

1. With the help of suitable examples, illustrate the economic linkage effects of food processing industry.

Approach:

It expects students to write - in first part write about various economic linkages in food processing industry with examples - in second part write about its effects of economic linkages on economy.

Introduction:

The Food Processing Industry is of enormous significance for India's development because of the vital linkages and synergies that it promotes between the two pillars of the economy, namely Industry and Agriculture.

Body:

Economic Linkage of Food Processing Industry:

- Linkages is a phenomenon which measures the capability of an industry to generate demand for the products of the other industries.
- From the point of view of development strategy, linkages are one of the essential feature of an industry. Linkages are of three types: Forward, Backward and sideways.
- Forward Linkage:
 - It is when, the establishment of a processing industry can lead to the development and establishment of the number of advanced stage industries.
 - Example, Forest Industry, when established as a base industry, results in establishment of vast number of advanced processing industries like: manufacturing of paper, paper bags, stationary, boxes made of paper, cartons, wooden boxes etc.
 - There are many other examples: products such as vegetable oils and rubber are used in a wide variety of manufacturing industries; based on the preparation of hides and skins, tanning operations can be started, as can the manufacture of footwear and other leather goods.
- Backward Linkage:
 - The feedback effects generated by a base industry on the development of the base sector is called backward linkage. The development of the food processing industry has many feedback effects on the agriculture sector itself.
 - For Example, once a food processing industry is established, it results in increasing the demand of raw materials provided by the agriculture sector. The establishment of processing facilities is itself an essential first step towards stimulating both consumer demand for the processed product and an adequate supply of the raw material.
 - The provision of transport, power and other infra-structural facilities required for agro-industries also benefits agricultural production. The development of these and other industries provides a more favourable

atmosphere for technical progress and the acceptance of new ideas in farming itself.

- Sideways Linkage:
 - Sideways linkages are mostly derived from the use of by products and waste products of the main base industrial activity.
 - For example: many food processing industries using agriculture raw materials produce waste that can be used further in production of fuel, bio-fuels, paper pulp and fertilizer. The production of sugar results in production of molasses as a waste product, which is used by the Alcohol Brewing industry in the production of ethanol.
 - The capacity of Food Processing industry to generate demand and employment in other industries is the important aspect of the processing industry. It works because of processing industry growing potential for activating backward, forward and sideways linkages.

Effective and seamless backward, forward and Sideways linkages in food processing industry plug gaps in supply chain in terms of availability of raw material and linkages with the market. With multiplier effects economy is likely to benefit in following ways:

- Drives rural economy by increasing consumption due to increased income, essential for sustaining economic growth.
- Decrease in post-harvest wastage losses due to better technologies and improved logistics.
- Farmers are benefited by better farm gate prices and lower risks due to contract farming.
- Increase in employment generation in rural areas.
- Promotes investment in rural infrastructure-power, transport.
- Food processing can provide boost to exports by
 - Increasing value addition.
 - Hygiene and best practices.
 - Better compliance to food quality standards and thus expand market base.
- Stabilize food prices in the economy (food inflation). Consumers will be benefited with access to larger variety of products at reasonable prices.
- Helps in diversification of crops in agriculture and gives boost to allied enterprises poultry, dairying, fishing and horticulture. This will also help meet nutritional requirement in rural areas.

Conclusion:

Rising per-capita income, changing life styles and food preferences provide significant opportunities for the growth of FPI. Realising its potential and likely benefits government has come out with SAMPADA yojana.

2. Explain the integrated planning approach for supply chain management in agriculture. Why is it important in the Indian context? Discuss.

Approach:

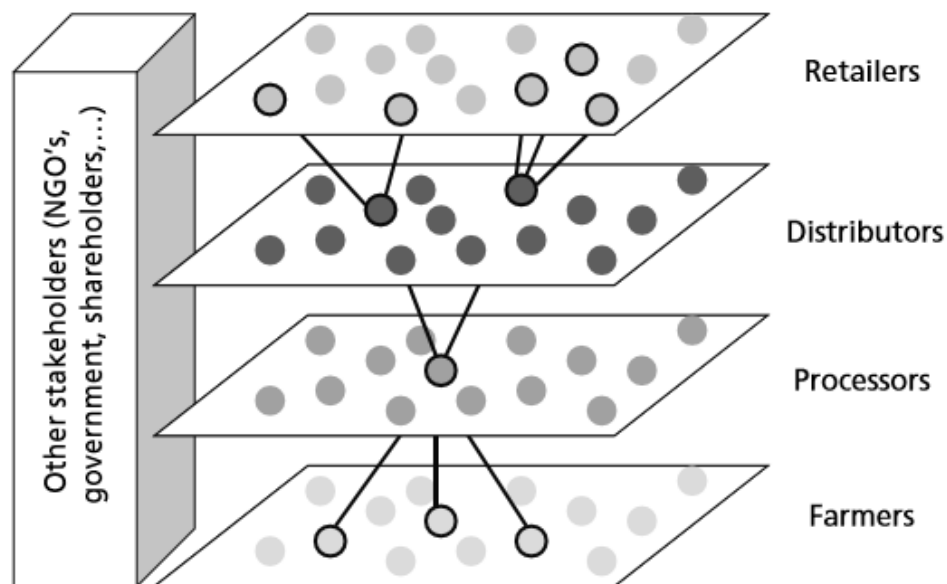
It is straightforward question, where it expects students - in first part write about Integrated planning approach for supply chain management in agriculture - in second part why it is important in Indian context.

Introduction:

Supply Chain is a sequence of flows that aim to meet final customer requirements, that take place within and between different stages along a continuum, from production to final consumption. The Supply Chain not only includes the producer and its suppliers, but also, depending on the logistic flows, transporters, warehouses, retailers, and consumers themselves. In a broader sense, supply chains also includes, new product development, marketing, operations, distribution, finance and customer service.

Body:

Integrated planning approach for supply chain management in agriculture.

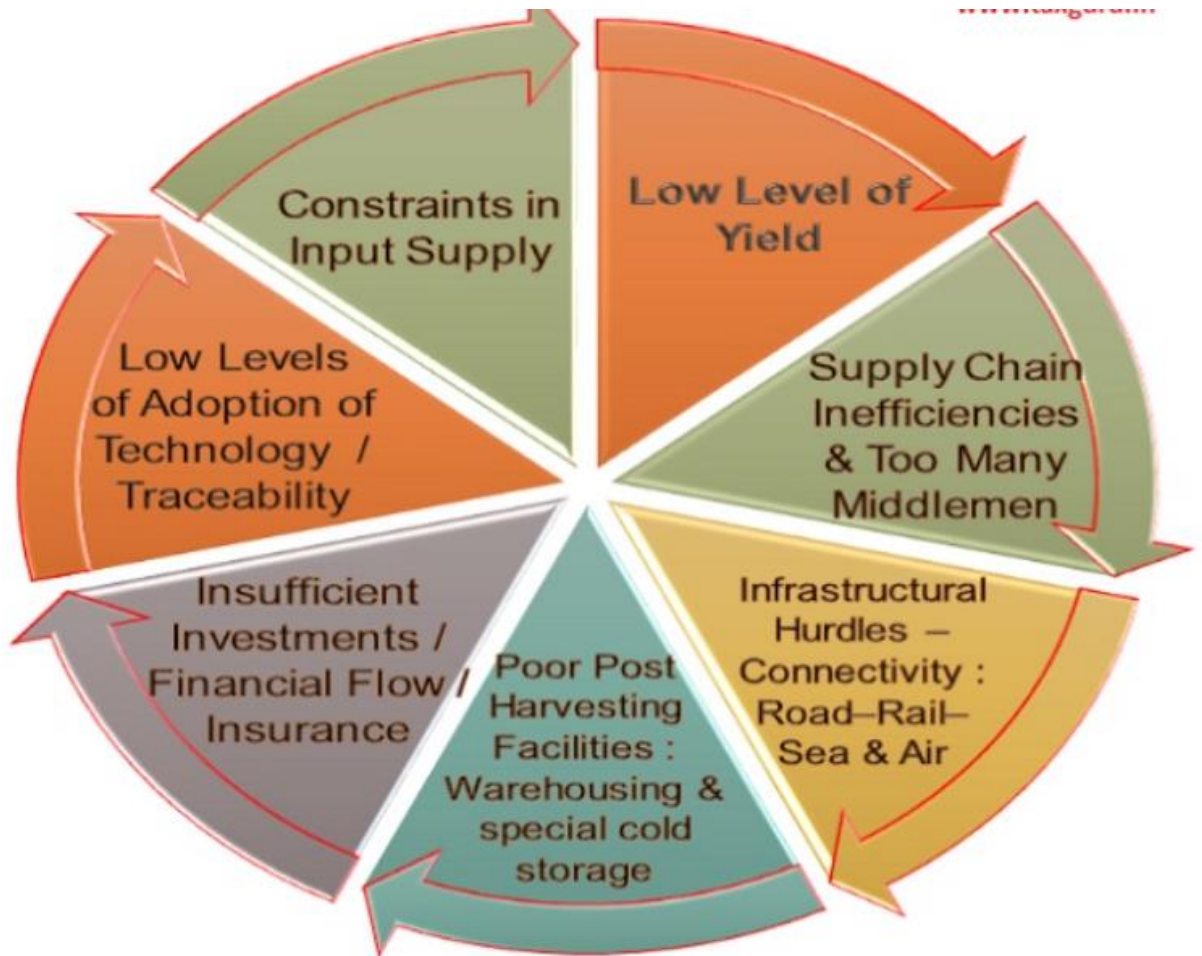


- Supply chains are principally concerned with the flow of products and information between supply chain member organizations—procurement of materials, transformation of materials into finished products, and distribution of those products to end customers.
- Today’s information-driven, integrated supply chains are enabling organizations to reduce inventory and costs, add product value, extend resources, accelerate time to market, and retain customers.

- The real measure of supply chain success is how well activities coordinate across the supply chain to create value for consumers, while increasing the profitability of every link in the supply chain. In other words, supply chain management is the integrated process of producing value for the end user or ultimate consumer.
- The agrisupply chain system of the country is determined by different sartorial issues like dominance of small/ marginal farmers, fragmented supply chains, absence of scale economies, low level of processing/value addition, inadequacy of marketing infrastructure etc.
- Early processing-based supply chain management success included improved relationships between warehousing and transportation within companies as a result of reduced inventory and better response time to customer requests for products and services.
- Supply chain management then entered a logistics stage where other functional areas within companies joined forces to incorporate manufacturing, procurement, transportation, distribution, and marketing to effectively compete in the marketplace.
- This stage was aided by the use of telecommunications, electronic data interface, and other technological advances that made the transfer of information more transparent across the functional areas between companies.

Importance of Integrated Agri-supply chain management in Indian context:

- In a land where roughly 70% of the population resides in rural areas and half of the nation's population farms for a living, the importance of India's agricultural sector cannot be overstated. Despite these massive numbers, the country's agricultural output has been unable to keep pace with growing demands and global competition.
- According to the World Bank, "India's rice yields are one-third of China's and about half of those in Vietnam and Indonesia. With the exception of sugarcane, potato and tea, the same is true for most other agricultural commodities.
- There are multiple reasons for this productivity gap, but one significant one is glaring inefficiencies in India's agricultural supply chains. Logistics play a critical role in any economic sector, but when goods are perishable the supply chain becomes that much more important.
- Another factor is the overall lack of consolidation that has occurred in the agricultural sector, with the majority of production still operating at the single farmer level.



- Agriculture supply chain management in India is weak, leading to limited reach of farmers to reach mandis.
- Transmission of Price Signals are weak leading to over and under production by farmers.
- Too many middle man in the supply chain, leading to artificial price rise and huge differences between the price farmer gets and final consumer pay.
- Presence of Asymmetric Information (usually the middle man has more information than both farmers and consumers regarding prices, supplies and stocks available).
- Lack of Infrastructure and storage facilities like ware houses and cold chains, leading to post harvest loses.
- Skewed distribution of storage capacity between states.
- Underdeveloped ICT infrastructure and e-supply chains to transmit right price signals.
- Unavailability of Insurance Products to protect goods while on move.

Conclusion:

As the Supply Chain involves a number of players, the extent of integration of services depends on the degree of trust and information sharing amongst the players. It is often observed that the big players in their efforts to make vertical/horizontal

integration of different activities end up gobbling up the weak ones. So, current requirement is strengthening of the system and process, so that requisite synergies evolve to give benefits to all the partners.



3. What role do technical and exports considerations play in deciding the location of food processing industries? Discuss with the help of suitable examples.

Approach:

As the directive here is discuss, it is necessary to put forth comprehensive arguments in it. One can start in introduction by explaining food processing industry (FPI) and what factors play a prominent role in deciding the location of FPI. In the main body part one needs to explain the role of technical and export considerations in deciding location of FPI. To fetch more marks it is necessary to give examples. One can conclude by showing how these factors have played a prominent role in giving impetus for the FPI in India or one can also show how the government schemes are a step in the right direction to supplement these considerations while deciding the location of FPI.

Introduction:

Food processing is the transformation of raw ingredients into food, or of food into other forms. Food processing industry in India is a sunrise sector that has gained prominence in the recent years. The FPI is always of enormous significance as it provides vital linkages and synergies almost all the sectors of the economy.

Body:

From the perspective of deciding the location of food processing industry varied factors play role. For instance, availability of raw material, cheap and surplus labour, connectivity, availability of transport, export potential of location and technological advancement etc.

Role of technical considerations to decide location of food processing industry:

- Where there is a high degree of technical freedom in the choice of location, industries have frequently tended to be located in proximity to the markets because of the more efficient labour supply, better infrastructure and lower distribution costs in the large market centres.
- For instance, the Maramara region has FPI based on these factors. As the availability of efficient labour is easy, and due to its prime location, it has better connectivity hence, lower distribution cost.
- The availability of necessary infrastructure for processing, preservation and transport of the raw or processed food is also one of the considerations. As food is a perishable product, it requires the necessary equipments to preserve it for a certain period of time. For instance, the food processing industry and related technical infrastructure developed in the region of Kokan region of Maharashtra is one such example.
- Technical consideration about the expertise play a prominent role. For instance, the necessary technical expertise available in the region of Darjiling and nearby area contributes for the better quality and variety of tea types to be developed in the region.
- The raw material requires preservation for some time, either it through big ware houses or through cold storage chains. These factors also play a role in defining the location of industry. For instance, cold storage chain present in

the Nashik and Sangli districts of Maharashtra give impetus to industry of liquor and raisin in those regions.

- With production for export, technical freedom factor has often tended to favour the location of processing in the importing country. This tendency has been reinforced by other factors, including the need for additional raw materials and auxiliary materials (particularly chemicals) that may not be readily available in the raw material-producing country; the greater flexibility in deciding the type of processing according to the end use for which the product is required; and the greater regularity of supply and continuity of operations that are possible when raw materials are drawn from several different parts of the world.

Export considerations to decide location of food processing industry:

- Export considerations depend mostly on the demand in the region, connectivity to the region and availability of preservation facility in the region. For instance, Mango Pulp has high demand in the regions of Saudi Arabia, Kuwait, UAE, and Hong Kong. Depending on it the FPI of mango products are located across the Western and eastern coast of India for better connectivity, cheap transport, high demand.
- With improved infrastructure, enhanced labour efficiency and growing domestic markets in the developing countries, there is increased potential for expanding such processing in the countries where the raw materials are produced.
- In addition, with growing liberalization of world trade, more developing countries will be able to take advantage of lower labour costs to expand their exports of agro-industrial products. For instance, Fruit juice products have more demand in the urban regions, accordingly the fruit juice industries are located mostly on the outskirts of urban areas so that there is easy reach to market is available.
- When it comes to export, middlemen play a prominent role. However if they create Nuisance then it becomes highly difficult to utilise the full export potential. For instance, Lack of timely financing from banks / financial institutions, the fruit-farmer goes to middlemen, who advance money to the take the farm on lease. Then middlemen manipulates selling prices, to enhance their margins. For instance, Indian Mangoes have wide price fluctuations in Middle-east. Hence, lack of pro export policies also affect the location of FPI.
- When it comes to export overseas then regulatory issues also comes in to picture. Which affect the location of industry. For instance, business firm may choose to set up Food processing plant in such a country where export regulations are favourable to them.
- Geographical location plays a pivotal role in deciding the export potential and location of industry. For instance, India is geographically close to key export destinations like Middle East, South East Asia who are the major importers of processed food.

India is the world's second largest producer of fruits & vegetables after China but hardly 2% of the produce is processed. In spite of a large production base, the level of processing is low (less than 10%). Approximately 2% of fruits and vegetables, 8% marine, 35% milk, 6% poultry are processed. Lack of adequate processable varieties continues to pose a significant challenge to this sector. The technical and export consideration have a large impact on deciding the location of Food Processing Industry. Considering these things in mind Government of India took some initiatives which supplement the growth of food processing industry in India.

- The Ministry of Food Processing Industries (MoFPI) is implementing PMKSY (Pradhan Mantri Kisan SAMPADA Yojana) with the objective to supplement agriculture, modernize processing and decrease agri-waste.
- Under PMKSY the following schemes are to be implemented, Mega Food Parks, Integrated Cold Chain, Value Addition and Preservation Infrastructure, Infrastructure for Agro Processing Clusters, Food Safety & Quality Assurance Infrastructure. For instance, Godavari Food Park, Satara Food Park.
- To encourage creation of facilities of setting up cold storage and temperature controlled perishable cargo centres through Public Private Partnership (PPP) Kisan Vision Project is implemented.
- Special horticulture trains are started to eliminate the locational disadvantage of food processing industry. For instance, "Banana Train" which connects Maharashtra to Delhi launched in Sept.2012.
- Agricultural and Processed Food Products Export Development Authority (APEDA) an apex organization under the Ministry of Commerce and Industry focuses on 'export' of scheduled products.

Conclusion:

Technical and export considerations are critical to decide the location of Food processing industry. They not only play a prominent role by deciding the location but also give an impetus for growth of such industries. With respect to India, Food processing industry is expected to reach \$300billion by 2020. Hence, to utilise the advantage of technical and export considerations Government schemes like PM SAMPADA yojana, mega food parks, cold storage schemes etc., and national mission on food processing are steps in right direction.

4. The agricultural sector has become much more important for harmonious development and stability of the economy. Elucidate.

Approach - It expects students to write about the significance of agriculture sector in India and highlight on agriculture sectors role in harmonious development of people and stability of Indian economy.

Introduction

The history of agriculture in India dates back to Indus Valley civilization era where in the present times, the agriculture sector is one of the most important industries in the Indian economy with approximately 60 percent of the Indian population working in the industry, contributing about 18 percent to India's GDP.

Body

Significance of Indian agriculture in economy -

1. **Agriculture for Industrial Development:** Agriculture in India has been the major source of supply of raw materials to various important industries of our country. Cotton and jute textiles, sugar, vanaspati, edible oil plantation industries and agro-based cottage industries.
2. **Source of Government Revenue:** Agriculture is one of the major sources of revenue to both the Central and State Governments of the country. Some other sectors like railway, roadways are also deriving a good part of their income from the movement of agricultural goods.
3. **Rural economy:** The majority of India's poor are found in rural areas. And rural economy in many states are immensely dependent on agriculture.
4. **Employment Generation:** Most people in India derive their livelihood from agriculture. Agriculture is still the most dominant sector in as much a high proportion of working population continues to depend on agriculture. Over 70 per cent of the rural households depend on agriculture.
5. **Diversified Agriculture sector:** Tremendous diversification has taken place in agriculture post-independence. At the time of independence, agriculture was dominated by the crop sector but in the following decades, especially after the 1980s, the share of livestock rose sharply.
6. **Globalization of Indian Agriculture:** Both agricultural exports and imports have registered significant and steady growth in terms of value over this period. The most notable feature of Indian agriculture since the early 1990s is the rising share of agro-trade to agricultural GDP. It is indicative of accelerated globalization of the agricultural sector in India.

Consequently, following points demonstrate important issues in agriculture sector for India's overall harmonious development and stability of Indian economy -

- **Reducing rural poverty through a socially inclusive strategy:** Moreover, there are strong regional disparities, the majority of India's poor are in rain-fed areas or in the Eastern Indo-Gangetic plains. Problems of rural indebtedness and the exploitative practices of the village moneylenders need to be address for

overall harmonious development of poor, landless, women, scheduled castes and tribes.

- Recognize women in agriculture: There is invisibility of gender in Indian agriculture. According to Oxfam (2013), around 80 per cent of farm work is undertaken by women in India. Addressing issues of recognition, absence of land rights and issues of female agricultural labourers for overhauling development of women in agriculture is required.
- Tribal agriculture: Their families depend on small holding and cursed to spend entire life in misery. Measures needed against depleting forests and stringent forest laws. More diverse programmes under TRIFED can be beneficial for all round development.
- Sustaining the environment: More extreme events droughts, floods, erratic rains are expected and would have greatest impact in rain-fed areas. Agricultural practices need adapting to reduce soil erosion and increase the absorption of rainfall. Climate change must also be considered for sustainable agriculture practice which will prove sustainable economy.
- Raising agricultural productivity per unit of land: Productivity will need to be the main engine of agricultural growth as virtually all cultivable land is farmed. All measures for increasing yields, diversification to higher value crops, and developing value chains to reduce marketing costs.
- Promoting new technologies and reforming agricultural research and extension: Need to replace aging research technique and access to state-of-the-art technologies. Providing connection between research, extension and private sector needed for all round development.
- Developing Larger land holdings: Due to shrinking agricultural land holdings farmers have limited incentive to adopt capital-intensive farming techniques and exploiting economies of scale are minimal. Larger land would allow farmers to engage in multiple cropping and help diversify their income base thus it will benefit in remunerative farm income.
- Raising growth rate: From 2002-03 to 2015-16, based on NSSO and NABARD surveys, farmers' real incomes have increased only by 3.6 per cent per annum. Doubling farmers' real incomes by 2022-23 over a base of 2015-16 requires a growth rate of 10.4 per cent per annum.

Conclusion

To achieve targeted mark of doubling farmer's income by 2022, the government needs to provide support in case of land, bank loans and other machineries to the small farmers along with reforms to land distribution, water management and food distribution systems which will further enhance productivity and help India meet its growing demand for food and enhance sustainable development.

5. Examine the significance of land records management and its role in urban and rural planning.

Approach:

It expects students to write about the significance of land records management and present its role in urban and rural planning.

Introduction:

Post-independence, the responsibility for land administration was transferred to states. All the records were collected and maintained manually by the respective revenue department. Land administration essentially involves recording, processing and dissemination of information about the ownership, value, and use of land. The system of land records management varies across states, depending on factors such as historical evolution and local traditions.

Body:

Land as an asset is unique because it is immovable, its value depends on its location, and with growing population, its demand keeps increasing, while its supply is limited. Significance of land records management such as:

- High litigation: As per World Bank study from 2007 states that some estimates suggest that land-related disputes account for two-thirds of all pending court cases in the country. Proper land record management will reduce judiciary burden.
- Development of new infrastructure: Over the last few decades, the economy of the country has seen a shift from being agrarian based to becoming manufacturing and services based. Land record management will help shift in land use from agriculture to commercial, industrial, and residential, power plants, manufacturing units, build roads, housing, and shopping malls.
- Agricultural credit: Land is often used as collateral for obtaining loans by farmers. It has been observed that disputed or unclear land titles inhibit supply of capital and credit for agriculture. Small and marginal farmers, who account for more than half of the total land holdings, and may not hold formal land titles, with effective land record management they can get Institutional credit.
- Benami transactions: White Paper on Black Money (2012) had noted that black money generated in the country gets invested in benami properties. Unclear titles and non-updated land records enable carrying out property transactions in a non-transparent way. Benami transactions could be pre-empted and eliminated by digitisation of land records and their regular land record management.
- Land records for Gram panchayat: Land record also play an important role in the financial resilience of Gram Panchayats. Gram Panchayats that are able to generate their own revenues will be able to invest in the needs of their local communities.

- Housing shortage: The scarcity of affordable housing in urban areas drives the urban poor to live in slums or unauthorised colonies. These slum dwellers do not have access to a clear land title, or any ownership rights. Such slums may occupy prime land in urban areas.

Land record management have major role in Rural and Urban planning such as:

- Under new schemes: For urban development (Smart Cities Mission, AMRUT), cities are trying to raise their own revenue through property taxes and land-based financing. This further necessitates the importance of providing a system of clear land titles in urban areas. Which can be achieved through digitization of land records. For example, Digital India Land Records Modernization Programme (DILRMP).
- Spatial land records: Spatial land records contain details of a property sketched on a map. These include land boundaries, plot area, connectivity with roads, presence of water bodies, details of surrounding areas, land use (agricultural, residential, commercial, etc), and land topology. This can help in planning in both urban and rural area. For example, Svamitva (Survey of Villages and Mapping with Improvised Technology in Village Areas) Scheme
- Land bank system: Clarity and transparency allow land markets to function efficiently. Financial institutions such as banks benefit if property offered as collateral has no ambiguity in terms of ownership, use and encumbrances. This will be beneficial for REITs and InvITs.
- Land acquisition: In eminent domain-related land acquisition, updated and comprehensive land records can facilitate monetisation of various claims and benefits and facilitate smoother payment of compensation, will be beneficial of urban planning.
- Land pooling: Transparent land records management with a single window to handle land records will aid online approvals of plans and occupancy certificates, streamline land pooling which in return will benefit cities planning for example Amravati and NCT Delhi. Overall, it becomes easier for the developers and buyers to check on the authenticity of the land or the property.

Conclusion:

Population growth, technological and social hazards, and environmental degradation have all to be taken into greater account today by policy makers, resource planners, and administrators who make decisions about the land. They need more detailed land information than has been traditionally available.