

AGRO – INDUSTRIES TO INCREASE FARMER'S INCOME

- The 68th Round of NSSO survey on employment estimated about 48.9 percent worker's major livelihood support coming from agriculture.
- While price led growth of agriculture, as a means of enhancing income is not sustainable: the only way is to **infuse agro-industrialization** in the urban-rural continuum following the cluster approach.

Opportunities for These Industries:

- The country is **miles ahead on the agenda of zero hunger and food security** to all from 2.78 to 47.57 times increase in various food items over 1950-51.
- The marketed surplus of the commodities has been increasing, demanding more post-harvest management and processing.
- Our **high value commodities production growth** is much faster than the staples food items. This is most satisfying for **nutritional security** point of view, but opens up the challenges for agro-based industries to absorb the additional production that cannot be consumed afresh/raw.
- Now time is ripe to change our vision and approach of the past ***which traditionally viewed agriculture and industry as two separate sectors*** in characteristics. Development of agro processing industries should be viewed as industrialization of agriculture and a joint process leading to a **new industrial sector**.
- **Investment in infrastructure** comprising roads, electricity, and communication would reduce agribusiness costs and induce the private sector to invest in agro-processing, cold storage facilities, refrigerated transportation, and retail chains.
- **Institutional arrangements** such as contract farming, producers' organizations, and cooperatives that provide farmers easy access to markets, distribute price risks, and reduce marketing and transaction costs can go a long way in pushing high value agriculture.

Definition of Agro-based Industries:

- Famine Enquiry Commission (India), 1944 defined agro-based industry as *“those industries which are involved in supplying the farm with agricultural inputs besides handling the product of the farm may be termed as agro-based industry.”*

Income and Employment Opportunities

- The contribution of cropping and animal husbandry in total income of the farm households is only 35 per cent while wages and service contribute more than 50 per cent in the average monthly income of the agro - households.
- One of the critical areas that can enhance the income of the rural households is to provide higher opportunity in agro-based food and non-food activities.
- The **Annual Industrial Survey, 2016-17** shows that the **agro-industries contribute about 36 per cent of the industrial employment**. Additionally, the substantial employment is generated in production agriculture and the supply chain.
- Agro – Food-processing industries have the potential to generate directly significant **employment in production activities** and also indirect employment through its **forward and backward linkages**.
- These industries would help in **reducing post-harvest losses** and wastes as well as in using by-products more efficiently.

- This can **increase rural income** by fetching better prices to producers and also consumer welfare by increasing the availability of agricultural consumer goods.

Food Processing Industries

- It is one of the **major employment intensive segments** contributing 11.69 per cent of employment generated in all Registered Factory Sector in 2012-13.
- The food processing industries covers a wide range of activities utilization farm, animal and forestry based products as raw materials.
- Although most of the technology related to this sector is readily available in the country, it is **not being extensively adopted** because economic incentives are often missing, or institutional arrangements for collection, processing and marketing of the byproducts may be lacking.
- After processing, the next category is concerned with processing and packaging in order to provide easy transportability and marketability of some food products. This would increase the income of farmers, especially small farmers and landless agricultural laborers in the rural areas.
- The third category relates to processing activities which would **help in extending the storage life of seasonal food products**. It would help in reducing post-harvesting losses and would also provide stable income to the growers by eliminating the seasonal fluctuations in income.

Food Processing Policy of India

- The **Ministry of Food Processing Industries** brought out Food Processing Policy of India in 2018 which also included the best practices across states and the world.
- The Government has also emphasized to **make India Global Food Factory** and Global Food Market and thus opened up immense opportunities for food processing sector.
- Several initiatives have also been announced for ushering into zero post-harvest wastage by creating a **national food grid and national cold chain grid**.
- The reforms like allowing **100 per cent FDI in multi-brand** retail will have a long lasting impact.
- Increasing focus is also being given to supply chain related infrastructure, such as cold chains, abattoirs and food parks.

Conclusion

- The agro- industries are getting even more important in view of very impressive growth in high value commodities alongside rising incomes in recent years.
- It has larger scope for acceleration in future given the thrust on doubling farmers' income.

TEXTILE AND CLOTHING INDUSTRY: CHALLENGES AND OPPORTUNITIES

Statistical Scenario:

- The **Textiles and Clothing (T&C) Sector** contributes about 10 per cent in industrial production, about 12.5 per cent to the export earnings and 2 per cent in GDP.
- The National Household Survey 2017 to assess market for textiles and clothing carried out by the Textiles Committee estimates **overall market size of USD 163.70 billion**.
- The T&C Industry has potential to grow significantly and to contribute to the Government's ambitious target of achieving USD 5 trillion economy by 2024-25.

Uniquely Positioned in Creating Virtuous Cycle: Macro Perspective

- T&C industry is found to be playing a catalytic role in **shifting surplus labour** from agriculture sector to more productive industrial activities.
- It is mainly **driven by export demand**, as domestic demand is usually limited.
- One of the main reasons for the ubiquitous characteristic of textile industry is the **high proportion of wage component in overall value of output**.
- The wage fund so generated releases significant income in the hands of workforce to **create demand for goods and services** and **accelerate cycle of economic activities** in associated areas.
- The role of export in accelerating GDP, and the relation of textile and clothing exports with GDP growth rate and per capita income level of selected economies like South Korea, Hong Kong, China and Vietnam confirms **positive contribution made by exports in general and T&C exports in particular**.

India has Cost Comparative Advantages

- The International experience shows that the window for growth of textiles and clothing industry is opened till **per capita income reaches a threshold** level and beyond that industry relocates out of such high cost location.
- Keeping in view, the present per capita income of India, which is Rs. 1,26,406 in 2018-19 (about USD 1800), the **window for high growth of textile and clothing exports is open for next about 15-20 years**.

Growth Potential of T&C Industry

- India is well poised to gain from world trade in textile and clothing. A part of the gain may come from **relocation of textile industry** especially cloth manufacturing outside China in sync with China's increasing per capita income.
- Another way to assess the growth potential of industry is by way of its correlation with fiber consumption. The textiles fiber consumption growth in India is high and it is expected to reach at about 32 mn tons (from about 12mn tons presently) in next 12-15 years.
- This scenario corresponds to achieving about **10 per cent share** in world trade of textile and clothing by 2032.

Initiatives to Realize Growth Potential

- Ministry of Textiles presently provides support to T&C sector under different schemes: for technology up-gradation, infrastructure, R&D, Technical Textiles and Capacity Building.

Areas of Concern:

- **Technology Up- gradation Fund Scheme (TUF)** – a credit liked subsidy scheme was introduced in 1999 to catalyze capital investments for technology up-gradation and modernization of the textile industry. The present scheme is known as Amended TUF (ATUFS), which was launched in January 2016. Still, **modernization of weaving and processing segments** continues to be area of concern.
- **Fabric sector** – Suffers from **weak global competitiveness** in terms of quality, scale and price of fabric segment of India's textile value chain.
- **Infrastructure and Logistics:** The **Scheme for Integrated Textiles Park (SITP)** was launched in 2005 to neutralize the **weakness of fragmentation** in the various sub-sectors of textiles value chain, and the non-availability of quality infrastructure. This again continues to be an area of concern.

- **Cotton Sector:** The **Technology Mission of cotton (TMC)** by 2012 achieved reduction in trash content in Indian cotton. However, cotton fiber production, productivity and quality need focused attention.
- **Environmental Concerns:** The major challenges faced by the textiles processing are availability of water, effluent treatment and disposal of the treated water and soil effluents.
- The high growth potential of Technical Textiles remains to be tapped.
- Low FDI in T&C Sector.
- Lack of commensurate growth in textile machinery sector in India.

Why Policies Matter?

- **Facilitated by globalization forces under WTO**, reduction in import tariffs and easy movement of capital and intermediate goods, across each segment of the textile value chain has emerged. This makes it necessary for each segment of the textile value chain to be **globally competitive**.
- Such approach become more relevant because global value chains are becoming more knowledge intensive. Therefore, the advantages created at the end product exclusively through various policy supports and other means have been **found to be proving ineffective**.

Areas Requiring Immediate Attention:

- **Cotton Continues to Be Fiber of Privilege Especially in Wearable Segments:** This calls for focused efforts to increase the cotton productivity, cotton quality and even branding of Indian cotton to fetch premium.
- **High Energy Cost Burdened With Cross Subsidy:** The electricity prices for industry, with cross subsidy burden of about 15 per cent to 20 per cent and other factors, compare unfavorably in India.
- On the export front, the relatively **higher tariff rates faced by Indian exporters** in most major markets vis a vis exports from competing exports from Bangladesh, Vietnam and similarly positioned countries **calls for further cost competitiveness**.
- The challenge in this direction is to **further simplify the ease of doing business** and to remove disadvantage on account of input factors including logistics.
- Further, the **recent WTO ruling against India** in a crucial trade dispute with the US, ordering all export promotion schemes to be stopped within the next four months has thrown a challenge to expeditiously come out with WTO consistent measures at the earliest.
- **Growth of Man Made Fiber (MMF) in India** is must to increase global share in T&C exports.

Looking Forward:

- An invigorated textile and clothing industry is best suited and can give Indian economy necessary impetus to shift to more value added industrial activities and achieve higher per capita income level.
- India needs to work with an **approach of holistic development** of the complete textile value chain acknowledging its integration with global value chain at each stage.
- Achieving 10-15 per cent share in world textile and clothing trade and thereby channelizing trickle down impact towards rural sector through cotton connection and shifting of disguised unemployed workforce in agriculture and allied sectors towards more productive usages in industrial activities, should be the utmost priority.

AGRO-BASED INDUSTRIES IN INDIA: AN OVERVIEW

India's 54.6 per cent population is still engaged in agriculture and allied activities. Low income from the primary farm produce and lack of investment in the processing and agri – value chain has caused rapid reduction in farm profits and the farm occupation has now come under severe pressure.

Agro-based Industry

- Agro-industry encompasses *not only the activities that utilize raw materials sourced from agriculture, but also those provide input for modern agronomic practices.*
- Based on the input-output linkages and the interdependence between agriculture and industry, agro-industries can be of two types- (a) **processing industries or agro-based industries** and (b) **input supply industries or agro-industries.**

Why Promote Agro-Based Industries?

- India has the world's 10th largest arable land, 20 agro-climatic regions and 15 major climates. The **harvest & post-harvest losses** for agriculture commodities are very high.
- The total estimated economic value of quantitative loss was found to be Rs. 92651 crore at average annual prices of 2014.
- There is opportunity of an overall growth of agricultural economy as only 2 to 3 percent of agri-commodities are processed.

Government Initiatives**(a) Food Processing & Beverages :**

- The **Ministry of Food Processing Industries** implements various Central Sector Scheme to boost food-processing industries. It has recently re-structured its schemes under the new Central Sector Scheme – **Pradhan Mantri Kisan Sampada Yojna (PMKSY).**
- The scheme components include setting up of (a) Mega Park (b) Integrated Cold Chain and Value Addition Infrastructure (c) Food Safety and Quality Assurance Infrastructure (d) Human Resources Development and Institution.

(b) Textiles Industries:

The Government has rolled out a number of initiatives. These include:

- Scheme for Integrated Textiles Park, Integrated Processing Development Scheme, Group Workshed Scheme, Common Facility Centre and Amended Technology Up-gradation Fund Scheme, Scheme for the Development of the power loom Sector (Power Tex),
- SAMARTH – The Scheme for Capacity Building in Textiles Sector (SCBTS), Comprehensive Handloom Cluster Development Scheme (CHCDS, Rebate of State and Centre Taxes and Levies (ROSCTL) etc.

(c) Jute Industry:

- The Govt. has attempting to modernize the jute mills by increasing their productivity and bringing in modern technology and equipment.
- **National Jute Board's** Schematic interventions, providing capital subsidy to jute mills to address their issues and challenges at hand.

(d) Khadi & Village Industry:

- Ministry of MSME's **Khadi and Village Industries Commission (KVIC)** promotes setting up of various post-harvest agro and food based micro industries like processing of pulse, cereals etc.
- Through **Prime Minister's Employment Generation Programme (PMEGP)**, KVIC tries to generate self-employment opportunities.

Conclusion

- The inherent advantages of agri-industries are optimal utilization of local agri-resources, mobilization of investment on a large scale, creation of job opportunity, prevention of distress rural-urban migration and reduction of disparity across sectors and regions.
- Agri-based industries confirm to the notion of competitive advantage both within and outside the country. They can play a role of a safety valve to absorb surplus rural labour and can address the problem of large scale unemployment/disguised employment in rural areas.
- The **challenge here is** how effectively the government implements its schemes and policy interventions so as to ensure an all – round industrial growth in rural areas without undermining the identity of village, its socio – economic structure, agri-production systems and the basic agri-manufacturing characteristics.

AGRO-BASED INDUSTRIES: UNFAIR TRADE PRACTICES AND REMEDIES

Agro based industries are a perfect example of mutually beneficial dependence between the primary and secondary sectors of an economy. It is well established that in India agro-based industries address important issues of poverty and unemployment by utilizing local resources.

Profile of Agro-based Industries

- Ministry of Statistics and Programme implementation's **Annual Survey of Industries (ASI)** indicates **that 43.6% of factories are agro-based industries**. Almost a similar proportion (42.7%) of persons engaged in accounted for by agro-based industries.
- Data collected from Directorate General of Commercial Intelligence & statistics (DGCI&S) points to the fact that micro, small and medium-scale agro-based industries have been contributing to about one-fifth of India's total exports, with exports remaining in the range of US\$ 56,000 to 59,000 million in the past four years.

Unfair Trade Practices

- Agro-based industries lose their competitive edge due to unfair trade practices adopted by exporters of other countries. Such practices manifest in the following two forms:
 - **Dumping**- exporters from other countries often dump their products in Indian markets at rates cheaper than those at which they sell their products in their domestic markets.
 - **Subsidies**- Governments of those countries are observed to be providing subsidies to their exporters.
- In both the cases, the competitive scenario is distorted and the domestic industry is at loss.
- Another related issue is that sometimes the **cheap imports are found to be of low quality, thereby adding to environmental problems and hygiene related issues.**

Trade Remedies

- **India's Customs Tariff Act, 1975** and related **Anti-Dumping Rules and CVD Rules, 1995** provide the legal backing to protect the domestic manufacturer against unfair trade practices. The **Directorate General of trade Remedies (DGTR)** under Department of commerce is a **quasi-judicial body**.

- On the recommendation of DGTR, the enhanced duties are put into place by Department of Revenue.
- Another trade remedial measure distinct from an ADD or a CVD, is a **safeguard measure** which may be resorted to by a government when there is a surge in imports of any commodity due to which serious injury is caused to the domestic industry. In such a case, the affected country can impose a safeguard duty

Conclusion:

- Given that most agro-based industries are in micro, small or medium enterprises and may not have the wherewithal to stand competition from cheaper or subsidised imports, the role of the Government becomes all the more important.
- To assist the domestic industry, DGTR has recently set-up a **Help-Desk & Facilitation centre** on 23rd September 2019.
- Awareness generation amongst agro-based industries becomes a key ingredient in successful utilization of available trade remedies and to protect them from unfair trade practices of exports of other countries.

PERSPECTIVES OF DAIRY INDUSTRIES IN INDIA**Importance of Dairy Industry:**

- Indian dairy sector, that includes milk production, collection, processing, distribution and marketing, plays a seminal role in rural economy, second only to agriculture.
- Over 71 million of 147 million households in the country depend on dairy for their livelihood.
- Livestock sector contributes nearly 26 per cent to rural income in case of poorest households and about 12 per cent in case of overall rural income.
- Dairying provides a remunerative outlet for family labours. Other than income generation and livelihood security, dairying also ensures nutritional security for the family.
- Dairy sector is uniquely characterised more by 'production by masses' rather than 'mass productivity'.

The Scenario:

- Milk production in India stands at **176.3 million tons in 2017-18**, but due to various socio economic factors, there exists **wide inter-state variability in milk production**.
- While the **per capita availability of milk is 375grams per day** at all-India level, it varies between 71 grams per day in Assam to 1120 grams per day in Punjab.
- India is world's **largest producer and consumer of milk** accounting for nearly 19 per cent of the world milk production.
- Indian dairy sector is **struggling with low productivity** of animals which is estimated as 1806 kg per year, as against the world average of 2310 kg.
- But, diverse population of cattle and buffaloes offers great prospects for increasing the milk production. India is blessed with a huge biodiversity of 43 indigenous cattle breeds and 13 buffalo breeds.

Steps Taken:

- Intervention of **dairy co-operatives** has increased farmers' income, created employment opportunities, eased availability of credit to poor farmers, led to empowerment of women, enhanced nutritional security, and also increased flow of new technology.

- Women members of the dairy co-operative are also being encouraged to assume leadership roles.
- Despite immense utility and impact, dairy co-operatives are facing several constraints and **challenges mainly due to state co-operative laws**. Hence, Government of India launched a **central sector scheme** in 2016-17 to support **state co-operative dairy federations** in providing a stable market access to farmers.
- A **corpus fund of Rs 300 crore** has been kept in perpetuity with **National Dairy Development Board (NDDB)** to provide soft loan as working capital to dairy federations.
- Moving further, formation of **Farmer Producer Companies** in dairy sector has mobilized farmers to enhance their capacity as producers and marketing professionals.

Organic Diaries: opportunities galore with challenges

- Organic milk is free from pesticides, herbicides, antibiotics and growth hormones that are generally present in conventional milk although in residual quantities.
 - Currently, being at nascent stage, organic dairies account for **only one per cent market share**.
 - Producing organic farm-fresh milk is an **expensive proposition**. Milking animals must be reared using the practice of organic farming and milk must be certified in order to be marked as organic.
 - Milking animals may be allowed to graze only on pasture, to be fed organic certified feeds and may not be treated with chemical drugs. Use of growth hormone is also prohibited; similarly, animals cannot be given antibiotics for treatment. These requirements makes milk more costly.
 - Another challenge is to **maintain and preserve quality of milk** during entire supply chain. As a rule, preservatives are not added in the organic milk, so milk gets spoiled within 8 hours, so, a quick and reliable distribution system should be in place.
 - Despite all these odds and challenges, organic dairies have emerged as a new and potential arm of the conventional dairy sector of India.
- In order to boost **dairy processing and infrastructure**, a special fund (**Dairy processing and Infrastructure Development Fund, DIDF**) was created for the period from 2017-18 to 2028-29. The project is being implemented by **National Dairy development Board** and **National Dairy Development Corporation**.
 - This fund is helping build an efficient milk procurement system by setting up chilling infrastructure, modernization of processing infrastructure, and adding manufacturing facilities for value added products for the milk unions and milk producer companies.
 - Beside this fund, additional cold chains and processing infrastructure is being created under **Kisan SAMPADA Yojana** run by **Ministry of Food Processing Industries**.

Key challenges faced by Dairy sectors in India

- Low productivity of Indian bovines,
- Imbalanced feeding to animals,
- Limited access of milk producers to organised sector,
- Age old infrastructure operating on absolute technology,
- Lack of organised credit system
- Lack of manufacturing facilities for value added products,
- Lack of efficient chilling infrastructure at village level,

- Lack of penetration in smaller cities/towns in terms of milk marketing and
- Lack of efficient cold chain distribution network.

Plans for prosperity:

- The Union Government prepared and implemented a holistic “**National Action Plan for Dairy Development for 2022**” in 2018.
- National Action Plan envisions to **increase milk production** to 254.55 million metric ton by 2021-22 and 300 MMT by 2023-24.
- Recently, Prime Minister has launched ‘**National Artificial Insemination Program**’ to cover entire country with quality Artificial Insemination (AI) services. Various breed development interventions are being implemented under Union Government Schemes, such as **National Dairy Plan (phase 1) and Rashtriya Gokul Mission**.
- Further, a **National Bovine Genomics Centre for Indigenous breeds** (NBGC-IB) is being set-up to pave way for systematic and fast paced improvement of the precious indigenous animal resources using highly precise gene technology.
- Union Government also implemented a comprehensive National Dairy Plan (phase-I) during 2011-12 to 2018-19. Currently, NADB has initiated talk with the World Bank and concerned government department to launch second phase of the Plan.
- The **second Phase will primarily focus** on developing milk processing infrastructure and establishment of milk quality testing equipment at critical points of procurement areas.
- Government of India launched an ambitious ‘**Dairy Entrepreneurship Development Scheme**’ with the objective to promote entrepreneurship by generating opportunities for self-employment in dairy sector. NABARD is the nodal agency.

Way Forward:

- At present, India’s share in global dairy trade is just one per-cent, which needs to be enhanced by technology infusion and quality management.
- We need exclusive and dedicated efforts to transform Indian dairying into a globally competitive enterprise with welfare of farmers at the core.

JUTE INDUSTRY: SCENARIO AND OPPORTUNITIES

- Jute industry is one of the oldest textile industries involving directly or indirectly a large number of people. Among several natural fibers, Jute is **next to cotton** as per availability is concerned.
- However, today, sustainability of this industry is being questioned.

History:

- It is second to flax **origins in Mediterranean region** and later came to India. It has been popular for more than a century for its industrial applications mainly as packaging material in different sectors, agricultural and geotextile application and carpet backing.
- In 1854, the **first jute mill/factory** in India was established at Rishira, 20 km north of Calcutta.
- After independence, India suffered a setback as most of the **jute-cultivated lands remained in Bangladesh** and the **jute industries were left in India**.

- With the intervention of S&T, today India is self-sufficient to produce the jute required for jute industries in our country. However, the **quality of Bangladeshi jute is much superior** to jute grown in India which is due to availability of more quantity of free flowing water.

Jute Cultivating regions in India

- It is confined to West Bengal, Eastern Bihar, Assam, Orissa, Tripura and Andhra Pradesh. Out of these states, WB, Bihar and Assam contribute about 80% of the total production.

Problems Associated in Jute Industries

- At present, there are only 60 jute producing mills in India. Most of these mills are along the Hooghly River, especially to the north of Kolkata.
- Most of these industries are still **producing the age old products** like jute sacking and hessian as packaging material and some extent carpet backing. There is **need to diversify product development processes** for commercial purposes.
- Due to use of very old primitive machinery, **the efficiency of the machines** is not up to the mark.
- Due to frequent breakdowns, **defective and inferior quality products** are being made.
- **Input cost is** increasing day by day which is affecting its competitiveness.
- There is a **stiff competition with the synthetic industry** for similar packaging material.
- Jute industry suffers lot from different political interference, labour problem, and shortage of jute fibre supply due to low rainfall.

Govt. Initiatives:

- Govt. had enacted the **JPM (Jute Packaging Mandatory) Act, 1987** with an objective to protect the Jute industry. As per this act, the **food grains and sugar produced** is reserved and mandatorily packed in Jute bags manufactured every year.

Conclusion:

- Application of jute area must be increased. Also India needs to work on quality by adopting new technologies.
- R&D, implementing newer technologies, diversified products and improved machinery through intensive modernization will fetch more profit.

BAMBOO INDUSTRY: CRAFTING THE LIVELIHOOD OF RURAL PEOPLE

Around 80% of bamboo forests lie in Asia with India, China and Myanmar having 19.8 million hectares of bamboo.

Bamboo Production in India:

- India has one of the richest bamboo resources in the world, **second only to China** in bamboo production.
- The annual bamboo production in the country is estimated at 3.23 million tonnes. However, the **country's share in the global bamboo trade and commerce** is only 4%.
- 2015-16 and 2016-17 data shows that India is a **net importer of bamboo** despite having growing stock both within and outside forests.
- **Mizoram has the largest bamboo cover** in India as compared to the geographical area covered by other states. More than half of Mizoram's land has bamboo forests.

Importance:

- Bamboo is an integral part of our life and culture, as it is used in religious ceremonies, art and music.
- For tribal and forest dwellers “**bamboo for living and living with bamboo**” is still norm. This offers an excellent starting point in increasing employment, income generation and improving nutritional status of rural poor.
- Bamboo can provide the basis for an expanding small and medium enterprise sector and hence can act as a **tool for poverty alleviation** in rural areas.
- Unlike hardwood trees, bamboo can be harvested without adverse effect on the environment. Bamboo can tolerate both heavy and low rainfall.
- Bamboo releases **35% more oxygen than other plants and absorbs 20% CO₂** from the environment. Scientific plantation of bamboo could dramatically improve air quality with the release of more oxygen and sequestering more CO₂.
- Bamboo gained importance as a raw material not only for cottage industry but also for large scale industry.
- Bamboo has great potential as **construction and structural material. Pulp and paper industry and bamboo craft sector** are the two major users of bamboo resources.
- With its **unique ability to stitch and repair damaged soils**, bamboo is ideal for rehabilitating degraded soil.

Steps Taken by Government:

- **National Bamboo Mission (NBM)** was commenced in 2006 to provide a new impetus and direction to enable the realization of bamboo’s considerable potential. A **restructured NBM has been approved in 2018** for the development of complete value chain of bamboo sector to link growers with consumers and to support the development of entire value chain.
- The Indian Forest Act, 1927 **defined Bamboo as tree** – a contradiction in the law that has deterred the growth of bamboo plantations particularly in non-forest areas. To facilitate the benefit flow to farmers, **bamboo stock outside forest areas has been excluded from the definition of tree** by amending Section 2(7) of the act in November 2017.
- A scheme called **SFURTI (Scheme of Fund for Regeneration of Traditional Industries)** is being implemented by Ministry of MSME in order to boost traditional industries and bamboo artisans.
- Japanese Govt. is planning to extend help to Mizoram in the development of its bamboo industry and road construction projects.
- TRIFED, an apex body, under Ministry of Tribal affairs would open **establishments to train tribal people** in using bamboo optimally with zero waste and make agarbatti, matchbox and even textiles.

Way Forward:

- To arrest the pace of land degradation in the country, a national programme of intensive bamboo plantation involving all stakeholders need to be undertaken beyond 2019-20.
- Following the footsteps of China, Indian govt. needs to support rural farmers to establish bamboo plantations in barren lands and slopes.
- The national housing scheme should utilize bamboo as construction material.
- It is observed that illegal bamboo export to Bangladesh and Myanmar accounts for 13% of usage. There is an urgent need to stop this illegal trading of bamboo.

Importance of Agro based Industries in Indian Context

- They are comparatively easy to establish and provide income to income in rural areas
- Facilitate an effective and efficient utilization of raw materials
- Help in the transmission of industrial culture in rural areas bringing outlook change of farmers
- The food processing industries have tremendous export potential, and they set up on cooperative basis ensuring participation of the people in the development process.

Potential of Agro Based Industries in India

By 2020, processed food products and beverages are expected to account for about 15% share in the food basket. Following points presents the opportunities of growth for this sector:

- **Input Side** – Revitalized Agricultural growth, Surplus Production, Increased commercialization and diversification of agricultural production, Labour availability
- **Demand Side** – Increase in urbanization, fast growing middle class, increasing entry of women in work force, nuclearization of families, improvements in literacy and exposure to western foods
- **Policy Side** – Improved Ease of Doing Business together with improvements in logistics, communication, technological innovations, adequate legal & regulatory arrangements for this sector

Challenges to Set Up Agro-Based Industry

- The Ease of doing business still needs to improve. Land, labour and capital are the basic requirements for setting up an enterprise. But India ranks at the bottom in all these three parameters.
- Capital is costliest in India with rate of interest as high as 12%.
- Many labour laws in India have remained highly restrictive and inflexible. World over including Bangladesh follows a 'hire and fire' policy but India does not allow it. As a result, many textile industries are shifting to Vietnam and Bangladesh and not to India.

Straw For Income

Reasons for burning of Straw:

- Introduction of combined harvester for paddy harvesting left stubbles on field. Rice harvested by machines gets Rs. 400 to Rs 800 less in the market compared to rice harvested manually.
- Narrow window between harvesting of paddy and sowing of next crop. Cutting paddy straw delays the process of wheat plantation.

Strategies:

- Farming Mushrooms using straw
- Using straw for making compost
- Wheat straw has demand from brick kilns where it is used as a fuel
- People also use straw as fodder because it is more nutritious than paddy.
- Other use of straw include the fuel pallets for thermal power plants and other biomass processing, cardboard making etc.