get fair price for their crops majorly due to the existence of middlemen

Proposed Intervention

a. Direct procurement by government, MSP provision and reaching out to the farmers can solve the issue of middlemen  
b. Bringing efficiency to the public markets by taking administrative measures is very important  
c. Enabling producers to sell directly can eventually lower the cost burden

8. The lack of understanding and knowledge among foreign buyers, trader’s exposure to the foreign markets and lack of a platform for interaction among buyers and sellers has created the huge gap

Proposed Intervention

a. Organizing Buyers Sellers meetings leveraging digital platforms  
b. Targeting niche markets across the world to sell these expensive products  
c. Providing platforms for interactions among buyers and sellers

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<tr>
<td>a</td>
<td>Product Improvement</td>
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<td>Agriculture &amp; cooperation (agri.ii) department, ICAR-Indian Institute of Pulses Research</td>
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<td>b</td>
<td>Quality Assurance</td>
<td>Pest management techniques</td>
<td>Ministry of Agriculture &amp; Farmers Welfare</td>
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<td>c</td>
<td>Training and development</td>
<td>Cost effective techniques for harvesting</td>
<td>Govt of Telangana</td>
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<td>d</td>
<td>Logistics Distribution</td>
<td>Facilitation of exporters in administrative issues</td>
<td>Agriculture &amp; cooperation (h&amp;s) department</td>
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<td>e</td>
<td>Logistics Distribution</td>
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<td>f</td>
<td>E-commerce</td>
<td>Organizing BSMs and trade fairs</td>
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Millets, Komaram Bheem Asifabad, Telangana

The Komaram Bheem Asifabad district, which is officially known as Kumuram Bheem Asifabad, is located in the state of Telangana. It was an earlier part of the Adilabad district. It is named after the tribal activist Komaram Bheem. According to a 2018 NITI Aayog report, it's the second most backward district in India. Pranahita river runs parallel to the district.

Millets are a kind of cereal cultivated for edible grain. They are a diverse range of nutrient-rich crops. They are suitable to grow in harsh and dry climatic conditions. They are drought-resistant and need very less water for cultivation, making them ideal for growing in semi-arid regions. It consumes 2.5% less water than the crops like wheat, rice, maize. Millets are nutritionally healthier than largely consumed crops like wheat and rice. Today millets are garnering much-deserved attention across India because of their high nutritional value. States like Odisha, Telangana, and Andhra Pradesh have launched special programs to promote these Nutri cereals in the National Year of Millets.

Problems

30. **Due to the Green revolution, most of the cultivation is focused on rice and wheat. Over the years, the tribals of Asifabad shifted cultivation to Paddy and Cotton. The focus also shifted to cash crops like sugarcane. The tribal farmers growing millets usually use the grain from the previous crop as seeds. With reduced cultivation getting good quality seed has become very difficult.**

**Proposed Interventions**

- To encourage the tribals to produce millets, Seed distributions can be done at a subsidy.
- Seeds availed at subsidy will encourage the tribals to take up millet cultivation.
- Assurances of minimum selling prices also encourage the tribals to grow millets.
- Minimum selling prices on millets provide assurances to the farmers of returns and encourage them to take up the cultivation.

31. **Millets have hard to digest cover shells which deters the insects and pests from damaging the crop. But this means more processing needs to be done than the other grains. Facilities for this level of processing are not available close to the production fields.**

**Proposed Interventions**

- The government can establish milling or processing plants in strategic locations.
- The decentralized processing plants reduce the burden on tribals to transport to far-off processing units.
- The government can directly buy the processed millets from the plant itself, reducing the need for tribals to go to markets.
- Alternatively, it can encourage the locals to install the plants by providing them credit or subsidies.
- If the locals are encouraged to establish these mills, it will help their livelihood, and local economic activity will be increased.

32. **Although millets were once staple food, now, someone very rarely includes them in their diets. This lack of demand for millets is the biggest concern for cultivating millets. Lack of demand means low market prices and little reward for the farmers to grow them.**

**Proposed Interventions**
u. The government can include millets in the diet of their food programs like mid-day meals and Anganwadis.
v. They can create awareness campaigns about the nutritional benefits of millets along with different recipes to use them.
w. Government, by including millets in the diet, can generate the initial demand and assure minimal market price for the tribal farmers.
x. Awareness campaigns increase the visibility of benefits of millets to people. This will increase the demand for the crop.

33. The tribals are mostly small farmers with small lands, and they usually practice multiple cropping of other grains along with millets. So the produce from each farmer is small, and sellers are highly fragmented.

Proposed Interventions

m. Local Millets farmer associations can be established with the help of local groups and governments.
n. These associations can collect the product and sell it in bulk to the markets.
o. These associations can lobby with the local governments for subsidies and incentives.
p. They can maintain uniform quality and manufacturing standards to have more export potential and visibility in the international markets.

34. According to locals, due to the increased cultivation of paddy and cotton over the years, the tribals are unable to properly transfer the knowledge of millet production and millet production. Also, awareness among the tribals about new innovative farming practices is also low.

Proposed Interventions

o. Skill development and training workshops can be organized for interested people to pursue millet cultivation.
p. Workshops on innovative farming practices can be conducted to raise awareness among the tribals.
q. Training on packaging and shipping can also be offered.
r. The skills can be well documented and passed onto the next generations.
s. More creative and innovative thinking can be cultivated, leading to better market-friendly products.
t. Better packaging and shipping lead to increased market visibility and reach, fetching the farmers' competitive prices.

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<td>Training and Development (Upskilling), Packaging</td>
<td>Skill development and training workshops can be organized for interested people to pursue millet cultivation. Workshops on</td>
<td>Ministry of Skill Development &amp; Entrepreneurship Ministry of Tribal Affairs</td>
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innovative farming practices can be conducted to raise awareness among the tribals. Training on packaging and shipping can also be offered

| 3 | Regulatory, Quality Assurance | Local Millets farmer associations can be established. | Ministry of Tribal Affairs, Ministry of Skill Development & Entrepreneurship |
| 4 | Infrastructure & Manufacturing | The government can establish milling or processing plants in strategic locations. Alternatively, it can encourage the locals to install the plants by providing them credit or subsidies. | Ministry of Tribal Affairs, Ministry of Skill Development and Entrepreneurship-Telangana |
| 5 | Regulatory, Branding, and Marketing | The government can include millets in the diet of their food programs like mid-day meals and anganwadis. They can create awareness campaigns about the nutritional benefits of millets along with different recipes to use them. | Telangana Department of Agriculture, Food and Nutrition Board, ODOP |

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Rajaana Silcilla handloom

The craftsmanship of the Indian weaver has been refined to a fine art and these fabrics woven from superior yarns are now being manufacture on powerlooms. Indeed, the colours of life itself are reflected in their exquisite designs and startlingly with beautiful colours. The decentralized powerloom sector has widened the scope of products and fabrics manufactured because of the modernization process undertaken by the sector itself. The phenomenal success of the powerloom sector can be traced to certain distinct advantages it possesses. The comparatively low costs, the flexibility and adaptability of production techniques and heterogeneous production structure of the industry have enabled it to supply large and small quantities as per requirements. The Textile town Sircilla is one such example of Powerloom industry which provided the ample work to the weavers, so much so that it was called the “Sholapur of Andhra Pradesh”. But with boom came the depression and the success story of Sircilla has unfolded into crisis followed by indebtedness and suicides of weavers.

**Problems**

1. The weavers are plagued by occupational health hazards like - weakened eyesight, early cataract, loss of vision, high or low blood pressure, heart problems, lung damage, filaria, arthritis, etc. It has been found that handloom weavers look much older than their actual age because of malnourishment, and continuous body movements in a constrained position. Special importance should be given in alleviating the lower back pain.

**Proposed Interventions**

a. Need for further research regarding the postural strain of weavers and also suggests the implementation of ergonomic design into weaver workstations to minimize the adverse effect of their current working postures. Improving upon the weaver’s work-posture could improve their quality of life.

b. The problem is compounded by longer durations of work and over the years. Hence, it’s important to allow weavers to retire, since all the weavers are registered with some cooperative society, they can be provided pension plans. Similarly advanced machinery involving more automation to reduce the manual work required.

c. Regulations mandating safety features in the workstations. Simple features like proper lumbar support to be implemented in the existing workstations.

d. Awareness about these diseases and medical conditions amongst the workers so that they could take preventive steps to protect their future generation. In addition to this, regulating the working hours by organizing the sector to prevent exploitation.

2. Weavers often face the problem of maintaining the inventory forcing them to distress sell their products for significantly lower margins compared to the market rate.

**Proposed Interventions**

a. Provide storage spaces with proper monitoring system at lowest of costs to avoid the tendency of distress selling.

b. Introduce minor regulations in the market by setting a minimum selling price, to avoid exploitation of the weavers through external parties.

c. State Government can take help of rising start-ups like “PickMyCloth” involved in providing D2C services connecting the weavers and other artisans with the customers.

d. Government could fund national programs to distribute cloths (dhotis on festivals, uniform to school children) to the less fortunate generating surplus revenue for the sector itself and creating extra demand in seasons when the demand is less.

3. Despite large scale modernisation in recent years, industry is facing lots of issues regarding marketing of the product, lack of knowledge towards the consumer preference and taste, inappropriate product mix etc.
Proposed Interventions

a. It is possible for the handloom societies to stress the 'Unique Selling Proposition' of their products as 'Handloom', 'hand-woven', 'handmade', 'handcrafted', 'natural fibres', 'natural dyed', 'eco-friendly' etc to evade the competition from power loom and mill made clothes.

b. As the Handloom Societies in the study area are producing only the conventional products like saree, dhoti, bed sheets, home furnishings etc, it is recommended for the handloom societies to diversify their product line to nonconventional products like shirting, tie, stole, scarf, bags, pouches, kurtas, Kurtis, yoga mat etc. to capture the market share.

c. For benefit of weavers as well as for whole handloom sector, it is very essential to organize awareness programmes in popularizing the “Handloom Mark” to create unique brand image for genuine Handloom Products.

d. Promote certifications for organically procured products to create a competitive advantage and avoid the problem of duplication.

4. Weaver Cooperative Societies are plagued by administrative problems arising due to insufficient working capital, low disbursement of credit for the handloom Societies, insufficient subsidies to Handloom Products.

Proposed Interventions

a. Government could provide certain of electricity to the households for free, incentivizing them to upgrade their workstations and reducing the utility overhead costs.

b. The Government could provide financial assistance to compensate Rebate extended to customers to promote the sale of handloom cloth by reducing the price considerably so as to compete with mill made cloths in the market. This scheme not only enables the primary weaver’s co-operative societies in liquidating their stock, but also aims at protecting the Handloom Industry from severe competition to safeguard the handloom weavers from the onslaught of the Mill Sector.

c. Follow a cluster development approach to assist them as a group through
   a. Cluster Development Programme
   b. group approach for development of Handlooms
   c. assistance for Handloom Organisations
   d. assistance for Innovative ideas and Publicity, Monitoring, Supervision, Training and Evaluation of Scheme

   d. Provide organizational assistance to alleviation of the problem of improper financial facilities and irregular supply of yarn.

   e. Under the component of Strengthening of Handloom Organisations, provide financial assistance towards restructuring of National and State Level Handloom Organisations such as Handloom Corporations, Apex Handloom Co-operative Societies etc., with a view to make them viable by enhancing their credit limit / working capital.

5. Lack of infrastructure and training facilities has led to lower productivity levels due to obsolete production techniques and high attrition rate of the younger generation.

Proposed Interventions

a. Recommendations can be shared with weavers through periodic training programs wherein they can compare their current working conditions to potential improvements. Implementation of such training programs will also provide opportunities to monitor the implementation and regular practice of recommendations.

b. Through Cluster Development Programme invest in following sections to make the industry more lucrative - skill upgradation, purchase of new looms and accessories, setting up of dyeing units, common facility centres, opening of showrooms, conducting exhibition/fairs, publicity, providing of design inputs

c. As the Societies considered 'Lack of modernized loom equipment's' as their prime problem, the effort towards modernization of the looms is most important in increasing the productivity of weaving operation and ensuring first rate handloom products.

d. Government can set targets to increase the digital literacy amongst young generation allowing them to use various technical assistance devices available already used by their market counterparts.
6. The market to sell the textile products is highly inefficient. This is due to two factors – demand is much more than supply, second being the market is set up only on one day a week and that too in a highly congested area, decreasing the operational efficiency of the process. Other than this marketplace, the weavers have little to no contact with actual customers, forcing them to go through middlemen.

**Proposed Interventions**

a. Set up markets twice per week, with allotting various clusters one particular day to reduce the traffic and the congestion. Promote the products more on the digital platforms like IndiaMart and other such platforms to ensure better reach and avoid market inefficiency.

b. Marketing Incentive can be granted on the sale of handloom products to maintain price competitiveness in the market.

c. Train the weavers to diversify their portfolio to increase their margins, training can be given in producing dress materials, furnishing, tablecloth, floor mat, stole, shirting, sarees, kitchen linen, towels etc.

d. The fabrics produced can be converted into value added products. It is being done through surface ornamentation such as embroidery, different kinds of embellishments etc.

7. Lack of reliable data with respect of number of craftsmen, their socio-economic conditions, livelihood conditions, details of families involved and their productivity, is a major shortcoming that affects planning and policy.

**Proposed Interventions**

a. Invest in technologies like big data analytics – capturing experience of local and experienced weavers and their conditions to understand the impact points to design the policy around them to regulate the process.

b. Partner with local banks to provide life insurance for these weavers safeguarding their family against any odd accidents

c. Provide scholarships to wards of registered weavers to incentivize them to pursue higher studies and explore more career options

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<th>Proposed solutions</th>
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<td>Marketing of the products and increasing brand awareness of success stories</td>
<td>Ministry of Commerce &amp; Industry</td>
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<td>2</td>
<td>Training and development of the young generation</td>
<td>Government of Telangana</td>
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<tr>
<td>3</td>
<td>Investment in the marketing infrastructure of the products</td>
<td>Power loom Development &amp; Export Promotion Council</td>
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<tr>
<td>4</td>
<td>Better quality assurance standards, safety compliances</td>
<td>Department of Handlooms and Textiles</td>
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<td>5</td>
<td>Promote certifications</td>
<td>Department of Handlooms and Textiles</td>
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<tr>
<td>6</td>
<td>Construction of common facility centre</td>
<td>Government of Telengana</td>
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<tr>
<td>7</td>
<td>Collaboration with local start-ups</td>
<td>Department of Handlooms and Textiles</td>
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</table>

Bibliography
Prabakaran, D. P. (n.d.). REPORT ON THE DEVELOPMENT OF KASARAGOD DISTRICT. GOI.
Sultana1, N. (n.d.). AVAILABILITY OF RESOURCES IN DEVELOPMENT OF POWERLOOM WEavers – A CASE STUDY OF RAJANNA SIRCILLA DISTRICT OF TELANGANA. JETIR (ISSN-2349-5162).
Problems, Interventions and Opportunities

1. Post-harvest management of mango for quality and safety assurance
   - Mangoes lose water, are prone to decay and injury
   - Delatexing of freshly trimmed mango using delatexing tray (a) and by dipping in 1 percent alum solution
   - Post-harvest disease control
   - Reduced incidence of decay with hot water treatment of mango at the green stage

2. Improving packaging and transportation
   - Rigid containers such as plastic crates are highly recommended for fresh mangoes. Although more expensive than traditional packaging containers, plastic crates with long-term use (5-6 years), the packaging cost per kg of produce is relatively cheaper. Semi-rigid containers such as bamboo baskets are also used but these should not be over-packed. Cartons or fiberboard boxes should be equipped with a vertical divider in the middle and with ventilation holes at the sides to prevent heat buildup inside the carton
   - Drying with the help of an electric dehydrating device and a solar dehydrator and processing them into aromatic dried fruit. drying is the best way to keep the fruit from spoiling

3. Enhancing exports to high value markets like US, Europe
   - Phyto sanitary certificate shall bear the additional remarks
   - The fresh fruit of Mango shall be disinfested with saturated vapor in the vapor heat treatment facilities
   - Food safety and hygiene is one of the important aspects for Import of mangoes by these markets. Hence, residue testing is mandatory through accredited labs.

4. Strengthening Agri-Extention services in Dharampuri
   - Nodal agri officers can impart knowledge through kisan tv, radio (in local language)
   - FPOs can tie up with research centres, Regional Agricultural Research Center and Krishi Vigyan Kendra, from where mango plants of various improved varieties are made available to the farmers on subsidy.
   - Spread awareness regarding new technologies like Ultra-high density plantation (UHDP), grafting

6. Better provision of raw materials and marketing
   - Certified good quality seedling / sapling of the right variety should be made available to cultivators at the time of plantations, Krishi melas, etc. at village levels is required
The three-day mango festival was started in 2019 to promote mango orchards and tourism. It needs to be continued and scaled up.

7. Strengthening agri-extension services

- At least one well equipped Agriculture Extension Office, led by Agricultural Extension Agent (a self-motivated person who is an expert possessing required knowledge, skills and abilities), for every RBH (Rural Business Hub) is what is required. His/her job is to provide total extension support to cultivators as well as processors.
- Problems that arise due to the smallness of the cultivator can all be addressed through such a co-operative movement throughout the nation.

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<th>Sr. No</th>
<th>Proposed solutions</th>
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<td>Ministry of Agriculture</td>
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<td>2</td>
<td>SPS norms</td>
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<td>3</td>
<td>Other extension services</td>
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<td>4</td>
<td>Diversification of export markets</td>
<td>Commerce Ministry through FTAs</td>
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Pochampally Ikkat Silk Saree - Telengana

Pochampally - a weaving village in Telangana, India is synonymous with silk sarees in traditional geometric patterns woven in Ikkat style. It's distinctiveness lies in the transfer of intricate designs and colours onto warp and weft threads first and then weave them together. Bold choice of colours is one of the unique feature in the Pochampally Ikkat weaving process.

These are purely handwoven sarees where the weaving process is very complicated thereby requires skilled weavers to produce detailed ikkat pattern. These sarees are lightweight and easy to carry. Rich pattern and colour combinations make them a preferred choice for party, religious festivals and family events.

Problems

1. There is **lack of labor** and the new generation does not want to take up weaving as a profession since the income in the private sector is low.

Proposed Intervention

   a. Handloom weaving should be part of college curriculum, once students qualify, they can be brought in clusters to factories with 50-100 handlooms to do weaving.
   b. Introducing pneumatics into the machines can reduce the burden and hence attract the new generation.

2. The **number of designers** in the industry has come down in the past few years since there is **no regular high paying income** and hence independent weavers continue with the same design for a few months.

Proposed Intervention

   a. Independent Women weavers should be taught CAD designing. This will help them make designs themselves when required and save on costs.

3. The weight of the jacquard is too heavy and has to be changed regularly based on the design and slows down the process.

Proposed Intervention

   a. Pneumatics which has already been introduced is still not available to many weavers. Pneumatic equipment should be made easily available through subsidy.
4. The handloom industry faces stiff competition from the power loom industry.

**Proposed Intervention**

a. Local showrooms sell sarees which are cheaper. Local showrooms should be mandated to buy some cheaper Ikkat silk saree.

5. A lot of sarees with lower quality zari and cheaper saress made elsewhere are sold as Ikkat Silk saree.

**Proposed Intervention**

a. Ikkat Silk label should be mandated on sarees on the silks made in Kanchivaram.
b. Testing of sarees for purity should be made available in every showroom with information to identify originals.
i. Ikkat Silk sarees customarily have a differentiating zari outskirt. This is an element that recognizes these sarees from numerous sorts of silk sarees made in India.
ii. Another technique used to test the purity of the saree is by culling out a couple of strings from the end twists of the saree and lighting it on fire. Once the fire has died out, you will discover cinder left behind. If the smell released from the cinder resembles burnt hair or cowhide, you are looking at an unadulterated Ikkat silk saree. On the other hand, if there is no debris after the flames consume the thread, it means the saree has been made using counterfeit zari.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Proposed intervention</th>
<th>Agency</th>
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<td>Weaving as a college curriculum</td>
<td>State Govt. / Ministry of Textiles</td>
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<td>2</td>
<td>Introducing Pneumatics into the machines and subsidizing the parts</td>
<td>Ministry of Textiles/ state govt./ Silk board</td>
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<td>3</td>
<td>Training women weavers in CAD for designing</td>
<td>NIFT</td>
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<td>4</td>
<td>Mandating Local showrooms to buy from local weavers</td>
<td>State Govt.</td>
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<td>5</td>
<td>Creating awareness of the original saree</td>
<td>Silk board/ State Govt.</td>
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Dindigul Malai Poondu, Tamil Nadu

The picturesque Kodaikanal Hills in Dindigul district is famous for its exotic Kodaikanal Malai Poondu (Kodaikanal Hill Garlic). Also known as Melmalai Poondu, this centuries-old indigenous crop is known for its medicinal and preservative properties. The heady aroma and unique taste are attributed to the presence of higher amounts of organosulfur compounds, phenols and flavonoids as compared to other varieties of garlic. It is the high content of organosulfur compounds that renders it a strong smell and pungent taste. This garlic is used both as a food ingredient as well as a medicine (rich in antioxidants and has antimicrobial properties).

One of the most distinctive traits of this garlic is that it can be stored for 8 to 11 months at room temperature without the cloves getting shrivelled or sprouting. This is achieved by tying the stalks of the garlic and hanging them from their roofs. The smoke that emerges during cooking provides the optimum amount of humidity and air circulation. The houses of the farmers are generally warm throughout the year and this provides the appropriate conditions for the storage of this variety of garlic. Malai Poondu is cultivated as two crops with one planted in September – October and the other in April – May and fetches more than Rs 300 per kg.

Problems

1. A prolonged dry spell certainly affected the cultivation. Such unhealthy situation triggered a drastic decline in yield, pushing up the price, considerably. The garlic growers, who largely rely on rain for their livelihoods, have been going through several hardships as water bodies found in forest areas could not be accessed, and wild animals get their farm lands damaged.

Proposed Interventions
a. Financial assistance should be provided to farmers who wish to set up tube wells for irrigation as it adds to the production cost of garlic.
b. Training can be provided to the farmers on how to receive credit facility for irrigation.

2. *Logistics problem due to the unique terrain of Kodaikanal, added by constant surface erosion. Nearly, twelve villages lie far apart from each other and are isolated from vital information.*

**Proposed Interventions**

a. A GI Research Centre & Felicitation Wing could be formed in the district to work on solving this logistical problem.
b. Vital information regarding the crop could be also be circulated among the farmers with the help of the research center.

3. *Dearth of adequate finance drives farmers to opt to cultivate Commercial Garlic, instead of growing Hill Garlic.*

**Proposed Interventions**

a. Growing Hill Garlic should be incentivized by the Government of Tamil Nadu.

<table>
<thead>
<tr>
<th>Sr. No</th>
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<th>Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Credit</td>
<td>Financial assistance should be provided to farmers who wish to set up tube wells for irrigation</td>
<td>Ministry of Commerce &amp; Industry</td>
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<tr>
<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Training can be provided to the farmers on how to receive credit facility for irrigation.</td>
<td>Ministry of Agriculture</td>
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<td>3</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>A GI Research Centre &amp; Felicitation Wing could be formed in the district to work on solving this logistical problem.</td>
<td>Ministry of Agriculture</td>
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<tr>
<td>4</td>
<td>Quality Assurance</td>
<td>Growing Hill Garlic should be incentivized by the Government of Tamil Nadu.</td>
<td>Government of Tamil Nadu</td>
</tr>
</tbody>
</table>
References/Sources

4. https://www.motherteresawomenuniv.ac.in/IQAC/BEST%20PRACTICES.pdf
Vigna mungo, the black gram, urad bean, uzhunnu parippu, ulundu paruppu, minapa pappu, mungo bean or black matpe bean (māṣa) is a bean grown in South Asia. Like its relative, the mung bean, it has been reclassified from the Phaseolus to the Vigna genus. The product sold as black lentil is usually the whole urad bean, whereas the split bean (the interior being white) is called white lentil. It should not be confused with the much smaller true black lentil (Lens culinaris).

Black gram originated in South Asia, where it has been in cultivation from ancient times and is one of the most highly prized pulses of India. It is very widely used in Indian cuisine

**Problems**

1. *Non availability of high yielding varieties as well as low seed replacement and varietal replacement leads to low production*

   **Proposed Intervention**
   
a. Substantial reduction on Import duty for usable seeds and high yield varieties would significantly increase the production levels
b. Adopting critical innovation practices for black/green gram cultivation
c. Leveraging integrated nutrient management particularly post flowering nutrient management, integrated pest management and other technology of black gram

2. *Lack of specialized research in seed production and intervention of appropriate technology inhibits the optimal outcomes*

   **Proposed Intervention**
   
a. Authorities need to devise a long-term strategy to increase black/green gram production by increasing acreage, research initiatives for new varieties of seeds and swift dissemination of extension services
b. Private participation through contract/corporate farming needs to be promoted domestically as well as in neighboring places in order to increase adaptability of newer and advanced technologies like intercropping and use of improved seed variety

3. *Unskilled farmers and untrained labors have added to the existing concerns of cultivation of Black/Green gram*

   **Proposed Intervention**
   
a. Utilizing existing agriculture training institutions for equipping farmers with requisite skills
b. Teaching appropriate plant protection measures and technical knowledge about crop cultivation can result in right approach to production (Dangi and Kumhar, 2017)
4. Price volatility of Black/Green gram due to insufficient supply against the levels of demands

   **Proposed Intervention**

   a. A well-designed incentive scheme needs to be implemented for Black/Green gram and other pulses for producers
   b. Price monitoring by appropriate authorities can help limiting the volatility

5. Shorter value chain, informational asymmetry and existence of informal market stakeholders restricts fair prices for the farmers and producers

   **Proposed Intervention**

   a. Alternative markets such as online marketing platforms and commodity markets can disperse the issue of price risks and volatility
   b. Through commodity exchanges, a producer or aggregator can agree to sell agricultural produce at a pre-determined fixed price at a fixed location to a buyer
   c. Commercialization and better price realization can help off-set farm-level opportunity costs to encourage cultivation in post-paddy season.
   d. Reducing transaction costs and improving options for commercialization can help bring about stronger supply response\(^2\)

6. The presence of disproportionate number of small farmers and producers usually creates facilitating situations for middlemen resulting into lost price for producers and high price for consumers

   **Proposed Intervention**

   a. Government direct procurement policy needs to be changed and authorities should try to reach out directly to the farmers for buying the produce
   b. Regular promotion of fair pricing and incentivizing the farmers on selling to governments directly

7. The infrastructure required for post-harvest management of farm produce will be very costly

   **Proposed Intervention**

   a. Smooth operations of farm markets/Mandis along with a road network to help the producer reach the market
   b. The hitherto levied market fee and rural development fund must be restored\(^3\)

**Intervention Table**

<table>
<thead>
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<th>Problems</th>
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<tr>
<td>Non availability of high yielding varieties</td>
<td>Substantial reduction on import duty</td>
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<td>Lack of research in seed sciences</td>
<td>Increased research institutes and innovative techniques in the domain</td>
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<th>Unskilled and untrained labors</th>
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<td>Price volatility</td>
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<tr>
<td>Infrastructure for post harvest management</td>
<td>Development of robust road network</td>
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**References**

Chengal Pattu – Fisheries

Chengalpattu, previously known as Chinglepet, is located near the industrial and IT hub. It is the headquarters of the district and is 56 kilometres away from the state capital, Chennai. Fishing is one of the major occupations in Chengalpattu district. The 57 km coastal belt of Chengalpattu district with 33 marine fishing villages from Kannathur Reddy Kuppam to Kottaikadu is characterized by the availability of a wide array of marine species and thus marine fisheries is considered as the most important livelihood in the coastal area. The district is blessed with vast marine resources which provide livelihood to more than 6,400 fishermen families who are involved in direct and indirect fisheries activities. The marine fish production of the district is estimated at 13,023.37 tons (2014-15)

Problems

1. Lack of fishes near the sea since the inshore fisheries has reached a saturation level

   Proposed Intervention
   a. State and central government should incentivize the fishers operating in inshore waters to go for off shore fishing through introduction of new intermediary vessels or upgrading existing vessels for offshore fishing
   b. Authorities can encourage the fishers to go ahead with offshore fishing by providing subsidies and micro-loans for buying the specialized equipment

2. As a result of over fishing and unsustainable practices such as trawling, the aquatic ecosystem has suffered and there have been ecological imbalance

   Proposed Intervention
   a. A comprehensive fishery policy which entails development of good management practices, conservation of resources, value addition to catch fish, hygienic fish processing for domestic market, development of adequate infrastructure for fishing and aquaculture operation is the need of the hour
   b. Leasing of common water bodies such as panchayat tanks, reservoirs and temple tanks can be streamlined

3. Information asymmetry and lack of local centers/experts which can train fishers for offshore fishing challenges

   Proposed Intervention
   a. Collaboration with fishing experts and introducing call center or local training center by state or central government could upskill the fishers for offshore fishing
   b. Centralized training center specifically for fisheries methodology

4 http://www.spc.tn.gov.in/SLUB_STUDIES_PDF/Study_37.pdf
5 http://www.businessworld.in/article/How-Sustainable-Is-The-Fishing-Industry-In-India-/20-04-2017-116747/
4. *Most of the sellers are not organized due to poverty, lack of digital literacy and small market size*

**Proposed Intervention**

a. A unified platform for seller’s registration and administrative support can onboard sellers to the formal economy
b. Associations of fishers (Tamil Nadu) can reach out to the fisherman communities for registration and certifications checks

5. *Due to illiteracy and lack of exposure to foreign markets the producers have not been able to export. Unavailability of a common platform for all the administrative and logistical requirements for exporting*

**Proposed Intervention**

a. There must be information centers and helpdesk for the fishers to aware them about export related information. Authorities should create a common platform within the district where producers can get all the export related certifications done
b. EXIM and other export related certifications are hard to obtain for the producers, administrative support from authorities can ease out the processes for the producers

<table>
<thead>
<tr>
<th>Problems</th>
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<tr>
<td>Lack of fishes at the inshore</td>
<td>Usage of new intermediary</td>
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</table>

6. *Over the years, the market for fishes has shrink due to the change in consumer preference and presence of different sellers eventually resulting into poverty and decrease in people involved in the sector*

**Proposed Intervention**

a. Exposure to intra-national and international markets can help sellers to reach out to the larger markets and eventually increasing the sale of produce
b. Increased offshore fishing would increase the stocks of fishes and ultimately would result in larger sales

7. *Lack of exposure to foreign buyers, international selling standards and little idea of buyer’s preferences*

**Proposed Intervention**

a. Frequent global BSMs (Buyer-seller’s meetings), administrative and logistical support from authorities and a well-researched and elaborate about foreign consumer preferences can help rectify the issue of foreign market penetration

Intervention Table
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<td>Lack of exposure to foreign markets</td>
<td>Information center and helpdesk, export certification</td>
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<tr>
<td>Changing consumer preference</td>
<td>Increased exposure to international and domestic markets</td>
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East Sikkim Red Chilli Pepper, Sikkim

Dalle Khursani is a scarlet red colour chilli grown in east sikkim, which is one of the hottest chillies in the world. The chilli is round in appearance and has a distinct aroma and rich flavor. This chilli undergoes only one method of preservation, ie, pickling and is consumed in different ways when fresh and ripe. The chilli is known to contain vitamins A,E,C , potassium and anti-oxidants. In 2019, Sikkim produced 250 tonnes of Dalle Khursani, out of which 50 tonnes were used by a government-owned Food and Beverages Company, Sikkim Supreme, for making pickles and paste. The chilli has been granted a GI tag for its unique characteristics. The chilli has a Scoville scale ranging from 100000 to 350000 SHU (Scoville Heat Units).

Problems:

1. Marketing and sale are mostly limited to the state. Around 60 percent of total production is sold in the state. It fetches around Rs. 400 per kg in the local market.

Proposed solutions:

- The crop has been granted a GI tag which can open new avenues of marketing and export in other parts of the world.
- The state government should take up interventions for creation of FPOs and collective in order to aggregate the farm produce, which is currently segregated into small pockets in the region.
- The chilli is being sold currently in the local markets only. Initiatives should be taken in order to expand the sales to other parts of the country as well.
- Awareness programs need to be carried out by the state agriculture department so that people can acknowledge the benefits associated with the Dalle Khursani chilli.
- E-commerce platforms like IndiaMart can be used for ripe and dry chilli and platforms like Amazon, BigBasket etc. can be utilized for value added products in order to increase the producer’s reach to the buyers.

2. Unexplored medicinal properties and value addition opportunities

Proposed solutions:

- Presently, the nutritional and medicinal properties of the chilli are unexplored. Institutions like Indian Institute of Horticultural Research should carry out researches in order to explore the unexplored nutritional value that is present in the chilli.
- Capsaicin is an important component which is being used in the food and beverage industry. However, the chilli is limited to pickles, paste and some local recipes which have limited reach. The Government should invest heavily in processing and value addition opportunities in order to maximize the benefits of the farmers.


Proposed solutions:

- Presently there is only one government run food and beverage company “Sikkim Supreme” which produces Dalle Khursani products like pickles. There is a need for the engagement of more public and private players
venturing into the scenario so that more value added products are manufactured and the market reach is increased.

- Since, the chilli crop bears fruits almost the whole year in the region, there is a consistent supply. The supply can further be increased through Good Agriculture Practices (GAPs) and farmer training by KVKs.

4. Limited Production in the region due to constraints like input unavailability, issues with irrigation etc.

Proposed solution:

- The production is currently limited to the region only due to various constraints like limited availability of HYV seeds and other inputs. The State Agriculture Department should facilitate the availability of Hybrid seeds and extension services in association with the local Krish Vigyan Kendra.

IMPLEMENTING AGENCIES:

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<td>Private Players</td>
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References:

North Sikkim is the largest among the four districts of Sikkim. The temperature in this town amid the long periods of May to September is pleasant with the temperature between 28 to 30 degrees Celsius. North Sikkim encounters gentle to substantial precipitation amid the long stretches of July and September. Winter is not a good time to visit North Sikkim as the temperature drops down to below zero degrees.

It is one of the underrated tourist spots in India. Most of North Sikkim is restricted to travellers and permits are needed to visit these areas. The area, which shares a sensitive border with China is heavily patrolled by the Indian Army. However, in view of exquisite scenic beauty, many tourists have started visiting the region overcoming all sorts of hardship. Often unregulated tourism becomes a major conservation issue in the fragile ecosystem such as high mountains.

**Popular places to visit in North Sikkim:**

**Lachen:**

This little settlement is frequently clad with snow and thick woodland thereby making it one of the most attractive places to visit in North Sikkim. This place is a base for Chopta valley and Gurudongmar lake. However, it is best to visit Lachen during the summer. There is Lachen monastery one of the famous in Sikkim.

**Gurudongmar Lake:**

This largest lake in Sikkim is arranged at a high elevation at a height of 5430m. The lake is one of the source floods of River Teesta and it holds gigantic religious significance.

**Lachung:**

It is a pretty town which is arranged on the two banks of the Lachung river. It is in the border of Tibet.

**Yumthang Valley:**

It is popularly known as the “Valley of Flowers” because it is home to 24 types of rhododendrons. The river Teesta flows through it making the valley even more beautiful and attractive.

**Khangchendzonga National Park:**

Khangchendzonga National Park encompasses an area covering 1784 sq km. It is bounded in the north by the Tent Peak and the ridge of the Zemu glacier. The fauna includes the Snow leopard, Himalayan Black Bear, Red Panda, Barking deer and many other species. The best time to visit in between March and May as well as September and mid-December.

**Chungthang:**

It is a town in North Sikkim where locals believe that Guru Padmasambhava and Guru Nanak have visited. It is a base camp for places like Lachung, Yumthang, Katao etc.

**Thangu:**
A beautiful village, it has an inadequate populace and that is the reason it appears an ideal place for those that wish to experience life in nature.

Problems:

1. Lack of operational efficiency

   Proposed Interventions:
   1. Cluster approach tourism: Tourist satisfaction depends not only on the beauty and attractiveness of the place but also on the quality and operational efficiency of various services like hotels, restaurants, shopping, local commute etc. The development of tourism clusters can help to improve those experiences.
   2. Ease of registration process: The process of registration for tour travel agencies, homestays, restaurants etc. should be made simple for entrepreneurs to encourage more people to invest.
   3. Travel Permit: Online issue of inner line permit to protected areas through Aadhaar verification.

2. Transportation/ internet connectivity

   Proposed Interventions:
   Department of Tourism should collaborate with the state govt. department like PWD, Transport etc. for continuous improvement of the following:
   1. Dedicated bus/cab service by tourism dept in collaboration with transport dept can be facilitated to offer a cheaper alternative to reach North Sikkim from Jalpaiguri Rly Station or from Bagdogra airport.
   2. The Roads in the area are not in good condition due to landslides. Road’s infrastructure should be developed to be more resistant to landslides.
   3. Internet and mobile connectivity should be improved in the area to offer convenience to tourists. It can be done by

3. Shortage of rescue team in remote areas

   Proposed Interventions:
   1. Involve local youth: It takes time to reach remote places in times of emergency. Therefore, local youth can be trained to handle rescue operations would help to fasten the process. It will generate employment opportunities for these people.

4. Lack of adventure tourism training and tourism professional

   Proposed Interventions:
   1. Costly adventure training: It has a high potential for activities like Birdwatching, paragliding, mountain hike and biking, butterfly and flower watching etc. Special training or courses can be introduced to help the youths to have a better understanding of these activities. It will encourage them to take up such a profession.
   2. Soft skills training: The people working in this sector need to be skilled and confident, well-groomed, good in interpersonal skills, and have some bit of people skills. Therefore, soft skill training should be given to the people working in the sector through NGOs.

5. Marketing and Promotion
Marketing and promotion of the tourist place is one of the important activities to be taken up to attract tourists from various places.

Proposed Interventions:

1. Social media handles should be maintained actively with organic content to reach out to the masses.
2. National and International tourism fairs can be to market the destination

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<td>Professional Training</td>
<td>Technical and Soft skills training in tourism</td>
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<td>Sikkim Skill development Dept</td>
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<td>Marketing and promotion</td>
<td>Creating promotional activities</td>
<td>Dept of Tourism. Sikkim</td>
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1. [http://sikkimtourism.gov.in](http://sikkimtourism.gov.in)
2. [Opportunities and Challenges of Tourism Sector in Sikkim (ijsr.net)](http://sikkimtourism.gov.in)
3. [North Sikkim Tour: Lachung - Zero Point -Yumthang Valley | Chalo Sikkim ep 03 : Traveling Mondays - YouTube](http://sikkimtourism.gov.in)
The state of Sikkim is nestled among the magnificent Himalayas. The organic two tender leaves and a bud emerge from the mystic tea gardens of this region, bloom at an altitude of 1000-2000 meters above sea level. The tea leaves are lovingly hand-picked to create a wonderful brew that is light, floral, golden yellow, and delicate in flavor. In 1969, Sikkim's first tea garden, the Temi Tea Estate, was established. The Bermiok tea garden was founded in 2002, adding another boutique garden to the fold of Sikkim Tea. In January 2016, the state of Sikkim was designated totally organic, and the teas produced at the Temi Tea Estate were certified as 100% organic tea in 2008.

Sikkim Tea's first flush, collected in the spring, has a distinct flavor and scent. The polished golden liquor has a subtle flowery finish and a lingering sense of sweetness. The second flush of Sikkim Tea is mellow and silky, with a powerful, robust yet pleasant brew. Sikkim Tea's third flush, also known as the Monsoon Flush, produces a full-bodied cup with a mellow flavor. Sikkim Tea's final flush, or Autumn Flush, has a well-rounded flavor with a subtle trace of toasty spices. This amber liqueur is the ideal way to round off the tea seasons. Sikkim produces two types of tea: China variety and clone variety. Clone variety is a very new phenomena, and it was initially utilized primarily to make China varieties. Aside from the black teas, Sikkim also produces white tea, which is made from buds and unfurled young leaves; green tea, which is recognized for its flowery beverage; and Oolong tea, which is fruity, fragrant, and earthy.

Sikkim produces an estimated 0.5 million kilograms (mkg) of tea per year, with only one garden and a few more small growers. The most common farm product is black tea, but a delicate white tea made from buds and unfurled new leaves is also grown to request. Around 75% of Sikkim's tea is sold through the Kolkata auction center, with the remainder packed for local sale. Because it is 100% organic, the tea is very popular on the international market. Germany, the United States, France, Canada, and Japan are the top importers. The Institute for Market Ecology (IMO), a member organization of IMO Switzerland, has verified the organic certification of tea grown in the state.

PROBLEMS IDENTIFIED:

- The South Sikkim tea has no GI status leading to problems of brand establishment and marketing. Additionally, this is leading to adulteration as well.
- Rain fall is infrequent, and when it does, it tends to flood and destroy the soils. This weakens the tea bushes, some of which have been growing for more than 150 years.
- As a result of the weaker plants and erratic rain, insect attacks such as red spider mite, tea mosquito bug, and blister blight have increased.
- Due to a lack of infrastructure, modernization, and competent administration, a large number of tea gardens have become sick.
- Inadequate storage: The processed tea absorbs moisture from the atmosphere and deteriorates in quality due to shipping delays and a lack of storage facilities.
- The workers are paid just Rs 127 per day, and the majority are now migrating to the cities in search of a better future. As a result, the production has dropped by approximately by 30%, and quality has suffered as well. Also, they have no permanent employment, bad working conditions.
- The tea auction price has been steadily declining over the years due to a variety of factors. All of the earnings from the tea gardens in India were syphoned off, with no genuine or effective reinvestment in enhancing tea quality.
- Financial crisis, power problems, increased revenue tax for tea gardens, increased pollution fees, and reduced transportation subsidies.
PROPOSED INTERVENTIONS:

I. **Tea Development and Promotion Scheme**

The Tea Board under Ministry of commerce and industry is the nodal implementing agency of the scheme. The scheme's goal is to improve the production, productivity, and quality of Indian teas in order to stay competitive in global markets. It will also focus on the development of small tea growers, their collectivization for moving up the value chain, value addition in teas for better price realization and market share in export markets, and exploring the potential of tea grown in North Eastern States.

The scheme has the following seven major components covering the broad areas of Tea Board’s operation for overall protection, growth & sustenance of the Indian Tea Industry:

A. Plantation Development for small tea growers

- Mechanization for individual small growers
- Assistance to Self Help Groups
- Assistance to Farmer Producer Organizations
- Annual Award
- Assistance for setting up of tea Factory by FPOs
- Assistance for setting up Mini Tea Factory
- Traceability and publication of newsletters
- Workshop and training
- Strengthening of field offices
- Soil testing Organic certification
- Organic conversion
- Organic farm inputs
- Up gradation of skill of officials
- Contribution to NAFCC funded Climate Adaptation Project

B. Sector Specific Action Plan for NITI Forum for North East

- Cluster Development by Tea Board and Formation of FPC / Cooperative: Registration and contribution to corpus for organic tea
- Training, handholding, GAP / GMP management, documentation, for organic tea
- Ensuring quality check and drawing & testing of tea samples (both big and small growers)
- Value addition by organic tea factories (both big and small growers)
- Setting up Organic factories (big tea estates and SHG, FPO)
- Setting up Organic factories (mini)
- Organic Certification
- Organic Conversion
- Organic farm inputs
- Incentive for Exporters (big and small growers)
- Brand building of tea produced in NER

C. Market Promotion

The sub components include,

Domestic Promotion (including events, fairs, exhibitions, promotion through print, audio-visual, electronic, social, digital and multimedia, generic promotional campaigns, sponsorships, billboards, posters, advertisements, commercials, films, on ground activities, BTL and ATL activities, activities both in online and offline formats, promotional and publicity materials, market survey and market intelligence, infrastructure development etc.)

Scheme for setting up Tea Boutiques in India for Domestic Promotion Overseas Promotion Scheme for promotional support to tea associations

Overseas promotion, campaigns (including trade delegations, events, advertising, sponsorships, print, audio visual, electronic, digital and social and multimedia, billboards, posters, advertisements, commercials, films, on ground activities, activities both in online and offline formats, BTL and ATL activities, promotional and publicity materials membership to Tea bodies/associations/ councils of tea importing countries, market surveys, market intelligence and infrastructure development etc.)

Scheme for participation in international events, trade fairs & exhibitions, delegations with Tea Board Project Management Unit Intellectual Property Right and Logo protection

D. Welfare of Workers (wards of the small tea growers)

E. Research and Development

- Grant in Aid to TRA and UPASI-TRF @ 49%
- Support to DTR&DC & QCL
- Evaluation and Monitoring

F. Regulatory Functions & Auction Reforms

According to a Scheme review study the tea industry's production has increased, but prices have not increased at a rate consistent with the cost of production. Prices are governed by supply quality on the one hand, and demand and market factors on the other. Not only are consumers growing more aware of quality, but food safety regulations are also becoming more severe around the world. In light of the foregoing, it has been claimed that, given the growing need for regulation of various activities in the tea plantation, processing, warehousing, auction, and tea commerce, the Regulatory functions, including auction reforms, are essential for stakeholders involved (RFAR)
II. Application for a GI tag

If Sikkim tea receives a GI by an application to the Department of Industry Promotion and Internal Trade, Ministry of Commerce and Industry, packers may avoid cross-blending varietals from these three locations in order to protect the Darjeeling and Sikkim brands. Furthermore, a concentrated branding campaign combined with GI recognition is projected to open up a profitable export market for Sikkim’s conventional varieties.

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References/Sources:


Lac Bangles, Karauli, Rajasthan

Karauli District is a district of Rajasthan state in western India. Karauli’s natural environment includes the Vindhyanchal and Aravali mountains. The forest covers an area of 172,459 hectares in 2010–11, which is about 30% of total geographical area.

Bangles are one of the oldest forms of jewellery. The Lac bangles are made from natural resins. The art of making lac products is over 300 years old. To establish lac art industry in Rajasthan, the Jaipur Maharaja brought artists from Arabia and from other States of India. In traditional Indian families, lac bangles are also symbolised as suhag, gulali or haraa choodha, usually worn by a new bride just after marriage and for a certain period. Pink coloured bangles are worn exclusively during Holi. All in all, these bangles are considered very auspicious and specially purchased for festivities like Teej, Gangaur, Karva Chauth and other special ceremonies. In Rajasthan, the lac business is usually done by Lakhera and Manihar clans. Hindu families doing lac work are called Lakhera and the Muslims engaged in lac business are called Manihar.

Problems

35. The Younger generations are not keen on taking up the trade and are in search for alternate employment options for livelihood as the returns from craft is becoming barely sufficient to sustain. Older generations are not very interested in transferring knowledge down the generations leading to reduction in craftsmen involved.

Proposed Interventions

x. Local Handicrafts association can be established and can be assigned to document these skills and crafts.
y. Trainings and Workshops can be organized to encourage more people to take up the trade.
z. Better documentation leads to transfer of knowledge to the future generations.
aa. Formal skill development trainings help make better quality products and hence better market reach.
bb. This in turn forms a positive feedback loop of more people joining the trade.

36. The lac bangles are manufactured for decades but the designs of these bangles remained the same. The lac bangles are fragile and breaks easily. Exposure to daily heat can cause the bangle to melt slightly. These are the main issues haunting bangle makers to reach wider markets.

Proposed Interventions

w. New designs of the bangles need to be developed and prototyped.
x. The designs should be appealing the current day customers particularly younger generations.
y. New designs for packaging should also be developed to avoid breakages during transit.
z. The new contemporary designs attract the younger customers and can bring in wider market visibility.
aa. Better packaging designs reduces breakages and wastages and if creatively designed might even serve as a value proposition to the customer.
The Cold-Lac is a new technique introduced in the lac bangle making. These bangles are posing a threat to the authentic original lac bangles which are considered pure by the makers and are denying using the cold-lac technique. It is hard to differentiate both the products and hence the lac bangle makers are losing market to these substitutes.

**Proposed Interventions**

y. The government could develop and authenticity mark for the bangles prepared in tradition and conventional ways just like hallmarks for gold ornaments.

z. This mark will serve as a market differentiator among the product and its substitutes.

aa. Consumers might be interested to by an authentic product that is made in traditional way rather than to use substitutes.

bb. This might also fetch a premium price for the product enabling more market traction.

The Lac bangle making is a laborious process. The raw materials and labour cost for making a set (14pc) of bangles is approximately INR 700 and they are sold to the retail shopkeepers at INR 900. However, the retailers sell these bangles to customers at a price of around INR 1500. This kind of income disparity is discouraging many bangle makers to discontinue the trade in search for alternate employment opportunities.

**Proposed Interventions**

q. Training should be provided to the bangle makers, particularly of the younger generations in marketing.

r. Online marketing particularly on ecommerce platforms is to be taught to bangle makers.

s. The online marketing training helps bangle makers to directly sell the products online. This avoids the middlemen involvement.

t. The products that are on online platforms for sale also eventually converge to a standard pricing as information asymmetry is eliminated.

u. The online presence helps for greater market reach and penetration too.

v. The profit margins for the makers also increases as they are directly selling to the market.

The Lac bangle making involves melting of lakh along with powder to mould into required shapes. This melting is done by burning coal and the burning happens throughout the day. The fumes from these ovens are causing a lot of respiratory issues in the bangle makers and people in the neighbourhood. The powder mixed with lac to melt is also toxic when breathed in.

**Proposed Interventions**

u. The ill effects of fumes can be reduced by providing a small chimney in the workshops and direct these fumes high into the air.

v. Alternatively, bangle makers can be provided with or encouraged to use safety kits and masks.

w. The health risks of the people involved in the trade will be reduced and more people would be joining the trade.

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<td>Rajasthan industries department Indian Institute of Crafts and Design (IICD), Jaipur ODOP</td>
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<td>ODOP Rajasthan industries department Indian Institute of Crafts and Design (IICD), Jaipur Rajasthan Small Industries Corporation (RSIC)</td>
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<td>5 Regulatory, Branding and Marketing</td>
<td>Rajasthan industries department Rajasthan Small Industries Corporation (RSIC)</td>
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Sawai Madhopur is located in southeast Rajasthan. The city is approximately 121 kilometres from Jaipur. Guava is grown around Sawai Madhopur. In 1985, the first guava in the area was grown on a farm of five hectares in Karmoda Village. In 2015, the retail and the wholesale markets of Guava generated more than 5 billion rupees. In 2015, five thousand hectares of land were dedicated to cultivating guava.

**Problems**

8. *Shortage of irrigation during summers coupled with unavailability of organic inputs are some of the major concerns for the producers of Guava*

   **Proposed Intervention**
   
   d. Ensuring robust canal systems along with stable water for farmers can be an effective solution for the lack of irrigation
   
   e. Regular analysis and reporting of soil moisture measurement would help in improving the irrigation efficiency substantially
   
   f. Ensuring the implementation of drip irrigation across the region since it is the most efficient and appropriate irrigation system

9. *High cost of pesticides, Unavailability of quality saplings along with its high prices does inhibit the growth of Guava at massive scales. The high cost of pesticides leads to inadequacy eventually harming the production*

   **Proposed Intervention**
   
   c. Ensuring Subsidies for pesticides, insecticides should be made mandatory, especially for commercial crops like Guava
   
   d. Collaboration with agriculture schools across the country to develop high yielding quality saplings/grafts
   
   e. Reduction of import duties on essential insecticides and pesticides

10. *Wilt and other diseases of guava, infestation of nematode disease and Nutrient deficiency in guava orchards often leads to limited production*

   **Proposed Intervention**
   
   c. Decreasing the humidity around the plant, including pruning it nearby plants to allow better airflow
   
   d. Ensuring the availability of manures, vermicomposting, pheromone traps for controlling insects
   
   e. Distribution of insecticides by the government to small scale farmers
11. Absence of storage facilities near production areas and lack of awareness about grading and packing

**Proposed Intervention**

c. Establishing specialized storage houses on PPP/Private mode for guavas especially nearby the highways or connected roads

d. Setting up a packaging facilities for Guava producers nearby the city in collaboration with government and private entities

12. Lack of capital is also a barrier for increased production which can be further deployed in buying fertilizers and pesticides

**Proposed Intervention**

e. Ensuring robust micro-lending structure in the region for Guava farmers

f. Increasing awareness about credit schemes initiated by government by organizing workshops

g. Enabling microfinance institutes in the region to provide financial support to suppressed groups

h. Exporters should be facilitated with different administrative processes and there must be ease in obtaining licenses and certifications

13. Absence of agencies to support guava processing and lack of awareness about small scale processing in the region

**Proposed Intervention**

c. Providing incentive to the processing firms to be setup near the region

d. Regular promotion and reaching out to the target buyers can establish buyer base

14. Absence of Regulated Markets which often results in delay of payments by the contractors and lack of competition among buyers to create inefficiency

**Proposed Intervention**

c. Legislation or regulations for contractors in the commercial farming sector

d. Robust Grievance redresser mechanism through collaborations with local commercial associations for safeguarding the benefits of producer

e. Enabling producers to sell directly can eventually lower the cost burden

15. The lack of understanding and knowledge among foreign buyers, trader’s exposure to the foreign markets and lack of a platform for interaction among buyers and sellers has created the huge gap

**Proposed Intervention**

a. Organizing Buyers Sellers meetings leveraging digital platforms
b. Targeting niche markets across the world to sell these expensive products

c. Providing platforms for interactions among buyers and sellers

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<td>Administrative</td>
<td>Subsidizing pesticides and insecticides</td>
<td>Ministry of commerce and industries, Ministry of agriculture</td>
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<tr>
<td>3.</td>
<td>Value addition</td>
<td>Leveraging pruning techniques at large scale</td>
<td>Ministry of commerce and industries, Ministry of agriculture</td>
</tr>
<tr>
<td>4.</td>
<td>Infrastructure</td>
<td>Establishing specialized storage houses and setting up packaging facilities</td>
<td>Ministry of commerce and industries, State trade facilitation center, FICCI</td>
</tr>
<tr>
<td>5.</td>
<td>Administrative</td>
<td>Providing Easy access to credit</td>
<td>Ministry of commerce and Industries, Ministry of finance, SIDBI, State industry center</td>
</tr>
<tr>
<td>6.</td>
<td>Infrastructure</td>
<td>Establishment of processing facilities</td>
<td>Ministry of commerce and industries</td>
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<tr>
<td>7.</td>
<td>Administrative</td>
<td>Legislations regarding contractors</td>
<td>Local MP, Ministry of home affairs</td>
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<tr>
<td>8.</td>
<td>Branding</td>
<td>Buyer seller meets and administrative support</td>
<td>Ministry of commerce and industries, Invest India</td>
</tr>
</tbody>
</table>

References


Wooden Products – Alipurduar, West Bengal

Alipurduar enjoys a strategically important location as it serves as a corridor of trade and communication with the Bhutan and various North-Eastern states of India. A number of rare endangered species of animals like tiger, rhinoceros and elephant make their habitat in the forests of the Dooars. Other animals include different types of deer, bison, birds and reptiles.

Timber and fuel are the major forest produce. The timber produce in this region is of very good quality and is used for building, furniture, doors, windows, and other wooden fixtures. Wood based industries like plywood manufacturing and wooden furniture making are in plenty in this region. This district is qualitatively endowed in terms of traditional skills, which are comprising of cane and bamboo craft, wood carving, jute products, pottery, tea, embroidery, and village carpentry. The people here are believed to be connoisseurs of art and culture. Alipurduar and Madarihat are the important centres of handicrafts. Almost every member, in every household, is involved in the craft process at different levels. The practice of the craft runs through generations and is an inherent skill for the younger generations who have immense interest in the craft.

Problems

1. Despite being a district rich in resources and the presence of a strong connectivity to various states within and outside the country, the lack of suitable infrastructure is hindering the efficient manufacturing and exporting of the various wooden products that produced in the district.

Proposed Interventions

a. The West Bengal Small Industries Development Corporation Ltd, an undertaking of the West Bengal Government is in the process of setting up two Industrial Estates within the district – Falakata Industrial Estate (43 acres) and Jaigao Industrial Estate (11 acres). The land development and the boundary wall for the former is completed while the land development process has been completed for the latter. The West Bengal Government should ensure that they provide spaces within the industrial estate to promote efficient processing of timber and enhance the capabilities to produce export quality wooden products. This would enable optimal utilization of the timber resources available within the district while creating more employment opportunities. It could lead to a higher participation of people in this industry.

b. Technological adoption and utilizing R&D to foster innovation will enable industrialization of the some of the more standard wooden products (apart from the handicrafts) like furniture. A streamlined manufacturing process would drastically increase the efficiency of production.

2. The lack of entrepreneurship mindset among the residents of the district to produce and sell the products directly to the consumers without the help of the middlemen has affected the profit margins. This acts as a deterrent for increasing the participation of artisans in the industry.

Proposed Interventions
a. The West Bengal Govt’s emphasis on fairs and festivals has helped boost the sales and earning capacity of the rural craftsmen within the district. Increasing the frequency of fairs across various regions within the state would further enhance the trading of wooden based handicrafts. The fair organizers should create necessary awareness to improve the participation of suppliers and consumers for these fairs.
b. To support growth, artisans of wood-based handicrafts must receive appropriate training in order to embrace e-commerce platforms such as Amazon, Flipkart, Nexpere.com etc. and social e-commerce sites like Meesho, Shopsy, DealShare, and others (businesses that have built solid platforms for Indian merchants and resellers to sell products by sharing them on social media networks). Virtual sessions that reach a large audience and conducted in their native language can help achieve this goal.
c. To provide marketing infrastructure for artisans and small-scale entrepreneurs, the West Bengal government has set up a ‘Rural Haat’ in Alipurduar. Rural Haat is an integrated rural marketing facility for artisans and small-scale enterprises to display and sell their products particularly for those who have no individual and separate marketing facilities. The government must extend this service to include more beneficiaries.

3. The lack of awareness among the artisans in this industry regarding the various government schemes impedes the effectiveness of these schemes.

**Proposed Interventions**

a. Spreading the awareness of the various promotional programmes run by Department of Micro Small & Medium Enterprises and Textiles, Government of West Bengal to ensure higher adoption through the District Industries Centre (DIC) and Sub-DIC. The execution of the onboarding and handholding of the sellers must be streamlined and improved to foster growth.
b. The scheme on issuance of Artisan Credit Card (ACC) to the handicraft artisans, for providing requirements of working capital to carry out their activities incessantly, where a handicraft artisan can avail a loan of maximum 2 lakh rupees from banking institutions should be publicized through media outlets preferably FMs. The MLAs, ward counsellors should also play a vital role in spreading this awareness.

4. The lack of an assured market for their products especially outside the state further hampers the growth of the industry within the district.

**Proposed Interventions**

a. Participation in leading exhibitions for the furniture manufacturing and the woodworking industry in other parts of the country would facilitate rapid growth of the industry. The exhibition trio of IndiaWood, DelhiWood and MumbaiWood has cemented its position as India’s largest sourcing platform for furniture manufacturers, wood-based handicraft manufacturers, saw millers, carpenters, craftsmen, architects and interior designers in the region, over the last few years and hence participation in these would be vital.
b. Ensure higher utilization of existing govt schemes like the scheme to provide financial assistance in the form of grants for reimbursement of Travelling Allowance (TA), Daily Allowance (DA) and Carrying Cost to the handicraft artisans for participation in different Exhibitions/ Expos/Fairs, organised and participated by the Department of MSME&T and the Directorate of MSME.
5. The district being a forest dense one and home to various flora and fauna including endangered species, the industrial development could be compromised to ensure their protection.

Proposed Interventions

a. Implementing initiatives like forestation of degraded land and the creation of plantation forests will enable alternate production of raw material from other than natural forests.

b. New processing technologies should be developed to utilize the small-diameter logs (Logs from plantation forests are smaller in diameter and develop lower-strength properties than those from natural forests) and produce new products with equal or better physical properties than those traditionally available on the market. A variety of composite wood-based products, such as oriented strand boards (OSB), medium density fibreboard (MDF) and laminated timber can be produced from plantation timber or from residues that were previously considered useless.

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<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Infrastructure and Manufacturing</td>
<td>• Utilizing the upcoming two industrial estates within the district to promote efficient processing of timber and enhance the capabilities to produce export quality wooden products.</td>
<td>West Bengal Small Industries Development Corporation Ltd, Ministry of Commerce, Industry and Enterprise Dept – West Bengal</td>
</tr>
<tr>
<td>2</td>
<td>Product Improvement</td>
<td>New processing technologies should be developed to utilize alternative timber sources like from plantation forests rather than from actual forests to develop eco-friendly products that have risen from sustainable practices.</td>
<td>West Bengal Industrial Development Corporation, Department of Forest Affairs</td>
</tr>
<tr>
<td>3</td>
<td>E-Commerce</td>
<td>Handholding artisans to onboard into e-commerce marketplaces to increase the visibility and demand for the products.</td>
<td>Department of Micro, Small &amp; Medium Enterprises</td>
</tr>
</tbody>
</table>
| 4      | Branding and Marketing          | • Expand the ‘Rural Haat’ program to increase the beneficiaries.  
• Better marketing and advertising of the existing govt schemes to increase its awareness and adoption.  
• Encourage higher participation in leading exhibitions for the furniture manufacturing and the woodworking industry in other parts of the country like IndiaWood, DelhiWood | Department of Micro, Small & Medium Enterprises, Ministry of Commerce, Industry and Enterprise Dept – West Bengal |
<table>
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<tr>
<th></th>
<th>Training and Development (Upskilling)</th>
<th>Department of Micro, Small &amp; Medium Enterprises</th>
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<tr>
<td>5</td>
<td>Conduct virtual sessions that reach a large audience and in their native language to improve the digital literacy of people. This would help them familiarize with e-commerce transactions.</td>
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</tr>
</tbody>
</table>

**References/Sources**

- [https://wbmsme.gov.in/rural_haat](https://wbmsme.gov.in/rural_haat)
- [https://wbmsmet.gov.in/projects_government_parks](https://wbmsmet.gov.in/projects_government_parks)
- [https://wbmsme.gov.in/handicrafts](https://wbmsme.gov.in/handicrafts)
- [https://www.fao.org/3/v6585e/v6585e08.htm](https://www.fao.org/3/v6585e/v6585e08.htm)
Potato, Kapurthala, Punjab

Potato is a major vegetable crop cultivated on more than 89993 ha area with annual production of 22.6 Lakhs tonnes in the Punjab state (Deprt. of Horticulture, Punjab 2014-15), most of which is meant for seed production.

Kapurthala was the 5th highest potato-growing district in 2015, with a production of 235713 MT of potato produced. The food manufacturing industry has the highest number of units at 276, which employ over 2400 people of the district. The cumulative investment is around Rs. 4451 lakhs with an approximate produce of Rs. 16381 lakhs.

Problems

1. *The potato prices are extremely fluctuating causing a high price risk to the sellers and can also lead to losses if the potato prices go very low.*

   **Proposed Interventions**

   a. Teach the basic hedging strategies to the farmers to that they can enter into futures and forward contracts which can reduce the risk they have.
   b. Facilitate better implementation of MSP if the current implementation is not on track.
   c. Provide credit at cheaper terms under the priority sector lending scheme to help with cash requirements and tide over the risk.

2. *The area of Kapurthala due to its location is highly prone to flooding, which leads to crops being damaged and destroyed, ultimately leading to losses.*

   **Proposed Interventions**

   a. Provide cash benefits to farmers affected by floods to help with their daily household expenses.
   b. Educating the farmers about flood insurance and encouraging them to take the insurance would be beneficial in case of some unexpected events.

3. *The smaller farms do not have a standardized quality control and grading system which deter customers to purchase the products from them on a regular basis.*

   **Proposed Interventions**

   a. Implement a strict quality control mechanism with the help of Agmark, and other standards, quality testing bodies. All the products should mandatorily have certain specified quality testing, whereas rules for the
required quality standards necessary for exports should be determined and published which can be used by the manufacturers as reference.
b. Provide incentives such as subsidies to allow treatment of the potatoes which can then be sold at a premium in the country as well as be exported.

4. Warehousing & cold storage facilities not up to the mark, leading to potatoes being spoilt and wasted.

**Proposed Interventions**

a. Enter into public private partnerships to develop cold storage facilities, at strategic locations to enable easy access to farmers.
b. Develop a system to allot the warehouses and cold storages based on various parameters, time and quantity of harvest.
c. Provide a credit facility to farmers who want to avail these facilities so that the cash and liability burden will be reduced.

5. The transport facilities are insufficient which lead to difficulties in moving the produce from the point of produce to points of processing or consumption.

**Proposed Interventions**

a. Enter into public private partnerships to develop the transport facilities.
b. Explore other medium of transportation like drones, which can be used to move the marbles locally.
c. Facilitate tie-ups with trucking companies and set-up seller groups to enable easier transportation for the seller groups.

6. The diseases destroy the crops and cause losses to the farmers, and lower technological adoption causes even more problems and losses to the farmers.

**Proposed Interventions**

a. Facilitate increased FDIs to get better technologies implemented on the fields, thereby giving better results and lower losses.
b. Provide cheaper credit and subsidies to farmers who are willing to buy and deploy the technologies.
c. Educate the farmers to understand preventive measure to protect their crops from diseases and reduce the negative impact to the potatoes.

**Under Type of Intervention:** Infrastructure & Manufacturing, Regulatory, Credit, Product Improvement, Value addition, Branding and Marketing, Packaging, Anti counterfeit, Logistics, Distribution, E-commerce, Training and Development (Upskilling), Quality Assurance

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<tbody>
<tr>
<td>1</td>
<td>Educational, Training and Development</td>
<td>a. Teach the basic hedging strategies to the famers to that they can enter into</td>
<td>National Skill Development Agency Ministry of Education</td>
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</table>
futures and forward contracts which can reduce the risk they have
b. Educating the farmers about flood insurance and encouraging them to take the insurance would be beneficial in case of some unexpected events
c. Educate the farmers to understand preventive measure to protect their crops from diseases and reduce the negative impact to the potatoes

| 2 | Credit | a. Provide credit at cheaper terms under the priority sector lending scheme to help with cash requirements and tide over the risk  
b. Provide a credit facility to farmers who want to avail the cold storage facilities so that the cash and liability burden will be reduced  
c. Provide cheaper credit and subsidies to farmers who are willing to buy and deploy the technologies. | Reserve Bank of India, TransUnion CIBIL |

| 3 | Quality Assurance | a. Implement a strict quality control mechanism with the help of Agmark, and other standards, quality testing bodies. All the products should mandatorily have certain specified quality testing, whereas rules for the required quality standards necessary for exports should be determined and published which can be used by the manufacturers as reference.  
b. Provide incentives such | Quality Council of India Quality Control - Public Works Department, Punjab |
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<td>Warehousing</td>
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</tr>
<tr>
<td></td>
<td>a. Enter into public private partnerships to develop cold storage facilities, at strategic locations to enable easy access to farmers.</td>
<td>Warehouse Development and Regulatory Authority (WDRA) Punjab State Warehousing Corporation</td>
</tr>
<tr>
<td></td>
<td>b. Develop a system to allot the warehouses and cold storages based on various parameters, time and quantity of harvest</td>
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<tr>
<td>5</td>
<td>Infrastructure, logistics</td>
<td>Ministry of Road Transport and Highways of India Punjab Transport Department Ministry of Civil aviation</td>
</tr>
<tr>
<td></td>
<td>a. Enter into public private partnerships to develop the transport facilities.</td>
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<td>b. Explore other medium of transportation like drones, which can be used to move the marbles locally.</td>
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<td>6</td>
<td>Infrastructure</td>
<td>Ministry of Commerce and Industry Department of Investment and Public Asset Management</td>
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<tr>
<td></td>
<td>Facilitate increased FDIs to get better technologies implemented on the fields, thereby giving better results and lower losses</td>
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Product: Mansa Cotton Yarn, Punjab

Cotton is usually termed as “white gold” for bringing in high remuneration to the farmers. It is an important cash crop grown in Bathinda, Mansa, Faridkot, Ferozpur, Muktsar, Moga, Barnala and Sangrur districts of Punjab. Mansa is situated in the cotton belt of Punjab and is known as “Area of white gold”. Cotton is grown in nearly 65000 hectares in Mansa. Mansa produces almost 1/6th of the cotton produced in the state.

In recent years, Mansa and Bhatinda district of Punjab are facing problems like supply of spurious pesticides leading to huge destruction of the Bt-Cotton crop. In many cases, the crop loss in the districts of Bhatinda and Mansa was as high as 75%.

Problems:

1. Pest Attack and crop failure

Pest attack is a major problem faced by cotton growers in Mansa district of Punjab. Recently, cotton fields were attacked by pink bollworm. The pest was claimed to attack and destroy the Bt-cotton fields which were supposed to be tolerant to pink bollworms. Surveillance teams from Punjab Agriculture University suspected poor quality spurious seeds and poor-quality pesticides to be reasons for the attack.

Proposed interventions:

- State Agriculture Department holding camps in villages and asking farmers to use pesticides recommended by Punjab Agriculture University.
- Meetings held with insecticide dealers to provide the insecticides recommended by The department of Agriculture and Farmers welfare, Punjab.
- Checking 100 flowers from different places from the field and reporting to the Agriculture department when infestation is more than 5%.
- Interventions related to putting a check on spurious seeds and spurious pesticides should be taken up by the State Agriculture Department.

2. High indebtedness, exploitative practices and farmers’ suicides

Farmers are heavily dependent on credit from money lenders. The situation is worse for small and marginal farmers as they take loans from the money lenders at a high interest rate. Cotton production is highly capital intensive but the price received by the farmers is low. The cost of production has increased over time compared to the farmer’s income. As a result, cotton growers in Mansa are indulged into suicides through various means like pesticide tablet consumption etc.

Proposed solutions:

- Credit facilities from the government institutions can be a potential solution. Farmers’ access to credit from dependable sources needs to be improved. Punjab Agriculture University can work with the district agriculture extension department and Krishi Vigyan Kendra to improve credit access to the cotton growers.
Better MSP for cotton is required. Private players come to the mandis in Mansa and purchase cotton, which sometimes is lower than the MSP. The Cotton Corporation of India enters the market very late. By that time, the farmers have already sold their produce to the private players. The Cotton Corporation of India should address this problem.

3. Shortage of labour

There was a high shortage of labour in the district during the pandemic which led to a decrease in the cotton growing area. The migrant labourers were returning to their native places leading to a shortage of labour in the state. Cotton is also a high maintenance crop. It is also affected by external factors like rainfall during the sowing season. The soil gets hardened and farmers need to loosen the soil several times. This requires the involvement of labour in the field during the critical stages.

Proposed solutions:

- Cotton is a labour intensive crop and labour is required in several stages of cotton cultivation like thinning out cotton seedlings, cotton picking etc.
- Mechanization of some labour intensive activities can be a solution. Punjab Agriculture University along with the National innovation foundation can come up with a mechanized solution for the labour intensive activities in cotton.

4. Delayed procurement

During the pandemic, there was a delayed procurement for the last season kharif crop as the procurement centers could not open on time. In 2021, the private players visited the market in Mansa first and engaged into competitive bidding, which led to price fluctuations. The cotton was sold above MSP in some parts while below MSP in other parts in the same district.

Proposed solutions:

- Directives related to timely procurement of cotton in the early week of November to be released by the Agriculture and Farmers Welfare department, Government of Punjab.
- Cotton Corporation of India should keep a check so that private players are not able to manipulate the cotton prices. Once CCI is out of the loop, the private players may buy cotton at a lower price as well.

Implementing Agencies:

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<tr>
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<th>Type of Intervention</th>
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<tbody>
<tr>
<td>1.</td>
<td>Extension services to Farmers</td>
<td>Capacity Building</td>
<td>Department of Agriculture, Government of Punjab</td>
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<td></td>
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<td>Krishi Vigyan Kendra, Mansa</td>
</tr>
</tbody>
</table>
2. Credit Financial Support Government of Punjab

Department of Finance

3. Farm Mechanisation Capacity Building Department of Agriculture, Government of Punjab

4. Market regulations Market based Intervention Cotton Corporation of India
Thermal Power Plant- Mansa, Punjab

Talwandi Sabo Power Limited (TSPL) was incorporated as an SPV by Punjab State Electricity Board (PSEB) to construct 1980 (3×660) MW thermal power plant at Village Banawala, District Mansa, Punjab, India. Sterlite Energy Limited (a Vedanta group company) was selected as the developer of the project.

Vedanta Resources plc is a London Stock Exchange-listed FTSE 100 diversified metals and mining major with revenues over USD 12.9 billion. The group produces Aluminium, Copper, Zinc, Lead, Iron ore and commercial energy. Vedanta has operations in India, Zambia and Australia and a strong organic growth pipeline of projects. Vedanta is one of the major players in the Power Sector in the country with operating and under projects (CPP and IPP), thermal power capacity of about 10,000 MW.

The Talwandi Sabo Power Limited is the largest thermal power plant in North India, with a total capacity of 1980 MW and three units of 680 MW each. At present, the thermal power plant is supplying about 1178 MW to the North Grid. It is a coal-based supercritical thermal power plant and the first Supercritical unit, being one of the largest Greenfield power projects in the State of Punjab. Power generated from this project is supplied to the Punjab State Electricity Board. TSPL uses energy-efficient and cleaner supercritical technology for electricity generation. Super-critical technology utilizes steam at a temperature above the critical point of water. The technology generates the same amount of electricity using less coal.

Problems:

1. Unavailability of high-grade coal

TSPL has a fuel supply agreement with Coal India Limited (CIL). Under this, the generating station gets its coal supply from Mahanadi Coalfields (MCL) since 2015. The fuel from MCL is of low grades with a calorific value between 3400 – 4000 kilocalories per kg.

Proposed Interventions:

1. TSPL has signed an agreement with CIL and are expecting to get coal supply from ECL mines, which have higher calorific value, mostly between 6100 – 6700 kcal/ kg. TSPL should extend the timeline of the agreement to maintain a stable supply.
2. Central government should not impose any restrictions on coal imports by Thermal power plants.
3. If the Central government proceeds with restrictions on coal import as part of Atmanirbhar Bharat, it should provide low ash coal to TSPL.
4. TSPL should blend high-quality coal in higher quantities with the high calorific value coal from MCL as it would prevent the frequent breakdowns of its units.

2. Technical breakdowns during peak season

In the past decade, Punjab has often faced severe power crises during the summers, when the electricity demand soars in the state. In Jul of 2021, power demand rose to 14300 MW while the state resources were limited to 12800 MW. And in the same month, one of the units of TSPL developed a snag and stopped power generation while another unit had been closed for 3 months.

Proposed Interventions:

1. Government should not impose coal import restrictions on thermal power plants as long as substitute coal from Indian mines is not made available.
2. Dependence on a single source of coal should not be there. This could lead to supply shortages in peak season.
3. Provision should be made to provide early clearance from the customs, of the components imported from foreign countries.
4. Stringent monitoring systems should be developed and the boilers should be maintained and serviced to ensure that the units do not face a breakdown.

5. Laws should be created to penalize private players if they do finish the repair and maintenance work within a prescribed period of time.

3. Management of fly ash

*In September 2018, farmers from Mansa’s Raipur village lodged a complaint with NGT about ill effects to their cultivable lands due to the mismanagement of silos of fly ash. Investigations made by Mansa district authorities on January 24, 2019, found fly ash lying on about 965 acres of Raipur. NGT’s state panel held TSPL liable to pay Rs. 85 lakhs to farmers.*

**Proposed Interventions:**

1. Compliance of specified emission norms for Particulate Matter, as per extant notifications and instructions of Central Pollution Control Board, issued from time to time.
2. In the case of washeries, Middling and rejects to be utilized in FBC (Fluidised Bed Combustion) technology-based thermal power plants. Washery to have linkage for middling and rejects in Fluidised Bed Combustion plants.
3. The thermal power plants shall comply with conditions, as notified in the Fly Ash notification issued from time to time, without being entitled to additional capacity of fly ash pond (for existing power generation capacity) on the ground of switching from washed coal to unwashed coal.
4. The segregation of ash may be done at the Electro-Static Precipitator stage, if required, based on site-specific conditions, to ensure maximum utilization of fly ash.

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<tbody>
<tr>
<td>1</td>
<td>Availability of High-grade coal</td>
<td>Ensuring that coal with high calorific value is available</td>
<td>Ministry of Power/ Coal India Limited</td>
</tr>
<tr>
<td>2</td>
<td>Maintenance during peak season</td>
<td>Repair and maintenance should be done time to time during summer season</td>
<td>TSPL/ Vedanta Resources</td>
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<tr>
<td>3</td>
<td>Early clearance of equipment</td>
<td>Parts which are imported from foreign countries should be given</td>
<td>Central Board of Indirect Taxes and</td>
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<td>from Customs</td>
<td>special preference, so as to make them available in short time</td>
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<tr>
<td>4</td>
<td>Efficient management of fly ash</td>
<td>Efficient use of technology should be done to prevent fly ash from affecting the surrounding community.</td>
</tr>
</tbody>
</table>

References/ Sources:

1. [https://www.tsplindia.co/project/](https://www.tsplindia.co/project/)

Efficient use of technology should be done to prevent fly ash from affecting the surrounding community.
On November 24, 1995, Moga was established as the 17th district of Punjab. Moga was a subdivision of the Faridkot district. The Ferozepur division has jurisdiction over the district. It is bordered on the north by Jalandhar district, on the east by Ludhiana district, on the south by Sangrur, and on the west by Faridkot and Ferozepur. It covers an area of 2230 square kilometers, accounting for 4.42 percent of Punjab's total area. Male and female literacy rates in the district are 68.4 percent and 58.96 percent, respectively.

The district is classified as having alluvial soils and is located in agroclimatic Zone VI (National classification) and Zone IV (State classification). The region receives 461mm of rain on average per year. The district's main crops are rice, wheat, cotton, summer moong, and potato. Apart from that, the district's farmers are increasingly cultivating vegetables and fruits such as guava and Ber. There are four sub-divisions in the district and five blocks (Moga-I, Moga-II, Kot-Ise-Khan, Bagha Purana, and Nihal Singh Wala).

**PROBLEMS IDENTIFIED:**

- Small holding size of the farms.
- Micro irrigation practices have not been adopted.
- Farmers are not happy as they are not getting lucrative rates for their produce.
- They are also facing problems of storage in cold stores.
- Local traders storing the potatoes purchased from farmers on their name to evade the market fee of four percent.
- No value addition taking place.
- No collective bargaining power and no economies of scale being realized by the farmers.

**PROPOSED INTERVENTIONS:**

1. **Comprehensive pre sowing to market support through Operation Greens, MoFPI:**

In the Union Budget 2018-19, a new scheme called "Operation Greens" was introduced, with a budget of Rs.500 crore, to encourage Farmer Producer Organizations (FPOs), Agri-logistics, processing facilities, and professional management. As a result, the Ministry has devised a plan for the development of the Tomato, Onion, and Potato (TOP) value chain as a whole.

The scheme will have two-pronged strategy of Price stabilization measures (for short term) and Integrated value chain development projects (for long term).
▪ Short term Price Stabilization Measures:
NFED will be the Nodal Agency to implement price stabilization measures. MoFPI will provide 50% of the subsidy on the following two components:

- Transportation of Tomato Onion Potato (TOP) Crops from production to storage;
- Hiring of appropriate storage facilities for TOP Crops.

▪ Market Intelligence and Early Warning System:
MIEWS Dashboard and Portal is a platform for monitoring prices of tomato, onion and potato (TOP) and for generating alerts for intervention under the terms of the Operation Greens scheme. The portal would disseminate all relevant information related to TOP crops such as Prices and Arrivals, Area, Yield and Production, Imports and Exports, Crop Calendars, Crop Agronomy, etc in an easy-to-use visual format.

▪ Long Term Integrated value chain development projects:
The following activities can be promoted through the scheme:

- Formation and Capacity Building of FPOs
- Quality Production
- post-harvest processing facilities - At Farm Level
- post-harvest processing facilities - At Main Processing Site
- Agri-Logistics
- Marketing/Consumption Points

II. Promote marketing through National Agriculture Market (eNAM)
It is a pan-India electronic trading portal which networks the existing APMC mandis to create a unified national market for agricultural commodities. Small Farmers Agribusiness Consortium (SFAC) is the lead agency for implementing eNAM under the aegis of Ministry of Agriculture and Farmers’ Welfare, Government of India.

The FPO formed should be registered on the portal.

III. Knowledge support and handholding
Through the network of KVKs and the department of horticulture of punjab, knowledge support regarding best practices in micro irrigation, preparation of soil, seeds, post-harvest crop management needs to be delivered.
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<td>2</td>
<td>Logistics, Product Improvement</td>
<td>Market Intelligence and Early Warning System (MIEWS)</td>
<td>Operation Greens, NAFED, MoFPI</td>
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<td>3</td>
<td>E-commerce, Logistics, Distribution</td>
<td>market linkage through E-NAM</td>
<td>SFAC, Ministry of agriculture and farmers welfare</td>
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</table>
| 4      | Infrastructure & Manufacturing, Credit, Value addition, Branding and Marketing, Packaging. | • Formation and Capacity Building of FPOs  
• Quality Production  
• post-harvest processing facilities - At Farm Level  
• post-harvest processing facilities - At Main Processing Site  
• Agri-Logistics  
• Marketing/Consumption Points | Operation Greens, MoFPI, Ministry of commerce |
| 5      | Training and Development (Upskilling) | Knowledge support through field demonstrations and field visits. | KVK, ICAR, Department of Horticulture, Punjab. |

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- [https://enam.gov.in/web/](https://enam.gov.in/web/)
India’s Paper Industry is continuously growing with a compound annual growth rate (CAGR) of 6 percent. The increase in demand is attributed to various factors such as increasing GDP, increasing literacy, government initiative of “Say No to Single Use Plastic”, demand for better quality packaging for FMCG products etc. The paper industry is classified under four segments: Printing & Writing (P&W), Packaging Paper & Board, Specialty Papers & Others, and Newsprint.

Still, if we consider per capita consumption, India (13 kg) is far behind other nations like the USA (229 kg). So, India emerges as one of the fastest-growing et for paper and allied products. Muktsar district in Punjab comes under the Wheat belt of Punjab and has the opportunities to utilize the Agri-residue-based raw material such as Wheat straw, rice straw, Bagasse, etc. as primary raw material. This will serve the dual purpose of producing paper as well as reducing the pollution arising out of the burning of the Agri-residue in the fields.

**Problems**

1. **Availability of raw material**

    Proposed Interventions:

    a. Incentivize paper producer companies to purchase Agri-residue based raw material. Companies must try to purchase as Agri-residue from farmers at remunerative prices.

    b. Streamline waste paper collection in India – According to stakeholders contacted, collection of domestic waste is about 25-30% of the total paper consumed, which is 80-85 % in developed countries.

    c. The paper industry in Muktsar very much depends on Import of raw materials in case of Wood based industry, hence there is an urgent need to make amendments in existing forest policy such that degraded forest lands can be used to raise wood pulp plantations.
d. The schemes of central and state government which incentivize the usage of Bagasse in power generation need to be revised based on consultation with all the stakeholders involved. Because of the incentives and financial support bagasse is not available for paper making which can be an important fibrous material for paper industry. Bagasse is very low in thermal energy and thus a consensus needs to be built for its usage in paper industry.

2. Higher cost of raw material – Imported raw materials are lower in cost.

Proposed Interventions

a. Imposing import duty – Since imported raw materials are lower in cost and paper industry will not be able to compete if they use local raw material hence, there is a need to impose import duty on raw material for paper industry. This is not only recommended to benefit paper industry but to look it more form sustainability of the industry and to utilize the Agri-residue which also create problem of air pollution due to stubble burning.

b. Synergy among different ministries and departments to divert the bagasse from sugarcane industries to paper industry rather than to power generating industries. A mechanism can be drawn to identify suitable supply chain mechanism to segregate bagasse at different stages for usages in both the industries.

3. High energy requirement for plant operations - Paper industry is one of the energy intensive industries and have little incentive to switch to greener energy.

Proposed Interventions

a. Partnership with premier institutes or agencies providing training and development – Small and medium scale industries can tie up with premier institutes such as Central Pulp and Paper research institute to gain knowledge about industries best practices. Also, partnering with Bureau of Energy Efficiency can help industry develop energy efficient processes.
b. Installing renewables such as solar and investing in plants using biomass. – Building power plants using biomass can use rice husk and thus get energy certification (Renewable energy certificates, REC). This serves dual purpose of shifting to green energy and at the same time REC can be traded at energy exchange to earn additional income.

c. Increased focus on research and development – Government can incentivize different players to research for most energy efficient and less polluting technologies. For example, Studies carried out by Central Pulp and Paper research institute on potential of alternate fibrous raw materials like Moringa oleifera (drum stick), corn stalk and cow dung to produce various grades of pulp.

4. Problems related to higher taxes in in export process – Paper industry from Muktsar complained of higher taxes in export which does not lead to any profit and thus they have stopped export of paper to other countries.

Proposed Interventions:

a. Providing tax subsidy on exports - Pre-GST era, industries doing export used to receive rebate on excise duty and post-GST they are not getting any rebate. Because of this the exports to Nepal, Sri Lanka and other countries have stopped. Bangladesh is now a major exporter to these countries. Hence, companies need to be provided with some tax-relief so that they can compete in foreign market.

5. Delayed and complex process of financial assistance

Proposed Interventions:

a. Ease of access in getting financial support – Small industries face major problem of working capital in case of delay in payment by any of their customers. According to one trader, e-commerce platforms delay the payment by 20-30 days and thus affecting the opportunity to buy and sell more. Also, banks do not provide loans and many a times one has to visit bank for a month to get the loan. Thus, state government need to work with bank and help eligible industries or traders get quick loan.
Different government ministries or departments that need to be involved

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<tbody>
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<td>1</td>
<td>Policy Intervention</td>
<td>Use of degraded forest lands for wood pulp plantations.</td>
<td>Ministry of Environment, Forests and Climate Change (MoEF&amp;CC).</td>
</tr>
<tr>
<td>2</td>
<td>Policy Intervention</td>
<td>Import duty on raw-materials for paper industry</td>
<td>Ministry of Finance, GOI</td>
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<tr>
<td>3</td>
<td>Institutional Support</td>
<td>Research and development in energy efficient technologies</td>
<td>Bureau of Energy Efficiency, Ministry of Power, GOI</td>
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<td>4</td>
<td>Institutional Support</td>
<td>Availability of Bagasse as Input for Paper industry</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Ministry of Power, GOI</td>
</tr>
<tr>
<td>5</td>
<td>Credit support</td>
<td>Ease of access to finance</td>
<td>Ministry of Finance</td>
</tr>
<tr>
<td>6</td>
<td>Institutional</td>
<td>Tax subsidy on exports</td>
<td>Ministry of Finance</td>
</tr>
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Stakeholders contacted

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<tr>
<th>Sl. No</th>
<th>Stakeholder</th>
<th>Contact Details</th>
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<tr>
<td></td>
<td>Name</td>
<td>Contact Information</td>
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</tr>
<tr>
<td>1.</td>
<td>Chirag Satia, Executive Director- Satia Industries</td>
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</tr>
<tr>
<td>2.</td>
<td>Satpal Arora, Senior GM marketing, Satia industries</td>
<td>01633-263585</td>
</tr>
<tr>
<td>3.</td>
<td>Satkar paper mills</td>
<td>9876628002</td>
</tr>
<tr>
<td>4.</td>
<td>Jashan Paper Industries limited</td>
<td>9888400511</td>
</tr>
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</table>

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1. [https://www.pulpandpaper-technology.com/articles/indianpulp](https://www.pulpandpaper-technology.com/articles/indianpulp)

2. [https://beeindia.gov.in/sites/default/files/Pulp-and-Paper-1-44.pdf](https://beeindia.gov.in/sites/default/files/Pulp-and-Paper-1-44.pdf)

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Litchi has a special place among the fruits by virtue of its attractive colour and distinct taste. India ranks second in the world in production of Litchi after China. In India, Litchi is grown in almost 83 thousand hectares of area with a production of 5.75 lakh metric tonnes. Bihar, West Bengal, Uttar Pradesh, Jharkhand, Uttarakhand are the major litchi growing states of the country. The litchi requires specific climate for flowering and fruiting. Thus, its commercial cultivation is limited few states located in certain latitudes. In the northern states of India, litchi fruits mature in the months of May and June.

In Punjab, Pathankot, Hoshiarpur, Gurdaspur, and Ropar are major districts with high plantations of litchi. Litchi is he most cultivated fruit after mango in Pathankot. In Pathankot alone, 39,370 acres of land are under cultivation of litchi encompassing more than 800 growers out of 3000+ litchi growers in the state of Punjab. The majority of the orchard’s owners are medium or large farmers, market access for individual farmers is still a major problem. Apart from that, labour shortage, high costs and export limitations are some of the other recurrent problems with Pathankot Litchi growers.

Problems:

9) Currently, farmers are heavily relied on contractors and traders for selling their outputs. This leads to less bargain power and margin profit realisation.

Proposed Solution

a) During COVID lockdown, Farmers faced major loss during sale of litchi from districts of Gurdaspur, Hoshiarpur, and Pathankot as contractors from outstate did not timely approach them for purchase. According to one of the respondents, this type of market channel via contractors and traders is a major point of sale for the majority of farmers. Punjab Government can work with local NGOs to promote and strengthen FPO organization as well as strengthen existing FPOs to increase farmers’ participation in formal sales channels.

b) For FPOs and collective societies in Pathankot, export capacity needs to be built. Major local markets are fruit markets, army canteens and backers. FPOs should also explore scope of value-added products to improve market outreach in local markets as well as export of value-added products to other states.

10) Grading and sorting is major challenge at farmgate location as well as with collective enterprises such as FPOs. Due to this, market potential of high-quality litchi is limited.

Proposed Solution
a) For export as well as selling to private companies at high prices, grading, sorting and certification of product quality is much required. As informed by Pathankot Fruits & Vegetable Co-operative Society, due to absence of grading facilities, harvest is transported to Ludhiana for the purpose from there it is sent to major export hub such as Mumbai and Delhi.

b) State government should build basic grading & sorting facilities at block or panchayat level with panchayat partnership to improve reach of these facilities to litchi growers at farmgate and reduce maintenance by involvement of local institutes.

11) Litchi growers are heavily dependent on farm labour especially during harvesting period. Due to shortage of labour as result of outward & reverse migration, orchard owners face issue of high labour cost as well as difficulty in timely harvesting activity.

Proposed Solution

a) Farm labour becoming scare and costly due to parallel industrial development in most of the states. In Pathankot, litchi orchards faced major problem during COVID lockdown when almost 80% of the farm labourers migrated to their hometown. This led to delay in harvesting of ripped during month of June.

b) Mechanised solution can be developed for this type of labour-intensive work. National Innovation Foundation is one such organisation which develops grassroot solutions created by farmers for wide scale applications. Punjab Government can work with NIF to create mechanised device which can reduce need of more labour.

c) As majority of the litchi orchard owner are medium or big farmers, adoption and affordability of technology is not a major hurdle. Irrigation facilities can be automized as per plant need to reduce reliance on farm workers further.

12) Export of litchi, specially form Pathankot, is pretty much limited to middle east countries.

Proposed Solutions

a) Indian litchi is earliest to arrive, as litchi ripens 15 days earlier than Thailand and Chinese litchies ripen one month later, i.e. in June. Thus, during this period there is comparatively less competition from China for exporting litchi to European markets.

b) Export packaging houses and export zones are mainly located in Bihar, West Bengal and Uttarakhand. There is need for better integration of litchi export entities from Punjab to these export locations to smoothen
whole process and reduce cycle time. Punjab can use Amritsar International Airport at its advantage to boost export.

c) Big farmers can be aggregated under group to incentivise them to export directly without involving intermediaries. Similar initiatives are already existing in Kutch in Gujarat with high quality mango to South Africa and Middle East.

13) Pathankot has almost 40000 acres of land under Litchi cultivation. Still the district has less than 50% of total area under cultivation which is significantly less than state average.

Proposed Solutions

a) Under the Mission for Integrated Development of Horticulture, Agriculture Department of state should promote cultivation of litchi and other fruits to increase overall output by means of extensive and intensive agriculture practices.

b) Apart from this, Precision Agriculture practices such as drip irrigation, crop intensity improvement and farm mechanisation practices should be promoted through subsidies and adoption schemes in alliance with Ministry of Agriculture.

c) Focus agriculture finance schemes can be worked out to provide reliable finance sources to farmers for improving area under cultivation as well as insurance against risk of crop loss due to environmental factors.

Implementation Responsibilities:
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<th>Market Development</th>
<th>Promotion of FPO formation</th>
<th>Department of Agriculture, Government of Punjab</th>
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<td>2.</td>
<td>Infrastructure Development</td>
<td>Grading and Sorting Facilities</td>
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<td>3.</td>
<td>Capacity Building</td>
<td>Farm Mechanisation</td>
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<td>4.</td>
<td>Trade Promotion</td>
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<td>5.</td>
<td>Production Expansion Skill Building</td>
<td>Extensive &amp; Precision Agriculture</td>
<td>Department of Agriculture, Government of Punjab</td>
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</table>

References:
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- DEPARTMENT OF HORTICULTURE PUNJAB::
Bamboo is found extensively in Nagaland. There are twenty species of bamboo found in Nagaland. The dominant species in Nagaland are Kako (*Dendrocalamus hamiltonii*), Dolo (*Teinoschizyum dulloa*) and Jati (*Bambusa tulda*). Bamboo is a major source of income for communities which rely on the bamboo forests in Nagaland. Bamboo shoots are eaten throughout the year in the area. It is also used in making utensils, handicrafts, houses etc. About 5% of Nagaland’s economy is dependent on the bamboo cultivation. Bamboo is used in baskets, making lamps, knitting shawls, table mats, shoulder bags, wood carvings etc.

**Problems:**

1. Production inefficiency: The local communities are dependent on the naturally grown bamboo forests.

**Proposed solution:**

NBDA (Nagaland Bamboo Development Agency) should encourage the farmers for bamboo plantation by providing access to technical, technological and financial support.

2. Lack of proper market linkage for bamboo products

**Proposed solution:**

- NBDA (Nagaland Bamboo Development Agency) organizes Hornbill Bamboo Carnival every year in December to showcase the traditional bamboo craft of the local artisans.
- In addition to this, the State Government along with the NBDA can collaborate with organizations like IKEA in order to attract better prices for the bamboo crafts.
- Collaboration can be achieved when artisans make products that match the organization’s standards. To achieve this, Bamboo Resource Centre, Dimapur should provide training to the artisans.
- The district administration should also encourage local artisans to put up stalls and craft stores during the tourism season in Nagaland.

3. Lack of value addition

**Proposed solution:**

- Small micro processing units can be set up for preparing and packaging local bamboo delicacies like bamboo pickle.
- These can be sold at stores throughout the state as well as sent to other parts of the country as well through e-commerce platforms.
### IMPLEMENTING AGENCIES:

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<td>Value Addition</td>
<td>Setting up big and small scale enterprises for value addition</td>
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<td>Market Intervention</td>
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<td>Capacity Building</td>
<td>Training of artisans</td>
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References:


Product: Bhoot Jolokia, Kiphire (Nagaland)

Bhut jolokia (roughly translated as "Bhut pepper" in Assamese) is an interspecific hybrid chilli pepper grown in Northeast India. Capsicum Chinese and Capsicum frutescens are hybrids. Guinness World Records declared the ghost pepper to be the world's hottest chilli pepper in 2007, claiming it was 170 times hotter than Tabasco sauce. The ghost chilli has a Scoville Heat Unit rating of almost one million (SHUs). The ghost chilli was, however, surpassed in the competition to develop the hottest pepper by the Trinidad Scorpion Butch T pepper in 2011 and the Carolina Reaper in 2013.

Ghost peppers are used as a spice as well as a meal. It's used to "heat up" curries, pickles, and chutneys in both fresh and dried forms. It's frequently served with pork, as well as dry or pickled seafood. The peppers are used to keep wild elephants at bay in northeastern India by smearing them on fences or incorporating them into smoke bombs. The pepper's high heat makes it a regular in chilli-pepper eating competitions.

Kiphire district in Nagaland is 254 kilometres from the state capital, Kohima, and is located in the easternmost region of the state, bordering Myanmar. It has a total area of 1255 square kilometres. A total of 20 products and services from 12 districts in Nagaland have been identified as export potential, according to an official statement from the Ministry of Commerce and Industry, Government of India. In the Ministry’s listing, Kiphire district is identified for ‘Bhut jolokia’ whose demand is on the rise.

Problems

40. The bhut jolokia chilli’s heat quotient fell down from 1-0.8 million scoville heat units (SHUs) to just around 0.3 million scoville heat units. As the demand of the bhut jolokia went up, farmers started to cultivate it in large quantities. This increased cross-pollination, which ultimately led to the reduction in heat. The chillies are also losing heat due to viral attacks.

Proposed Interventions

a. Farmers should use a plant producing chillis of the hottest quality from areas which traditionally cultivated bhut jolokia. Cloning from this plant will give the mother plant. Tissue culture from the mother plant will give over 1000 plants.

b. Location-specific research is necessary for augmenting the cultivation of the crop

c. Capacity building programme for the farmers has to be arranged for the adoption of better cultivation practices.

41. Bhut jolokia farming is done mainly by poor communities who are at the mercy of the middlemen to sell their produce. The middlemen cheat the farmers by buying the peppers from the farmers at very little price and then sell it in the markets at very high price.

Proposed Interventions

a. Bhut jolokia based enterprises should form a basic part of a livelihood approach.

b. Co-operatives consisting of bhut jolokia farmers should be made so that they have an entrepreneurial approach right from cultivation to marketing and selling to the end consumer. The farmers can this way control the value chain of bhut jolokia production and remove the middlemen and get the profit for themselves. The farmers should also invest in the value addition of bhut jolokia peppers such as bhut jolokia sauce, jam, tea etc. to get higher returns.
c. Professional cultivation of the chillies should be done. One example is the Frontal Agritech Private Limited which was started by bhut jolokia growers. This company went on to start a market for bhut jolokia and was the first company to introduce the pepper to the international market.

d. Convergence of different stakeholders at the grass root level is more important for augmenting this dollar earning crop. The extension agency should give more emphasis on the group approach for rendering their services to the farmers.

42. There is a serious lack of proper marketing strategy for the bhut jolokia peppers. The farmers cultivating bhut jolokia chilli peppers have been facing serious issues due to the lack of proper marketing strategy to sell their produce, which makes the market for bhut jolokia a niche one. In addition to that, the people whose business depends on the export of the bhut jolokia also face the issue of improper marketing strategy. By the time their products reach the foreign market for export, they get dried up.

**Proposed Interventions**

a. There should be facilities like a cold chain to keep the produce of bhut jolokia fresh for a long time so that better gain from the exports can be extracted.

b. Proper packaging of the chillies like aseptic (or vacuum) packing should be done so that moisture can be retained and the chillies do not get dried up. Other forms of packaging like Modified Atmosphere Packaging or MAP can also be undertaken.

c. Kiphire should follow the example of the Assam region. The State Department of Agriculture, Government of Assam, under the scheme Technology Mission for Development of Horticulture in North Eastern Region including Sikkim (Mini Mission-II) has taken up 500 hectares of land for cultivation of bhut jolokia. Farmers were provided incentives for the cultivation of crops of Rs. 18750.00 per hectare for purchasing of seed and equipment. Incorporating such a strategy would result in an increase of farmers interested in producing bhut jolokia professionally.

43. Bhut Jolokia growers are distributed in medium and high categories of adoption level but they have not adopted all improved cultivation practices specifically seed rate, seed treatment, fertilizers applications. Farmers are still following the traditional method of cultivation which does not result in the optimum amount of yield which is less than the increased demand. Also, the lack of knowledge also leads to pest attacks, fungal as well as viral infestations.

**Proposed Interventions**

a. Adequate knowledge and training should be given to the farmers on important topics such as plant protection equipment, plant protection chemical, fertilizer, dose, method as well as the time of application etc.

b. Government of Nagaland should arrange for technical guidance for using plant protection chemicals so as to reduce (or ideally, remove) the cases of pest attacks as well as fungal or viral infection. They should also provide proper irrigation facilities.

c. The concerned department should put sincere effort to attract more youth in Bhut jolokia cultivation as young farmers are more prone to adapt to non-traditional cultivation practices as compared to old farmers. Also, the farmers who are rich and have sufficient cultivation area, as well as good media exposure, should also be targeted as they would be more interested to adopt improved cultivation practices and not holding on to traditional cultivation practices. Plus, they would also hold the influencing power to convert other farmers into ditching the traditional practices and adopt better cultivation practices.

d. Since infestation is a very big problem, specific research for controlling the diseases is a very important effort required to put forward by the research organization specifically State Agricultural University.

e. Production of bhut jolokia should be increased by incentivizing the farmers. The money is made available under the central government’s Horticulture Mission for North East Fund.
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<td>Research</td>
<td>Location-specific research is necessary for augmenting the cultivation of crops and cloning to get high SHU chillies</td>
<td>ICAR Nagaland, SASRD</td>
</tr>
<tr>
<td>2</td>
<td>Infrastructure</td>
<td>Food processing industry for value addition should be set up locally. The cold chain should also be included for shelf-life extension.</td>
<td>Ministry of Food Processing Industry / Government of Nagaland</td>
</tr>
<tr>
<td>3</td>
<td>Training and Development</td>
<td>Partnership with agricultural institutes to train farmers with modern and efficient bhut jolokia plantation practices</td>
<td>School of Agricultural Sciences and Rural Development (SASRD)</td>
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<td>4</td>
<td>Export</td>
<td>Exploration of the Export market for bhut jolokia and its value-added products</td>
<td>Agricultural and Processed Food Products Export Development Authority (APEDA)</td>
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<tr>
<td>5</td>
<td>FPO</td>
<td>Creation of FPO for bhut jolokia farming to have economies of scale</td>
<td>Small Farmers Agri-business Consortium (SFAC) / National Bank for Agriculture and Rural Development (NABARD).</td>
</tr>
<tr>
<td>6</td>
<td>Financial Assistance</td>
<td>A short-term loan should be made available to meet the working capital requirements at a lower interest rate</td>
<td>National Bank for Agriculture and Rural Development (NABARD)</td>
</tr>
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</table>

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Product: Ginger, Longleng, Nagaland

Longleng District, the Home of the Phom Nagas, is Nagaland's tenth district, created by the division of Tuensang District. It is bordered on the east by Mon District, the west by Mokokchung District, the north by Sivasagar District (Assam), and the south by Tuensang District. Longleng Town is the administrative centre of the Longleng District (about 1,100m above sea level). The district's largest towns are Longleng and Tamlu. The Phom tribes make up the majority of the population. Longleng district has a monsoon climate, with lows of 10 degrees Celsius in the winter and highs of 28 degrees Celsius in the summer. The climate in the district is somewhat temperate, with warm days and cool nights. The rainy season begins in the month of May and lasts until the end of October. The district has dry weather that is quite cool from November to April, with bright and sunny days. The typical rainfall is between 2000mm and 3000mm.

Ginger thrives in warm, humid climates and may be grown anywhere from sea level to 1500 meters above sea level. Ginger may be cultivated in both rain and irrigation systems. A moderate rain falls from the time of seeding until the rhizomes sprout, reasonably heavy and evenly distributed rains during the growing period, and dry weather for roughly a month before harvesting are all required for good crop cultivation. Well-drained soils, such as sandy loam, clay loam, red loam, or lateritic loam, are ideal for ginger. A humus-rich friable loam is desirable. Ginger, on the other hand, is an exhausting crop that should not be grown on the same soil year after year.

PROBLEMS IDENTIFIED:

Despite the fact that ginger is an important and long-established spice crop in the Nagaland, no significant progress has been made in growing output and exports. Because it is a vegetatively propagated crop, it is likely that in the past, there was a lack of awareness in the selection of high producing varieties and various features. There was also material interchange, but there was no discernible boost in production as a result of all of this. The following are the key bottlenecks:

**Shifting cultivation:** In this approach, farmers plant agricultural crops in one location for 3-5 years before moving to another location. Previously, this cycle lasted roughly 15 years; so, the soil has enough time to regenerate biomass/forests in the interim. The soil fertility has decreased due to a 3–5-year decline in the jhum cycle. This approach has resulted in widespread deforestation, soil degradation, and resource depletion.

**Land tenure system:** Like other crops, established cultivation is required to increase spice production. The low production is also attributed to the region's land tenure arrangement, which causes farmers to lack a sense of ownership over their property and hence fail to implement proper management measures. For prudent land
management, settled cultivation and land ownership rights for farmers are required. In the name of entrepreneurs, the owner's right is not legalized. The land's patta is still held in the name of forefathers or others.

Small land holdings: Due to the terrain, the size of land holdings in the region is very small, and farmers are harvesting multiple crops from the same piece of land to meet their needs. As a result, large-scale commercialization of a crop or variety is extremely challenging in the region.

Insufficiency of high-quality planting materials and other inputs: Farmers do not have access to high-quality, high-yielding, and disease-resistant rhizomes. Fertilizers, insecticides, herbicides, and other contemporary inputs are used in extremely small amounts. Despite the fact that numerous good yielding varieties have been identified and suggested by regional researchers, quality seed production on a broad scale is inadequate due to the lack of authorities responsible for quality seed production.

High rainfall: The region's high rainfall results in a significant infestation of weeds, pests, and diseases, as well as nutrient leaching.

Lack of funds: Despite the fact that ginger is a major income crop in the state, farmers are not receiving financial assistance from the government to acquire high-quality seeds and other inputs. There should be a programme to give farmers with low-interest loans.

Inadequate fertilizer and pesticide use: This led in significant yield losses. The average fertilizer use per hectare varies from 2 kilogram in Arunachal Pradesh to 56 kg in Manipur, compared to the national average of 104 kg. Even plant protection measures are not taken seriously enough.

Processing and marketing issues: In a place like this, the success of ginger farming is inextricably related to the performance of spice processing, marketing, and transportation infrastructure. There are few cold storage facilities accessible today; a few processing units exist but do not operate at full capacity. Due to the lack of value-added products such as oleoresin, volatile oils, and other additives, ginger marketing in the state is problematic.

- Losses due to improper storage and illnesses such as rhizome rot.
- A scarcity of skilled workers with a thorough understanding of post-harvest technologies.
- Inadequate production technologies and management procedures.
- Distance between the state and the national stream: With recent advancements in the sphere of telecommunications and the internet, the state can be connected to other regions of the country via an internet connection and a website for delivering information on the exact demand and price of produce in various marketplaces throughout the country.
PROPOSED INTERVENTIONS:

I. **Survey, diagnosis, and design:** A survey and diagnosis of lands appropriate for ginger is required, as is the construction of an area-specific agricultural system model in a cluster manner.

II. **Introduction, assessment, and enhancement:** Introduce indigenous and foreign high-yielding ginger strains that are suitable for the state. Breeding should focus on high-yielding, higher-quality cultivars that are resistant to biotic and abiotic stress.

III. **System management research:** Rapid mass multiplication necessitates the development of micro propagation and other propagation technologies. It is necessary to use IPM and an Integrated Nutrient Management system.

IV. **Post-harvest management:** Processing and preservation of value-added products is necessary. Quality control systems, as well as appropriate packing and storage strategies, must be developed. The processing sector can aid in the solution of the problem of proper perishable commodity disposal. If processing units are established in the region, value-added products can be extracted. For spice crops to succeed and deliver a satisfactory return to growers, suitable pre- and post-harvest techniques are critical.

V. **Technology transfer and economics:** It is necessary to conduct a cost-benefit analysis of various farming techniques. There is a critical need to strengthen the extension system in order to transfer technology developed and provide training to farmers.

VI. **Focus on organic farming:** Ginger production in the north eastern region is organic by default because farmers in the region do not use chemical fertilizers or pesticides on their crops. In the entire northeastern region, they are solely using locally accessible farmyard manures (cow dung, pig manure, poultry manure, rabbit manure, and so on). In this sense, farmers' ignorance of technical advancements is proving to be a key to wealth. Farmers may certainly expect improved earnings for their produce, given the growing demand for organic produce around the world. But, first and foremost, they must have a marketable surplus that is available in the area. This surplus must then be properly gathered, stored, packaged, and shipped to a distant market after being properly certified. As a result, there is a lot of potential to popularize organic ginger products for export to foreign countries from the region, as well as to build an organic product-based ginger sector in the region.

VII. **Collectivization of fruit cultivators in the district thorough an FPO.**
The Small Farmers Agribusiness Consortium (SFAC) needs to be roped in to facilitate the formation of a Farmers Producers Organization for endowing them with bargaining power and economies of scale. The FPO needs to be registered under the section 8 of the companies act. It provides a platform for increased accessibility and cheaper availability of agricultural inputs to small and marginal farmers and in establishing forward and backward linkages in supply chain management.

The broad functions of the FPO would be to:

- Cost of production or cultivation to be reduced by procuring all necessary inputs in bulk at wholesale rates, as well as use of custom hiring services of farm equipment.
- Aggregation of produce and bulk transport to reduce marketing cost, therefore, enhancing the net value to the producer.
- Building up of scale through aggregation of commodities and as a result lend advantage of economies of scale and attract traders, processors, and retailers to the farm gate.
- Provide access to modern technology, extension services and joint training on Good Agricultural Practices (GAP) and ensuring traceability of agriculture produce.
- Post-harvest losses to be minimized through joint storage and value addition facilities.
- Adverse price fluctuations and distress sale to be managed or avoided by imbibing good practices. These include contract farming agreements, stocking in own common facilities or leased storage facilities with credit support, etc.
- To establish communication for dissemination of information about prices and volumes in different locations and other farming-related advisories thereby reducing in formation asymmetries.
- Create access to institutional credit against stock, without collateral by virtue of joint liability implicit in the FPO framework.
- To facilitate movement up the value chain and graduation into primary and secondary processing.
- To provide greater bargaining power to farmers and greater quality orientation in production and processing activities.
- The FPO would first stabilize the input end of the value chain and would ensure a steady supply of raw material to the value addition making units to be set up.

VIII. Production Linked Incentive Scheme for Food Processing Industry (PLISFP), Ministry of food processing industries.

The scheme aims to achieve the following goals through phase wise credit support:

- Support Food manufacturing entities with stipulated minimum Sales and willing to make minimum stipulated investment for expansion of processing capacity and branding abroad to incentivize emergence of strong Indian brands.: 
- Support creation of global food manufacturing champions;
- Strengthen select Indian brand of food products for global visibility and wider acceptance in the international markets;
- Increase employment opportunities of off-farm jobs.
• Ensuring remunerative prices of farm produce and higher income to farmers.

IX. **NHB Credit Linked Back Ended Scheme**

• The scheme by NHB can be used for the Development of Commercial Horticulture through Production and Post-Harvest Management of Horticulture Crops can be availed and Ginger cultivation can be promoted.
• Credit-linked back-ended subsidy of 50% of total project cost in NE Region, Hilly States, and scheduled areas, limited to Rs 37.50 lakh per project.

X. **Argo Processing Cluster, Ministry of food processing industries.**

The scheme aims at development of modern infrastructure and common facilities to encourage group of entrepreneurs to set up food processing units based on cluster approach by linking groups of producers/ farmers to the processors and markets through well-equipped supply chain with modern infrastructure. Each agro processing clusters under the scheme have two basic components i.e., Basic Enabling Infrastructure (roads, water supply, power supply, drainage, ETP etc.), Core Infrastructure/ Common facilities (ware houses, cold storages, IQF, tetra pack, sorting, grading etc.) and at least 5 food processing units with a minimum investment of Rs. 25 crores. The units are set up simultaneous along with creation of common infrastructure.

XI. **Quality Assurance.**

The value-added products need to be registered under the FASSAI for meeting the standards of food product manufacturing in India and also improving consumer confidence in the product. Also, other national and international quality certifications can be applied for to boost the brand of the Ginger associated products.

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<td>Formation of an FPO</td>
<td>Invest India, SFAC, Ministry of commerce.</td>
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<td>2</td>
<td>Training and Development (Upskilling)</td>
<td>Provide research and knowledge support.</td>
<td>Department of Horticulture, Nagaland.</td>
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<td>Training and Development (Upskilling)</td>
<td>Knowledge and training support through KVKs.</td>
<td>Indian Council for Agricultural Research.</td>
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<td>Quality Assurance</td>
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<td>6</td>
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<td>7</td>
<td>Branding and Marketing</td>
<td>E-NAM</td>
<td>SFAC, Ministry of agriculture and farmers welfare.</td>
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<td>8</td>
<td>Credit</td>
<td>Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)</td>
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<td>9</td>
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<td>Agro Processing Cluster</td>
<td>Ministry of food processing industries.</td>
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Mokokchung Ginger: Nagaland

Mokokchung is a town and a municipality in the Mokokchung district in the Indian state of Nagaland. It is the district headquarter as well as the main urban hub of Mokokchung district. Ginger, chilies, and cardamom are the major spice crops of the state. Among the spices, chili occupies the maximum area of 3500 hectares followed by ginger (3000 ha) and cardamom (3050 ha). Ginger (*ingiber officinale*) is an herbaceous perennial, the rhizomes of which are used as a spice. It is also used in the preparation of pickles, beverages, medicines, and for fresh consumption. Ginger can be grown both under rain-fed and irrigated conditions. Ginger thrives best in well-drained soils like sandy loam, clay loam, red loam, or lateritic loam soils. North Eastern Region of India produces about 450,000 Metric Ton of high-quality ginger every year but most of it is sold at a lower price due to lack of processing and cold storage facilities. Thus, there is a need to focus on root problems and work to enhance the income of farmers and provide a boost to district and state economy.

Problems:

1. **Pest attack and diseases in ginger**

According to farmers in the area Rhizome rot of ginger is a regular disease that affect ginger production. Rhizome rot disease is the most destructive disease and reduce the production by 50 to 90%. It is caused by the fungi such as *Pythium aphanidermatum, Pythium vexans and Pythium myriotylum*.

Proposed Interventions:

a. **Effective and efficient agriculture extension services**

   Pest attacks and diseases are area specific and there is a need to provide farmer and area specific agricultural extension services in order to increase production. District agriculture office need to design extension delivery system through gap filling mode such that effective and location specific technology can be provided to farmers through participatory approach. Farm school can be used to reach to a larger farmer base. Some of the steps that KVKs can take are listed below:

   i. Demonstrations on preparation of Bordeaux mixture and pheromone trap.
   ii. Farmers must be sensitized to select seed rhizomes from disease-free gardens.
   iii. Seed treatment can be done with Ridomet by spraying it on the seed rhizomes stored in dry conditions.
   iv. In case of poor germination resowing of rhizomes must be undertaken without delay.
   v. In situ moisture conservation, mulching with locally available bio mass.
   vi. Select soil that does not hold water i.e., soil must drain off water quickly.
   vii. Educate farmers about intercultural operations.
2. Lack of Value addition opportunities

There are less awareness and opportunities available in the district for value-addition in ginger. There is a need to emphasize the importance of value addition of ginger as this will add extra income to farmers and processors with little expenditure. Nagaland industrial development corporation ltd. NIDC has proposed a management strategy for a partnership agreement (PPP) with M/s Pan Asia Ventures, Kolkata for an integrated Ginger value chain project at Tuli, Mokokchung District, Nagaland for promotion of ginger production in the export market. There is a need to integrate the farmers and local traders to the Value-chain so that it leads to better income for them.

Proposed Interventions:

a. Training and Knowledge transfer sessions for farmers

Farmers need to be trained on local practices which they can perform at ease at their home. For example, farmers can be trained on how to prepare different value-added products of ginger such as ginger candy, ginger syrup, salted ginger and how to preserve ginger. Alternatively, farmers can be formed into groups and each group can be trained on a specific value-addition practices.

b. Promote private companies to invest in the district and set-up their value-addition plants or to source from the district.

District administration in partnership with state government must work to develop processing and packaging facilities on private-public partnership mode for preparation of value-added products. High value ginger value-added products or products requiring complex processes can be undertaken by private players. For example, products such as waxed ginger, ginger paste, ginger powder, ginger flakes, ginger oil, etc. can be undertaken by private players. Also, Private players can alternatively be incentivized to source their raw ginger from the district which can later be processed at their respective plants.

c. Promote small and medium scale processing units for preparation of semi-processed and fully processed products.

3. Collection Centre and Storage Concerns

In ginger about 1.28 lakhs per year are simply lost during handling and marketing because of non-adoption of appropriate post-harvest management and lack of storage facilities in the state. The government has undertaken an initiative to facilitate farmers by setting up a Ginger Collection Center at Longkhitpeh. The civil construction has been completed in all respects and it will be operational soon. The ginger collection centre and storage as well as supply chain have different constraints and Value-chain and supply chain need to be designed and developed accordingly.
Proposed Interventions:

a. Ginger specific storage and supply-chain development

Ginger after primary processing (sorting & grading) require washing. Later, ginger need to be stored in plastic crates and can only be transported in refrigerator trucks. Warehouses for ginger must be a cold storage having high humidity.

b. Increased focus on basis post-harvest facilities

The basic infrastructure facilities such as pre-cooling units, packing and grading shed, short- and long-term cold storage facilities, refrigerated containers, storage and phytosanitary facilities at mandi are lacking in the state. There is urgent need to focus on developing basic infrastructure facilities to boost ginger economy.

Different government ministries or departments that need to be involved

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<td>Institutional Support</td>
<td>Effective and efficient agricultural extension services.</td>
<td>District Agriculture office, KVK</td>
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<td>2</td>
<td>Infrastructure Support</td>
<td>Cold storage infrastructure and required supply chain.</td>
<td>Ministry of Food Processing Industries, GOI State Government</td>
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<td>3</td>
<td>Infrastructure Support</td>
<td>Value-addition processing units.</td>
<td>Ministry of Micro, Small &amp; Medium Enterprises, GOI State Government</td>
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</table>

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According to the 2011 census, the district has 131 villages and two statutory towns viz., Mon Town and Naginimora Town. The main occupation of the people of this district is agriculture with nearly 90 percent of the workforce engaged in it. The economic condition of the people lags when compared to the living conditions of the people of other districts in Nagaland. As it is located in the remotest part of Nagaland, its economic development has not been satisfactory. Mon has great potentialities for economic development if her forest resources, human resources, water resources, etc. can be re-generated.

Due to ignorance, lack of capital, scientific and technical know-how, infrastructure inadequacies, the Mon District has failed to lift her to the level of other districts. The recent trend in the district is tea cultivation by the local people. The gentle slopes of Mon provide ample scope for developing the Mon District for the cultivation with all modern techniques.

If the central agencies like the Indian Council of Agricultural Research (ICAR) can establish demonstration farms to teach the villagers about modern farming, inclination towards cash crops and horticulture, rearing of orchids by scientific means can offer ample opportunities to the people of the Mon District for regenerating employment opportunities and for economic development in the district.

Problems:

14) Water table management for environmental prone agriculture strategies

Proposed Solutions

a) Due to deteriorating climate conditions, the water table in a hilly region of the state is being affected by heavy rain conditions in one year and drought conditions in another. While horticulture requires timely water supply especially in the jhum method, inconsistent water supply can cause great damage to agricultural produce and affect the income of agrarian households.

b) In the present scenario, more than 64% of agriculture is based on the jhum method (shifting method). This method is heavily dependent on rain patterns. Nagaland had a rainfall deficit of 24% between June 1 and August 19 last year. In June, Nagaland’s Department of Agriculture (DoA) informed that the state is witnessing a “drought-like situation” due to delayed and erratic rains from December 2020 to April 2021. Due to this, productivity is fluctuating heavily which is affecting market supply and remuneration to the farmers.

c) The mission for Integrated Development of Horticulture and Agriculture Technology Management Agency should take the responsibility to work upon irrigation technology development and increasing adoption of it
by farmers. Subsidies will be major demand driving factor for the adoption of irrigation as a majority of the
farmers are having small and marginal landholdings and limited agricultural income.

15) Availability of quality hybrid seeds around the year & technical guidance of it

Proposed Solutions
a) Supply chain restrictions created due to COVID containment measures have affected the availability of seeds
in many districts of Nagaland. As Nagaland is known for its flourishing biodiversity, the availability of quality
seeds for horticulture becomes crucial for the productivity and agriculture income of households.

b) Government of Nagaland has provided seeds in targeted villages of 12 districts under the Mission for
Integrated Development of Horticulture post-COVID. State horticulture nurseries should work with regional
and national agriculture research to develop a more variety of climate-resilient seeds.

c) For training purposes, local NGOs and FPOs need to be onboarded to spread technical knowledge among
small farmers. Apart from knowledge-sharing exercises government also needs to provide resources for the
application of technical methods such as field preparation for terrace farming, intercropping, mixed cropping,
etc. For example, due to small farm holdings and hilly terrains farm mechanization is quite limited. There is
start need to provide alternative mechanized resources suitable for small farm sizes on a rental or sharing
basis.

16) Promotion of organic farming and sustainable farming practices for high-quality outputs

Proposed Solutions
a) Farmers and consumers in the state already have a negative attitude towards agrochemical use in
agriculture. This can be a positive sign for promotion as well as a higher adoption rate of organic farming
practices in the district.

b) Organic cultivation is already prevalent in 241 villages of Nagaland as people believe more in using the least
chemical inputs for agriculture. Mon district is observing organic farming in 13 villages. A major problem of
organic practices is the longer gestation period and less productivity in the initial years. To meet the increasing
need for higher yields to fulfill the demand of the market, farmers have started using chemical inputs which
can catalyze gestation period and increase overall production.

c) Under the Mission for Integrated Development of Horticulture, the government can identify clusters with
heavy synthetic fertilizer use and promote organic practices in those regions via policy measures and training
and resource provided to the farmers. For incentivizing more farmers to join such a movement, the
government can create a separate market channel for organic vegetables to get better prices which can benefit farmers and motivate them to continue the practice further.

d) Strengthening and upgrading bio-fertilizer laboratories for research and product development and encouraging farmers through rigorous training and awareness campaigns for more adoption can be short-term measures for this objective. APEDA is also implementing National Program for Organic Production in Nagaland.

17) Due to better market prospects of fruits, an area under cultivation for vegetables is decreasing for the last few years

Proposed Solutions

a) Total area under vegetables has decreased in last few years. Under Horticulture Technology Mission, the cultivation of citrus fruits is promoted extensively via the development of hybrid seeds, subsidies, and other support policies. This led to the cannibalization of vegetable cultivation.

b) To incentivize more farmers to grow vegetables as a major crop during the year, there is a need for an incentive mechanism for the shift from citrus fruits to vegetables. Vegetables such as cabbage, the tomato should be promoted under the Mission for Integrated Development of Horticulture.

Implementation Responsibilities:

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<td>2.</td>
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<td>5.</td>
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<td>6.</td>
<td>Farm Mechanization &amp; rental Scheme</td>
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<td>Organic Farming Cluster Promotion</td>
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<td>Bio-fertilizer</td>
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<td>9.</td>
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<td>10.</td>
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Invest India

One District One Product

Orchids, Noklak, Nagaland

Noklak is the administrative centre of Nagaland's newest and youngest district (12th). The district, which is located in the easternmost portion of India, was officially launched by Nagaland's Chief Minister, Neiphiu Rio, on January 20, 2021. In the Indian state of Nagaland, Noklak District is the headquarters of the Khiamniungan Nagas. Nagaland, one of India's eight north-eastern states, stands out among the others as one of the best places in the world to see a wide variety of orchid species. According to a survey done by Nagaland's Forest Department, around 360 orchid species are belonging to 87 genera, accounting for about 27.76 per cent of India's total orchid species of 1300.

Problems

1. Research is needed on the therapeutic properties.

   Proposed Interventions

   a) Orchids, despite being highly desirable ornamental plants, are also known to have therapeutic effects due to their high alkaloid, glyceride, and other beneficial phytochemical content. Their use as herbal medicine in folklore is well-known and well-acknowledged.
   b) Because of a lack of understanding and knowledge about the medicinal properties of these locally available plants, the use of orchids in traditional therapy is limited.
   c) Plant rhizomes are boiled and the resulting decoction is used to treat gonorrhoea. Controlling eyesores with a floral decoction is also an option.
   d) More study on medicinal characteristics is required before a clear supply chain for various substances can be established.

2. The use of orchids in food is not popularised in modern culture

   Proposed Interventions

   a) The tribal inhabitants of North East India eat a variety of wild orchid species as a source of nutrition. Many tribes in the area eat the leaves of the Cymbidium genus. Cymbidiums' young shoots are combined
with cereals to form a sauce. These orchids' pseudobulbs are cooked and eaten like potatoes with curry or boiled and salted. Many orchid species, such as Habenaria acuminata, H. susannae, Orchis latifolia, Pholidata articulata, and others, are used as pseudobulb, root, and rhizome foods that play an essential part in the nutrition of the people of this region.

b) This old tradition can not only be resurrected but can also be publicized as a tourism destination where visitors can experience a unique and traditional delicacy.

c) Vanilla, the most frequent food ingredient derived from orchids, is currently not widely farmed in Noklak. Because the majority of the farmers in the area are unorganised, they are unable to export considerable quantities outside of the state. It is necessary to group the farmers into clusters. This will not only give them bargaining power but also ensure that they will have a large quantity of production to ship/transport to any destination as required.

3. Supply chain and cold storage needed

Proposed Interventions

a) The global market for cut flowers is enormous, and it's only becoming bigger and better. The global flower trade was valued at roughly €15 billion (£10.6 billion) in 2015, with stems being shuttled between continents at a breakneck pace.

b) Cut flowers must be transported fast utilising a "cold chain" — a network of refrigerated facilities on farms, trucks, planes, and boats – to keep the flowers dormant and fresh. If travelling by airline, this enables for a quick movement from farm to shop in as little as 24-48 hours. Time is of the essence: flowers lose 15% of their worth for every additional day spent travelling. The vase life, or how long flowers keep fresh after they reach the buyer, is usually 12-15 days.

c) Given the importance of the Cold-Chain, the project proposal calls for the creation of a Cold-Chain to promote Orchid flowers at higher rates in Delhi's Ghazipur flower market. It also aims to eliminate Orchid post-harvest losses and help society on the one hand, as well as aid distant Delhi consumers by making orchids available to them at a fair price with good quality on the other.

4. Need of infrastructure for growing the orchids

Proposed Interventions

a) Despite India's diverse environment, low labour costs, and advanced farming equipment, the orchid business in India is still in its infancy, both in terms of micropropagation and commercial production.

b) The overall export does not exceed Rs. 250 Lakhs and this is entirely due to the selling of orchid plants. This is due to a lack of acceptable planting material for large-scale cultivation, a lack of commercial
multiplication technology, a lack of post-harvest handling equipment for cut-flower export, and a lack of incentives, proper policies for exporters, and a commercial approach to cultivation.

c) Fortunately, the country has all of the scientific prerequisites for establishing a successful orchid industry; it has a diverse and suitable climate, and almost all of the important commercial orchid varieties, such as Cattleya, Cymbidium, Dendrobium, Oncidiums, Phalaenopsis, Paphiopedilum, and Vandaceous, can be grown for cut flower production.

d) Internal demand for cut flowers and decorative plants is currently mostly fulfilled by supply from southern farms. Cut-flower decorative plants may, however, be cultivated in a variety of different places of India with the development of effective low-cost greenhouses and post-harvest equipment.

e) Polyhouses are ideal for growing orchids.

f) Polyhouses are plastic enclosures similar to greenhouses in which microclimatic parameters such as humidity, moisture level, and temperature can be adjusted. Shade nets, curtains, and micro-sprinklers are utilised to control the amount of sunlight, air, and moisture in these naturally ventilated enclosures.

g) The flowers are organised in rows of low-rise tables on which the flower pots are placed, and sprinklers are installed to water the plants. Depending on the weather, the watering amount is manually regulated. On hot days, more water is necessary, while on cooler days, less water is required.

5. Need for promoting exports of orchids to reduce the imports and plastic flowers dependency of the country

Proposed Interventions

a) Exploration and identification of rare orchid germplasms with aesthetic value as parental materials, cut flowers, potted ornamentals, hanging baskets, medicinal, and scented plants.

b) Market-driven hybrids of Cymbidium, Dendrobium, Vanda, Phalaenopsis, Cattleya, Oncidium, and Paphiopedilum with appealing flowers of diverse colours, patterns, shapes, and sizes, as well as long-lasting quality.

c) Micropropagation and other propagation techniques are used to mass-produce planting materials for commercial hybrids and prized species.

d) Orchid production method year-round, based on the cultivation of chosen hybrids and species.

e) Production expansion in temperate Cymbidium and Paphiopedilum, subtropical Oncidium, Cattleya, and Zygopetalum, and tropical Dendrobium, Vanda, Phalaenopsis, and Mokara.

f) Improved post-harvest technologies and value addition, including dried flower production of unmarketable species and hybrids, single Floret packaging.

g) Domestication, multiplication and popularisation of lesser-known but high-value orchids such as Dendrobium nobile, Renanthera imshaugiana, Rhyncostylis retusa, Aerides spp., native Paphiopedilum species, Vanda coerulea, Cymbidium whiteae, Malaxis spp., Habenaria spp.
h) Vertical gardening with suitable orchid genera such as Phalaenopsis, Coelogyne, Dendrobium, Bulbophyllum, Aerides, etc.

i) Development of epiphytic orchid based farming system, including other ornamentals like Anthurium, Alstroemeria, Gerbera and terrestrial orchids.

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<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Product Improvement</td>
<td>Research on medicinal and therapeutic properties of orchids</td>
<td>Indian Council of Agricultural Research (ICAR), Ministry of Ayush</td>
</tr>
<tr>
<td>2</td>
<td>Value addition</td>
<td>Popularising of traditional food made from orchids</td>
<td>Ministry of Food Processing Industries, Ministry of Tourism</td>
</tr>
<tr>
<td>3</td>
<td>Infrastructure Support</td>
<td>Organizing the farmers to increase their production, bargaining power and access to customers</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
<tr>
<td>4</td>
<td>Infrastructure Support</td>
<td>Establishing poly houses wherever necessary</td>
<td>Indian Council of Agricultural Research (ICAR), Ministry of Agriculture</td>
</tr>
<tr>
<td>5</td>
<td>Infrastructure Support and Packaging</td>
<td>Establishing a cold chain to supply the cut-flowers at long distances</td>
<td>Ministry of Agriculture, Ministry of Commerce &amp; Industry</td>
</tr>
<tr>
<td>6</td>
<td>Transport and E-commerce</td>
<td>Selling online, transport facilities</td>
<td>Ministry of Commerce &amp; Industry /</td>
</tr>
</tbody>
</table>
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  https://morungexpress.com/360-species-orchids-found-nagaland

  http://wwwglobalsciencebooks.info/Online/GSBOnline/images/2013/FOB_7(1)/FOB_7(1)53-59o.pdf


Saitual district is one of the eleven districts of Mizoram state in India. Saitual district became operational on 3rd June 2019. The demand for Saitual district had started from 1974 after the citizen committee had been established in 1993.

Mizoram is a home for all sericigenous insects with different host plants- Mulberry, Eri, Oak Tasar that are grown naturally and has blessed with congenial climatic condition. All districts in Mizoram are practicing Sericulture. Presently around 5716 acres of land is covered under silkworm food plantations in the state involving > 5600 farmers in about 200 villages. Mizoram is ranked in the third position among Northeast states in mulberry production.

Mizoram has proved to be an ideal space for the development of Sericulture Industry. The climatic condition, rainfall and fertility of the soil are congenial for cultivation of Silkworm food plants and rearing of silkworm of all varieties-Mulberry, Muga, Eri and Oak Tasar. Sericulture activities can be taken up across the state.

**Sericulture- Priority Areas in Mizoram**

<table>
<thead>
<tr>
<th>#</th>
<th>Priority</th>
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</thead>
<tbody>
<tr>
<td>Mulberry</td>
<td>I</td>
</tr>
<tr>
<td>Eri</td>
<td>II</td>
</tr>
<tr>
<td>Muga</td>
<td>III</td>
</tr>
<tr>
<td>Oak-tasar</td>
<td>IV</td>
</tr>
</tbody>
</table>

**Production area under Silkworm plantation (2019-20) → 5818 Ha**

**Problems**

1. There is limited labor available, and the new generation does not want to take up weaving as a profession since the income in the private sector is low. Traditional methods are being followed in the Industry.

**Proposed Intervention**

a) Build dedicated weaving committees/ society to provide basic governmental support to the weavers during periods of distress.
b) Handloom weaving and training camps must be made lucrative for the youth to take over. Mechanization and duplication have reduced the significance of weavers, so the youth can be updated with the latest techniques and modern equipment, so that the required adjustments can be done in the product, in a cost-effective way

c) The mechanized handloom weaving practices should be promoted and workers can be trained through government training institutions

d) Shifting from traditional looms to modern looms with upgraded motor pedals

2. **Huge loan debts** on the small-scale weavers making it difficult for the weavers to continue working in the sector

**Proposed Interventions**

a) Alternate employment options can be generated for the labors involved to remove the dependency on handlooms and build the capacity amongst the weavers to repay their loans.

b) Government schemes can provide loans at subsidized rates through the local cooperative banks or NBFCs (Non-Banking Finance Companies).

3. **Scarcity & inferior quality of raw materials for the silk Industry due to lack of training on how to handle. Though through the various training programs, it has been improved. It needs to be more comprehensive and cover the customer’s perspective.**

**Proposed Interventions**

a) Farmers should be trained to properly to nurture silk cocoons through self-help groups and other training camps and workshops

b) Establishment of Silk reeling units, silk twisting units, technical & service center for rearing silkworms

c) A raw material bank may be established where all kinds of inputs for handloom weaving are made available for effective and timely distribution to weavers

4. **Marketing and awareness of the product is lacking even in the Indian market let alone for exports.**

**Proposed Interventions**

a. The handloom industry is required to develop a good branding system to maintain the quality and uniqueness of the different handloom products

b. The products should be developed in accordance with the demands of the target customers in both Indian & international markets

c. People in the Industry should be allowed/encouraged to attend some trade fairs both on national and international levels. The Ministry can take the lead and conduct an International level trade fair to promote and display the various types of silks available in India and encourage the weavers to participate at a reduced fee or subsidised rates to promote the Industry

d. Also, trade platform (digital form) can be made for small farmers to use and display the product and government can take the role of a middlemen till the weavers get trained themselves and stand on their own
5. *Competition from power looms & customer’s awareness about the handloom’s quality/standards is low. There needs to be a craving from the customer to buy the silk sarees.*

**Proposed Interventions**

a. Appropriate knowledge videos, articles on TV channels, newspaper advertising and social media can be made to make the stakeholders aware of the quality standards.

b. Also, a trademark or government authorised quality standards can be given to the domestic silks (based on the quality of their produce). It will help the Industry to gain traction.

b. E-marketing of handloom products for expanding the market reach of the handloom products along with product differentiation. The silk products across India can be clubbed and the best practices can be shared across and export market should be centralised under government (Individual Ministry can be made and all the exports can be handled by the respective ministry)

c. Associating marketing campaigns to support the GoI’s initiative of “Vocal for Local” can accelerate the reach to consumers over the power looms. Branding for the nation’s produce has to be done and made aware to the consumers

6. *High rate of defectives/wastage of materials on weaving process. Waste monitoring and minimization is another area of concern*

**Proposed Interventions**

a. Segregation of waste into fibre types, colours needs to be done and trainings and waste generated from the Industry has to be measured and benchmarked with other Industry peers to know where each unit stands and the best practices can be shared to make the units in India more efficient. Trainings needs to be provided on recycling and circular economy and how wastage can be minimized.

c. Reduce water waste by using efficient processing systems (e.g., low liquor ratio dyeing machines), reducing rinsing, adding scours to dye baths, and applying finishes with padders. Collect cooling water for use in dyeing and scouring processes.

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<tr>
<th>Sr. No</th>
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<th>Proposed solutions</th>
<th>Agency</th>
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<tbody>
<tr>
<td>1</td>
<td>Credit support</td>
<td>Dedicated weaving committees/ blocks to provide basic governmental support to the weavers during periods of distress. Government schemes to provide loans at a low interest rate through the local cooperative banks or NBFCs (Non-Banking Finance Companies)</td>
<td>Department of Sericulture, National Handloom Development Programme (NHDP)</td>
</tr>
<tr>
<td></td>
<td>Training and Development (Upskilling)</td>
<td>Generate alternate employment options to remove the dependency on handlooms</td>
<td>Labour, Employment, Skill development and Entrepreneurship (Government of Mizoram)</td>
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<tr>
<td>3</td>
<td>Infrastructure support</td>
<td>Make the equipment available to the weaving community on a rental basis. Raw material banks may be established where all kinds of inputs for handloom weaving are made available for effective and timely distribution to weavers</td>
<td>Handloom Development Corporation, Handlooms, Handicrafts, Textiles and Khadi Department; National Handloom Development Programme (NHDP)</td>
</tr>
<tr>
<td>4</td>
<td>Technology upgradation</td>
<td>Some aspects of handloom weaving practices should be mechanized, shifting from traditional to modern looms</td>
<td>Handlooms, Handicrafts, Textiles and Khadi Department</td>
</tr>
<tr>
<td>5</td>
<td>Quality assurance</td>
<td>Better segregation of waste into fiber types, colors and processes that maximize recycling opportunities and ‘waste’ value, promote water recycling</td>
<td>Handlooms, Handicrafts, Textiles and Khadi Department</td>
</tr>
<tr>
<td>6</td>
<td>Branding and Marketing</td>
<td>Promoting the product in accordance with target customer demands. Conduct trade fairs from the government end to promote the Industry.</td>
<td>Ministry of Information &amp; Broadcasting, Ministry of Electronics &amp; IT Invest India team</td>
</tr>
</tbody>
</table>

**References**

The state of Mizoram, which has 57 percent of the geographical area under Bamboo cover (Government of Mizoram, 2017). The soft bamboos are mostly used for weaving neckpieces, earrings and other items of jewellery. Recently 35 species of bamboos have been reported from the state (Bisht et al, 2010) out of them, 20 species are indigenous to the state, while 14 species have been introduced from outside.

**Problems**

1. Due to Deforestation the cost of bamboo has increased significantly, but the artisans could not increase the price of the handicraft, this has led to decreased margins in an already low margin industry.
2. Lack of storage space.

**Proposed Intervention**

a. Providing a minimum support price of bamboo to the farmers.
b. Government should take initiatives for promoting bamboo plantation at a larger scale.
c. Government warehouse for cut bamboo storage.

3. Lack of capital and credit facilities for the artists.

**Proposed Interventions**

a. Promotion of development of co-operative credit societies
b. Subsidized loans by Regional Rural Banks
c. Promote development of self-help groups to facilitate credit help and support to the farmers.

4. Marketing is a major challenge. Bamboo and their products are not seen as relevant items by the nationals or international customers.

**Proposed Interventions**

a. Work on changing the perception about bamboo and its products from a mere piece of furniture to a piece of handicraft with historic and cultural importance. Television advertisement could play a huge role in this.
b. Women and tribal communities are highly involved in cultivation of bamboo. Their stories should be published.
c. Promotion of bamboo and the art via state government’s as well as central government’s handicraft department.
d. Social media and e-commerce should be used to sell the goods to distant areas.
e. Work towards enhancing exports.

**Under Type of Intervention:** Infrastructure & Manufacturing, Regulatory, Credit, Product Improvement, Value addition, Branding and Marketing, Packaging, Anti counterfeits, Logistics, Distribution, E-commerce, Training and Development (Upskilling), Quality Assurance.
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<tr>
<td>1</td>
<td>Warehousing</td>
<td>Storage space</td>
<td>State Govt./Min. Of Forest</td>
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<tr>
<td>2</td>
<td>Packaging</td>
<td>Attractive packaging with unique logo for these bamboos</td>
<td>Indian Institute of Packaging</td>
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<tr>
<td>3</td>
<td>Promotion</td>
<td>Government should take initiatives for promoting bamboo plantation at a larger scale</td>
<td>Bureau of Outreach and Communication</td>
</tr>
<tr>
<td>4</td>
<td>Credit</td>
<td>a. Promotion of development of co-operative credit societies</td>
<td>Department of Financial Services, Ministry of Finance</td>
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<tr>
<td></td>
<td></td>
<td>b. Subsidized loans by Regional Rural Banks</td>
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<td></td>
<td>c. Promote development of self-help groups to facilitate credit help and support to the farmers.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Branding and Marketing</td>
<td>Television ads to promote to change of perception of bamboo and bamboo products</td>
<td>The Directorate of Advertising &amp; Visual Publicity (DAVP)</td>
</tr>
<tr>
<td>6</td>
<td>Branding and Marketing</td>
<td>Promotion of bamboo and the art via state government’s as well as central government’s handicraft department</td>
<td>Bureau of Outreach and Communication</td>
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<tr>
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<td>Branding and Marketing</td>
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<td></td>
<td></td>
<td></td>
<td>Ministry of Skill Development And Entrepreneurship</td>
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**References/Sources**


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West Garo Hills Memang Narang (Orange) – Meghalaya

Introduction

The West Garo Hills is one of the largest district of Meghalaya located in the western part of the State. The Garo Hills district was divided into two districts, viz. the West Garo Hills district and the East Garo Hills district in October 1976. The erstwhile West Garo Hills district was further divided into two administrative districts of West and South Garo Hills on June 1992. The district headquarters of West Garo Hills is Tura, which is the second largest town in the State after Shillong. The West Garo Hills district lies on the western part of the state of Meghalaya bounded by the East Garo Hills district on the east, the South Garo Hills on the south-east, the Goalpara district of Assam on the north and north-west and Bangladesh on the south.

Meghalaya, famous for its rich and diverse flora and fauna is home to one of the rarest wild Indian orange species called Memang narang that is found only in Garo Hills. This wild orange was discovered by accident in the Nokrek National Park in the West Garo Hills which led to the park being recognized by UNESCO as a Biosphere Reserve. This endangered species is believed to be the most primitive citrus in the world and accepted by researchers as a citrus rootstock.

The Memang Narang or Indian wild orange is a rare and very sour fruit with a pleasant smell. It is only available fresh once a year and it is traditionally preserved after harvest by drying on a fireplace or on a bamboo stick over the fire. This fruit is consumed as a medicine for people and animals to cure viral infections and stomach ailments, jaundice and to dissolve kidney stones. It is used to treat fever, cold, as an antidote for poisoning and others. Powdered extract from the fruits is taken as a cure for smallpox.

The story goes that once, when all Abong Noga’s animals fell sick he was told by the gods in a dream to crush the citrus fruits and give them to the animals. After all the animals were healed the fruit was named Memang Narang meaning “fruit of ghosts,” a name still used by the a-chik mande (hill people).

The tree grows in cool places with a lot of shade from other trees and only in the Nokrek National Park and its surrounding foothills, which are part of the Garo Hills in the state of Meghalaya, India. The fruits never fall from the tree, even when they are ripe, and so are harvested straight from the branches each year in November. Memang Nerang is still available in some villages and sometimes in small amounts at markets however it is hard to estimate how much fruit is produced and local communities have reported a steady decline in their harvests.

Memang Nerang is at risk of extinction because people are removing the saplings to clear their land without replanting them in suitable shady areas, which are also becoming fewer and fewer. Also, due to a lack of knowledge within communities there is less availability of the fruit and so it is used less. If more trees are planted and the forested areas are preserved then the citrus trees will also be able to grow well. Since the Nokrek region was declared a National Park Memang Nerang have been available only within the Nokrek and Durama regions of the Garo Hills.
Existing market size and marketing channels for Oranges

Problems

1. The farmers in the harvest of oranges gets a lower income as the processing Industries or those who do value addition gets a greater share of money. Also, there is a lack of an organized market in the state.

Proposed Interventions

a) Processing industry for oranges to give better prices to orange growers. If the variety of orange is rare and the government needs to protect it, minimum support price must be increased, and the price should give reasonable profit for the farmers to continue in the sector.
b) Organising weekly mandis for the product to ensure fair price to the farmers.

c) To add to this, the producers can be trained/educated about the uses of the product and provide them with the details (range of customers who can buy at higher prices and try to reduce/eliminate the need for middlemen)

2. Labour intensive farming method. It depends a lot on the availability of timely labour.

Proposed Interventions

a) More research and latest technologies can be introduced to help the farmers pluck the fruit with minimal damage. The scope of innovation needs to improve in this area.

b) Also, the farm tools and machinery introduced for use in hilly terrain

3. High rainfall with favorable temperature regime and cultivation leads to several fungal, bacterial and viral diseases of Citrus in Meghalaya. Trunk borer was established as the prime reason amongst insect pests for citrus decline in Meghalaya.

Proposed Interventions

a) Spray against insect pest particularly in nursery for leaf miner and scab should be scrupulously followed and regularly done

b) Gum oozing portion of the plants infested with Phytophthora causing foot and root rot diseases should be treated on priority.

c) SOP must be prepared, and the training must be provided to the people involved in the farming to ensure farmers are aware about the counter measures when faced with an adversity

4. Area under cultivation usually has a high rainfall due to which the soils become highly leached, acidic and are generally poor in fertility and water holding capacity. They tend to lose nutrients

Proposed Interventions

a) Additives to be added to neutralize the soil acidity (for example lime) and increase the nutrients of the soil. Farmers has to be trained on improving the soil quality by consultants/experts in the field.

b) Organic manures can also be tried as against the chemical fertilizers. The application of well decomposed organic matter helps to prevent sudden fluctuation of soil pH and improves the buffer capacity of soils.

5. Promotion of this specific variety of oranges and training on methods of preservation needs to be done

Proposed Interventions
a) As this variety of product already has a geographic indicator, it has to be promoted to the foreign market stating the benefits of this.
b) Skill training and capacity building for producers has to be done, so that they can promote the product well on their own. Government can also look into new uses of the product.
c) As we are looking to the export market, proper choice of cold storage has to be made and the farmers has to be educated on the same.
d) Collaborative interventions to support private entrepreneurs in branding and packaging of their products and to onboard them on to e-commerce.

6. Packaging is also an area of concern which can lead to damage of fruits resulting in loss of revenue. Also, high transportation cost is a challenge for the stakeholders involved

Proposed Interventions

a) Government should train the producers involved in the Industry about the packaging of oranges to avoid/prevent the damages of the fruit during transit, as it a critical area of concern.
b) Tie up with FPC can be done to have a budgeted contract for transportation

7. Lack of information on availability of good quality Vs scrummed planting material. Farmers don’t follow the best practices of production like maintaining a plant-to-plant gap

Proposed Interventions

a) Crop demonstration to be given for usage of seeds developed by researchers and proper SOP has to be laid out for the same.
b) Awareness must be created for farmers to use recommended best practices like soil testing, land preparations, line sowing, and seed rate

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<tbody>
<tr>
<td>1</td>
<td>Training and development</td>
<td>Use of Additives; Use of Organic manures and Training for farmers to use suggested fertilization methods</td>
<td>Indian Council of Agricultural Research (ICAR), Directorate of Horticulture (Meghalaya)</td>
</tr>
<tr>
<td>2</td>
<td>R&amp;D</td>
<td>More research has to be done on Pest &amp; Disease Control; Implementation of better pest management practices</td>
<td>Indian Council of Agricultural Research (ICAR)</td>
</tr>
<tr>
<td>3</td>
<td>Marketing</td>
<td>Branding &amp; Packaging support needs to be provided; Better marketing strategy – On boarding brands or startups onto e-commerce</td>
<td>Ministry of Commerce &amp; Industry and Invest India team</td>
</tr>
<tr>
<td>4</td>
<td>Supply Chain</td>
<td>Supporting small entrepreneurs through arranging buyer-seller meets, expediting applications, etc.</td>
<td>Ministry of Commerce &amp; Industry</td>
</tr>
</tbody>
</table>

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https://agriculture.rajasthan.gov.in/content/dam/agriculture/Rajasthan%20Agricultural%20Competitiveness%20Project/valuechainreport/RACP_VC_Kinnow.pdf
Jiribam district is a district situated at the western corner of Manipur. The geographical boundaries of Jiribam district are Tousem sub-division of Tamenglong district and Tipaimukh sub-division of Churchandpur district on the East, Cachar district of Assam and Barak River on the West, again Cachar district of Assam and Jiri River on the North and Tipaimukh sub-division of Churchandpur district and Barak River on the South.

Jiribam is very rich in flora and fauna. It is covered by green vegetation and its major area is covered by forest. Varieties of valuable plants are found in the area. The plants include bamboo, cane, teak, orchids, rubber, tea, agar, cashew nut, litchi, jack fruit, betel nut, pineapple, Eiranthus procerus (local name Singnang), Cynodon dactylon (local name Tinthou), Alpinia galanga (local name pullei), Nelumbo nucifera, Phragmites Karka (local name Tou) etc. Jiribam is suitable for allied agricultural, agro-horticultural and agroforestry activities. The main products are timber, fuel wood, bamboo and cane, honey, medicinal herbs. The fruits like jackfruit, pineapple, litchi, mango, banana, papaya, coconut, guava etc. are mainly found in the area. The varieties of vegetable are also found in the area and its main crop is paddy.

Jiri River and Barak River demarcate the boundary between Jiribam and Cachar district of Assam on the northern side and some parts of western side up to Jirimukh, the confluence point of Jiri and Barak Rivers. Jiribam is inhabited by various communities. Due to the lack of higher education, appropriate skills, training, and knowledge, most of the people of Jiribam are still dependent on agriculture, horticulture, small business and other earning activities.

Coconut is the most important and useful tree among the tropical palms which gives coconut water, kernel, coir pith, coir fiber, coconut milk, desiccated coconut, seed shell, leaves, fruit husk, oil cake for cattle etc. It has been in cultivation in India from time immemorial. It perhaps yields more products of use to mankind than any other tree.

**Problems**

1. **One of the critical concerns in the field of coconut cultivation is the control of pest disease and nutrient deficiency**

**Proposed Intervention**

a) Identification of pests must be done and based on the findings; the manures can be used to prevent the pests. TNAU has given a description on the different types of pests and the possible prevention activities.

b) Government is encouraging the use of organic/bio fertilizer through various schemes via: National Mission for sustainable Agriculture (NMSA)/Paramparagat Krishi Vikas Yojana (PKVY), Rashgtriya Krishi Vikas Yojana (RKVY), Mission for Integrated Development of Horticulture (MIDH), National Biogas and Manure Management Programme (NBMMMP), Network Project on Organic Farming of Indian Council of Agricultural Research (ICAR) and National Programme on Organic Production (NPOP) of Agricultural & Processed Food Products Export Development Authority (APEDA)

c) Government can help the farmers in developing a device/technology to monitor the presence of pests, disease, and nutritional deficiency and if it can alert the farmers to adopt control measures. It can be quite helpful

d) Automatic plant protection devices that directly target the crown or site of infestation can also be developed and given to the farmers to enhance the productivity
2. As coconut cultivation is a labour-intensive field, availability of labours is a challenge during peak season. Also, there is lack of automation in the harvesting part of the coconut cultivation.

Proposed Intervention

a) Mechanization and the tasks can be rationalised to improve the efficiency of the cultivation practices.
b) Government/Coconut Board of India must do more research in this area.

3. There needs to be focus on promotional activities, marketing and advertisement and enhancing the distribution system of the coconut value chain. The current marketing practices in coconut are a major constraint as they provide a very small margin of profit to the average farmer. A farmer will not be selling his/her produce directly to the wholesaler’s market due to farm-to-market road and lack of transport. Similarly, as in the other crop sectors, the coconut farmer bears the lower end of fluctuating domestic prices as dictated by the world market.

Proposed Intervention

a) Coconut Development Board- Integrated development of coconut cultivation and industry in the country to make the coconut economy sustainable and globally competitive.
b) Establishment of DSP farms for coconut and setting up of Coconut Nurseries attached to the DSP farms to promote and transfer the needed knowledge.
c) Establishment of Regional Coconut nurseries and to aid Registered/Private/approved coconut nurseries to promote and distribute their products.
d) Also, government can promote the organic certification for the coconut cultivation. This will enhance the credibility of the product and to create awareness among the consumers. Trademark and government certification can be provided to increase the reliability and credibility of the product.
e) Government can also encourage the participation of farmers in national level and international level trade fairs. It helps them to promote and create visibility to their product.
<table>
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<tr>
<th>Sl. No.</th>
<th>Type of Intervention</th>
<th>Proposed Intervention</th>
<th>Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Quality Assurance And Product Improvement</td>
<td>Government can intervene and assure the quality of the product after testing or by providing organic certificates to the coconut cultivation</td>
<td>Department of Agriculture and farmer development, National Mission for sustainable Agriculture (NMSA)</td>
</tr>
<tr>
<td>2</td>
<td>Infrastructure &amp; Manufacturing</td>
<td>Mechanization and the tasks can be rationalised to improve the efficiency of the cultivation practices. Automatic plant protection devices that directly target the crown or site of infestation can also be developed and given to the farmers to enhance the productivity</td>
<td>Department of Agriculture and farmer development</td>
</tr>
<tr>
<td>3</td>
<td>Branding &amp; Marketing And Training &amp; Development And Value Addition</td>
<td>Coconut Development Board: Integrated development of coconut cultivation and industry in the country to make the coconut economy sustainable and globally competitive.</td>
<td>Coconut Development Board (CDB), National Mission for sustainable Agriculture (NMSA) Invest India team</td>
</tr>
<tr>
<td>4.</td>
<td>Credit facility</td>
<td>Financial Assistance to Registered / Private/ Approved Coconut Nurseries Training</td>
<td>Coconut Development Board (CDB); Ministry of Finance</td>
</tr>
<tr>
<td>5</td>
<td>Training &amp; Development</td>
<td>Training and Development can be provided to farmers on the cultivation of coconut and specifically on how to control pests and increase the nutrients of the soil To add to that they can be trained on the value additions that can be done with coconut and customer requirement (in accordance with the quality of the material)</td>
<td>Coconut Development Board (CDB)</td>
</tr>
</tbody>
</table>

References

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https://nenow.in/north-east-news/manipur-goes-organized-coconut-cultivation-project-cover-entire-ne.html
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Black Rice, Kakching, Manipur

Black Rice is famous for its high nutrient value and gluten-free nature along with its use in traditional medicinal purposes. Chakhao is the aromatic black rice of Manipur which is traditional to the region and has been cultivated for centuries with the local practices.

The Black Rice of Kakching have recently been granted the Geographical Indication (GI) tag under agricultural products of the Geographical Indications of Goods (Registration & Protection) Act of 1999.

It is pertinent to note that ‘Black Rice of Kakching’ is the fifth agricultural product from the Northeastern state which attained the feat.

The glutinous or sticky Manipur black rice is not grown commercially but in small pockets. The use of the rice is limited to ritual feasts and festivities. Although traditionally the rice is served plain, one of the popular dishes now prepared from it is kheer, the popular Indian dessert made from rice and boiled milk. Chakhao has also been used by traditional medical practitioners as part of traditional medicine. It is sold at ₹100-120 a kilogram on an average in the Imphal market.

Problems

1. **The units do not have a standardized processing, quality control and grading system which deter customers to purchase the products from them on a regular basis.** The higher cost to refine the produce makes it costly which hinders the ability to export products.

   **Proposed Interventions**

   a. Implement a strict quality control mechanism with the help of Agmark, and other standards, quality testing bodies. All the products should mandatorily have certain specified quality testing, whereas rules for the required quality standards necessary for exports should be determined and published which can be used as reference.

   b. Leverage GI mark as a quality indicator and market the same to establish its credibility.

   c. Provide incentives such as subsidies to allow refining of the black rice which can then be sold at a premium in the country as well as be exported.

   d. Increase FDI on machinery relating to processing of the black rice.

2. **Lack of labour willing to do manual labour is a major issue affecting the industry in the region.** Also, the higher wages demanded by the workers increase costs for the farmers thereby hindering their profitability.

   **Proposed Interventions**
a. Provide regular training to workers and introduce a course to specifically train people for technical work in the farms.
b. Provide cheaper credit and credit terms to farmers with a specific focus on higher labour charges to enable better expense management.

3. The mill owners and sellers do not have any opportunities to trade fairs and international expos which do not give them the necessary exposure to interact with international buyers or aggregators.

**Proposed Interventions**

a. Promote and facilitate unit owners to visit international fairs to showcase their products and build a network internationally.

4. Another major problem in the black rice industry is a lack of proper marketing channel. It is identified that growers are marketing their produce through private dealers.

**Proposed Interventions**

a. Educate and train the unorganized producer of new methods of advertising and marketing like Digital Marketing. Such methods would help them reach a larger audience at relatively lower costs.
b. Provide credit at cheaper rates for specific promotional activities to promote the same.
c. Forge tie-ups with advertising agencies to facilitate better connections and agreements between the sellers and advertisers.

**Under Type of Intervention:** Infrastructure & Manufacturing, Regulatory, Credit, Product Improvement, Value addition, Branding and Marketing, Packaging, Anti counterfeit, Logistics, Distribution, E-commerce, Training and Development (Upskilling), Quality Assurance.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Type of Intervention</th>
<th>Proposed intervention</th>
<th>Agency</th>
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</thead>
</table>
| 1      | Quality assurance    | a. Implement a strict quality control mechanism with the help of Agmark, and other standards, quality testing bodies  
b. Provide incentives such as subsidies to allow refining of the black rice which can then be sold at a premium in the country as well as be exported | Quality Council of India Ministry of Food Processing Industries |
<p>| 2      | Credit               | a. Provide cheaper credit and credit terms to farmers with a specific focus on higher labour charges to enable better | Department of Financial Services, Ministry of Finance |</p>
<table>
<thead>
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<th>Expense Management</th>
<th>Quality Assurance and Marketing</th>
<th>Training and Development (Upskilling)</th>
<th>Branding and Marketing</th>
<th>Promotion and Advertising</th>
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<td></td>
<td></td>
<td>b. Provide credit at cheaper rates for specific promotional activities to promote the rice</td>
<td>Leverage GI mark as a quality indicator and market the same to establish its credibility</td>
<td>a. Provide regular training to workers and introduce a course to specifically train people for technical work in the farms</td>
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</table>

**References/Sources**


Turmeric is used as a spice flavoring, colorant and drug in a variety of products. It is an essential ingredient in food items as it imparts the characteristic yellow colour. It is used in canned beverages, baked products, dairy products, biscuits, sweets, sauces etc. The yellow colour is due to the presence of curcumin content in turmeric. Lakadong and Megha Turmeric-1 are the two major varieties of turmeric grown in Manipur. The varieties impart a sharp bright yellow color and a distinct flavor. This is due to the presence of high curcumin content ie, 5% in Megha Turmeric-1 and 5 to 7% in Lakadong.

Problems:

1. Turmeric is the third largest crop in the region but its productivity in the region is very low compared to the average productivity of turmeric in the country.

Proposed solution:
The state and district administration should facilitate availability of quality seeds of Lakadong and Megha varieties of turmeric as these varieties have high yield potential.

2. Another major challenge is the lack of premium price for turmeric in the state.

Proposed solution:

- The farmers incur heavy losses due to huge transportation cost for carrying the produce to processing units in far off places. The produce that is sold locally does not fetch premium price for the farmers. Premium price can be offered to farmers by setting up semi processing units in the region and encouraging entrepreneurship among the farmers.
- The turmeric should be recognized as organically certified under the initiatives taken up by the state government.
- The farmers should be encouraged to form FPOs in the region in order to collectivize them and impart better negotiation power.

3. High post-harvest losses due to lack of facilities for handling, processing, value addition and organized marketing.

Proposed solution:

- ICAR and NAIP should set up a greater number of processing units in the region.
- The dried and processed turmeric should be sold directly through the ICAR Farmers’ Association for Marketing under the logo of ICAR.

IMPLEMENTING AGENCIES:
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<td>Value Addition</td>
<td>Setting up big and small scale processing units for value addition</td>
<td>State Government</td>
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<td>Private Players</td>
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<td>ICAR</td>
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<td>NAIP</td>
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<td>2.</td>
<td>Production</td>
<td>Availability of quality seeds</td>
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<td>State Government</td>
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<td>3.</td>
<td>Capacity Building</td>
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<td>4.</td>
<td>Capacity Building</td>
<td>Technical, Technological and Marketing support</td>
<td>State Government</td>
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<td>5.</td>
<td>Market Intervention</td>
<td>Direct sale under the logo of ICAR</td>
<td>ICAR</td>
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<td>6.</td>
<td>Capacity Building</td>
<td>Organizing farmers into FPOs</td>
<td>District Administration</td>
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<td></td>
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<td>NGOs</td>
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</tbody>
</table>

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