

1. What are the upstream challenges faced by the cooperative model of food processing industries? Discuss. How can those be addressed? Suggest.

Approach

In introduction mention what is food processing sector and contextualise to cooperatives. In next part mention the need for cooperatives. Then address the main demand that is Upstream challenges and suggest measures to overcome these challenges. Write an optimistic conclusion.

Introduction:

Food Processing includes processes under which any raw product of agriculture, dairy, animal husbandry, meat, poultry or fishing is transformed through a process in such a way that its original physical properties undergo a change and the transformed product has commercial value and is suitable for human and animal consumption. In India food processing is done through private, cooperatives and public private partnerships.

Body

The food processing industry accounts for one third of the total food market in India. According to a report by Agricultural and Processed Food Products Exports Development Authority (APEDA) food processing industry accounts for 32% of India's food market.

Advantage offered by cooperatives sector in food processing

- Food processing has numerous advantages which are specific to Indian context which include distribution of wealth and sharing prosperity between the producers and reducing the role of middleman.
- It has capacity to lift millions out of poverty and malnutrition. Government should develop cooperative industry in a way keeping in mind the interests of small scale industry along with attracting big ticket domestic and foreign investments.
- The entire food value chain in India is controlled by multiple ministries, departments and laws. A comprehensive policy will ensure that various initiatives across the departments are aligned to the overall goal of ensuring availability, awareness, affordability, access, quality and safety of food. The new ministry of cooperation will be a good step in this direction for its focused attention.
- The target of ensuring food security for more than a billion people requires a concerted effort by all stakeholders including government and the food processing industry. In addition to private players and government, industry bodies and academia will also have a crucial role in the success of these initiatives.

However, it does face certain hindrances to its growth. They are as follows:

- **Low availability raw materials:** Certain crops are seasonal, thus cause delay in the process. Certain crops like oilseeds are mainly grown by small and medium farmers. These farmers need to have capital for fertilisers, equipment etc, to increase the quality of their produce. However this is difficult as they can't afford to do so. Certain crops are increasingly dependent on monsoons which are sometimes delayed resulting in poor or no yield.
- **Lack of Storage Infrastructure:** Many small scale food processing industries are suffering from shortage of food storage infrastructure that help in storage of raw materials. This results in increased food wastage and loss. The scarcity of space in these infrastructures account for large wastage of the agricultural produce
- **Lack of adequate connectivity:** Certain rural areas are not well connected. Thus the goods produced in these areas take a long time to reach the food processing units. Therefore increase in the connectivity by roads, railways, rivers, airways and shipping is of essence to increase the profit of the farmers and others who are involved in the process. The perishables must be sent to its destination in an efficient manner
- **Old processes:** The foods are usually inspected manually. This should cease in order to reduce human error and time wastage Technologies must be improved to stay in track with the increasing competition in the global market
- **Ignorance and human error:** Many food items are wasted in daily basis due to carelessness of those who handle them while shifting, packaging, storing transporting etc. this needs to be reduced through efficient and stringent measures
- **Covid 19 pandemic and its effects :** The disruption caused in supply of raw materials and limited availability of labour in food process industry has been a cause of concern. The issues of following covid protocols in manufacturing, vaccination of staff, quarantine has led to increase in costs for the sector.

Suggestions to further boost the sector:

India cannot afford any wastage of food, according to FAO; every third malnourished child is an Indian. Several measures have been taken by the Indian government like National Food Security Act, 2013 and India Food Banking network. However, with the rapid increase in the population, it is of essence for the Indian government to improve the measures for preventing wastage of food. The cooperatives sector can help to decrease this wastage.

- There is a need for an integrated approach with a focus on forging backward and forward linkages, which are crucial for scaling up the economic viability of the sector.
- The regulatory framework for contract and corporate farming needs to be developed in this regard. Model land leasing law developed by NITI Aayog is a

step in the right direction that needs to be implemented by states with suitable local adaptations and modifications.

- Promote the holistic development of the sector by increasing private sector participation with a well-developed framework for risk-sharing and fiscal incentives for creating infrastructure for logistics, storage, and processing. There is a need for modification in the Mega food park scheme for first-time entrepreneurs as the current cap of ten crores credit is not sufficient and has to be enhanced for the high-cost adoption of technology and enhancement of scale.
- The implementation architecture needs to be simplified for a complete overhaul of certifying and approval procedures. There is a crying need to get a single window scheme for the same.
- Ensure uniform implementation of the APMC act to increase private sector participation and also harmonisation of tax structure under GST to reduce vast fluctuations in price.
- There is also an urgent need to improve research and development (R&D) standards. This will meet stringent global standards and increase the scope for exports. The globalisation has increased trade across the borders and about 460 million tons of food valued at US\$ 3 billion is traded annually. Hence, India has immense potential for global trade in agricultural and processed food products. The share of food processing exports in total exports was about 12% during the last few years. Between 2011 and 2015, India's exports of processed food products have been growing at a compounded annual growth rate (CAGR) of 23.3%. These figures reinforce the fact that India can capitalise on the export potential of the food processing sector in the forthcoming years.
- There is also a need to encourage academia and industry to commence courses in food packing, processing, biotechnology, information technology so that there would be a constant supply of skilled manpower and also help India achieve global excellence in the food processing sector.

Conclusion

India has a rich legacy of food cooperatives such as Amul, Nandini, Lijjat papad and Mother dairy. This history and learning needs to be applied to other sectors of food economy such as fisheries, Agroprocessing etc for a widespread development of these sectors on the economies of scale. The creation of new ministry of cooperation and incentives for FPOs and agricultural reforms will go a long way in revitalising this sector.

2. What is integrated farming system? Discuss its advantages in the context of India's agro-ecological diversity and farmers' economic profile.**Approach**

Define what is Integrated farming system in introduction. In next part address the main part of question on what are the advantages of IFS in Indian conditions. In conclusion contextualise the system with plans and goals of Indian government.

Introduction:

Integrated Farming System (IFS) also defined as biologically integrated farming system which integrates natural resources and regulation mechanisms into farming activities to achieve maximum replacement of off-farm inputs, secures sustainable production of high quality food and other products through ecologically preferred technologies, sustain farm income, eliminates or reduces sources of present environment pollutions generated by agriculture and sustains the multiple function of agriculture.

Body

Integrated farming is an alternative farming practice which was originally devised in China and now is being supported worldwide as an all-round development of agriculture along with animal husbandry and other such occupation which is related to core agricultural practices. Integrated farming has the capability to make the agriculture sector profitable which otherwise has been proved largely as a subsistence sector and a major reason behind leaving this age old occupation and migration to cities.

Advantages of Integrated Farming system in the context of India's agro-ecological diversity and farmers' economic profile

- **Productivity** : Integration of crop and allied enterprises helps to increase economic yield per unit area per unit time. Intensification of cropping and allied enterprises in space and time dimension found to increase the productivity.
- **Profitability** : Produce/waste material of new enterprise can be used for other enterprise at least for crop, thus reducing the cost of production and increasing profitability per rupee investment.
- **Sustainability**:- Huge quantity of inorganic fertilisers, pesticides, herbicides are required to meet the food requirement of increasing population @ 2.2 % every year. Abundant use of such material causes soil degradation and pollution. The productivity of soil gets drastically reduced in due course of time. IFS provides an opportunity to sustain production through organic supplementation and effective utilisation of byproduct of linked components.

- **Balanced food :** IFS link varied nature of enterprises to provide nutritious food viz., vitamins, proteins, carbohydrates, fat, minerals etc. from the same area. This solves the malnutrition problem of poor peoples.
- **Environmental Safety :** Abundant use of inorganic fertilisers, pesticides, herbicides make the soil, water and environment polluted. Similarly, residues of some crops, waste material also pollute the environment after decomposition. However in IFS waste material, byproducts of one composite are effectively recycled using for other component and by-product of that component as organic manure to enrich the soil. Use of bio agent or crop protection also minimises the pesticides.
- **Recycling of waste :** By-product of the crop husbandry can be effectively recycled for preparation of compost. Some of the by-product can be used as feed. This reduces the cost of production of one enterprise at the cost of other. Thus net income of farm is increased.
- **Saving energy :** Energy crises can be served to same extent by utilising organic waste to generate biogas which can be used for cooking, lighting etc.
- **Adoption of new technology :** Big farmers are fully aware with the new technologies because of using improved varieties, package of practices. But small and marginal farmers are not able to adopt for want of money. In IFS linking of cropping with dairy, mushroom, sericulture, floriculture there is a flow of money throughout the year.
- **Money round the year:-** In conventional farming income is expected once at the end of cropping season. However, IFS provides flow of money round the year by way of disposing eggs, milk, edible mushroom, honey, cocoons of silkworm etc.
- **Availability of fodder, fuel and timber :** IFS utilises every part of land. Growing of fodder trees on border will not only provide fodder but also enrich the soil by fixing atmospheric nitrogen. In multi-storeyed cropping includes of fodder component like cowpea as second or third tier also meet the fodder crises. The current production of fuel wood is about 20 million ton which needs to be increased to eighteen folds.
- **Employment round the year :** Crop-livestock integration increase labour requirement through the year, other activities like mushroom cultivation, sericulture, apiculture also needs labor. Hence IFS provides employment to family members as well as outside labour throughout the year.
- **Agro-industries :** Linking of various components in IFS, the production definitely increased to commercial level. Surplus production leads to development of agro based side industry.
- **Increase input efficiency :** IFS provides better scope to use available inputs more efficiently. This leads to increase benefit: cost ratio.
- **Standard of living :** IFS leads to produce milk, eggs, fruits, honey, edible mushroom and generate bioenergy for farmers family and commercial purpose. There is regular flow of money at frequent interval through out the year.
- **Avoid degradation of forest :** There is a vast gap between demand and production of fuel wood and timber. Users encroaches/destroy the forest area

to bridge the gap. Forest lands get degraded and eroded due to denudation of forest. IFS linked with Afforestation and provide safety against degradation of lands, besides supplementation of fuel, timber and fodder.

- Integrated Farming Systems suitable particularly for hilly regions of the North Eastern Region can be adopted. Some are as – Integrated Fish cum Pig farming, Integrated Fish cum Duck Farming, Integrated Fish Farming-Chicken, Integrated Fish farming-cum-Cattle farming, Integrated Fish farming-cum-Rabbit farming, Integrated Fish farming-cum-Agriculture. Sikkim being an organic state is a good example.

Example from Indian scene:

- An Indian example of Integrated farming can best be understood by the fact that once a degraded land in Jodhpur, Rajasthan having very less crop production (and income) with the use of integrated farming practices such as plantation of improved qualities of Ber along with intercropping, honeybee keeping and a goat unit turned into a major revenue generator along with improving the quality of soil and decreased expenditure on fertiliser and pesticides, produced good quality fruits using organic farming which has high demand overseas.

Conclusion

Integrated farming systems seem to be the possible solution to the continuous increase of demand for food and nutrition, income stability and livelihood upliftment particularly for small and marginal farmers with little resources. Therefore it supplements well the goals India needs to achieve on doubling of farming income, Climate change, nutritious food, and augmenting rural livelihood.

3. A community-centric approach to population control in need of the hour today. Do you agree? Substantiate your views.

Approach

The question demands an introduction based on basic definition of population control and contextualise to India. In next part write in brief the issue at hand. Then go on to discuss positive side of community centric approach and disadvantages of setting population targets. In conclusion mention how India's population is already stabilising and need for a community based approach

Introduction

Human reproduction planning is the practice of intentionally controlling the rate of growth of a human population. It has traditionally been sometimes referred to as population control. Historically, human population planning has been implemented with the goal of increasing the rate of human population growth. However, in the period from the 1950s to the 1980s, concerns about looming human overpopulation and its effects on poverty, environmental degradation and political stability led to efforts to reduce human population growth rates. India was the first country in 1952 start family planning measures to have an optimum population.

Body

India's history of population control

- India's population has exploded after Independence. This has been a cause of concern from the initial years which led to family planning measures in 1952. This policy hardly had any effect and the population continued to grow exponentially. Then came the phase of national emergency which led to forceful implementation of family planning with mass sterilisation against individual will. This led to people becoming averse to idea of family planning and government measures.
- Then with the development it was seen world over that coercive family planning is less effective as compared to the community approach where the plans and measures are community driven and tailored to fit diverse population.
- These measures have been included in Indian National population policy 2000 and similarly states have adopted similar measures such as Maharashtra, Rajasthan etc.
- In current context there are debates on whether population control should be strictly implemented or community driven as some states such as Uttarpradesh and Assam are bringing reward and mechanisms in the population planning. While the evidence from one child policy of China suggests that setting targets against the natural course of development can be counter productive.

Focus in Community centric approach

- Increasing the welfare and status of women and girls, spread of education, increasing awareness for the use of contraceptives and family planning methods, sex education, encouraging male sterilisation and spacing births, free distribution of contraceptives and condoms among the poor, encouraging female empowerment, more health care centres for the poor, to name a few, can play a major role in controlling population.
- India's strengths in the global world in various fields cannot be ignored, whether in science & technology, medicine and health care, business and industry, military, communication, entertainment, literature and many more. Experts are hopeful that by increasing public awareness and enlisting strict population control norms by the Government will definitely lead the way for the country's economic prosperity and control of population.
- Social Measure: Population outburst is considered to be a social problem and it is intensely rooted in the civilization. It is therefore necessary to make efforts to eliminate the social iniquities in the country. Minimum age of Marriage: As fertility depends on the age of marriage therefore the minimum age of marriage should be raised. In India minimum age for marriage is 21 years for men and 18 years for women fixed by law. This law should be strongly implemented and people should also be made aware of this through promotion.
- Raising the Status of Women: There are prevalent biases to women. They are restricted to house. They are still confined to rearing and bearing of children. So women should be given opportunities to develop socially and economically. Free education should be given to them.
- Spread education: The spread of education changes the views of people. The educated men take mature decisions and prefer to delay marriage and adopt small family custom. Educated women are health mindful and avoid frequent pregnancies and thus help in lowering birth rate.
- Adoption: is also effective way to curb population. Some parents do not have any child, despite expensive medical treatment. It is recommended that they should adopt orphan children. It will be helpful to orphan children and children to couples.
- Social Security: is necessary for people. It is responsibility of government to include more and more people under-social security schemes. So that they do not depend upon others in the event of old age, sickness, unemployment with these facilities they will have no desire for more children.
- Economic Measures: There has to be numerous economic measures taken as a preventive measure for population explosion. Government must devise policies for more employment opportunities. It is necessary is to raise the employment opportunities in rural as well as urban areas. Generally in rural areas there is disguised joblessness. Another economic measure for population control is the development of Agriculture and Industry. If agriculture and industry are correctly developed, huge number of people will get employment. When their income is increased they would enhance their standard of living and accept small family norms. Good standard of living is a

deterrent to large family norm. In order to maintain their enhanced standard of living, people prefer to have a small family.

- Urbanisation: process can reduce population increase. It is reported that people in urban areas have low birth rate than those living in rural areas. Urbanisation should be encouraged.

Disadvantages of forceful population control measures :

A very high level of population growth can create imbalances, which make the job of the state more difficult, but the way the issue is being approached is problematic and will have unintended consequences.

- The approach is anti-poor, as they tend to have more children than middle-class people. Further, it is an anti-democratic practice that impairs a citizen's right to choice and his/her sexual and reproductive rights.
- People have more children if there is a high prevalence of socio-economic issues such as infant and child mortality.
- For instance, the National Family Health Survey-4 (2015-16) reveals that women who have little access to health and education and those caught in a cycle of poverty, produce more and more children
- India's TFR is about to reach the net replacement rate, or NRR, of about 2.1-2.2. So, India is not being threatened by a "population explosion". The National Family Health Survey (NFHS) and Census data show that in most states, and many urban areas, the total fertility rate (TFR) has already reached replacement levels (2.1).
- Challenge with the two-child policy: If the first two children are girls, one of them faces a risk to life immediately after birth, as their parents have a preference for male offspring. This will increase even more female infanticide in India.
- According to the 2011 census, the UP had 908 females per 1,000 males, compared to the national average of 940 females per 1,000 males. The two-child policy is bound to increase this imbalance.
- Population control measures address yesterday's problem: The population control measures might end up creating difficulties for tomorrow. Attempts to address the population issue through exclusionary policies will not improve the quality of life in states. So, this creates problems in the future.
- Against National Human Rights Commission order: The incentives/disincentives approach has been denounced in the past by the NHRC after such measures were introduced by several States in the 1990s and 2000s. i.e., Haryana, undivided Andhra Pradesh, Madhya Pradesh, Rajasthan, Chhattisgarh, and Odisha.
- Global examples: The stricter population control policy from other countries are not effective in the long run and also tends to skew the sex ratio. China, for instance, resulted in a significant gender imbalance because of preference for a male child.

Conclusion

India's TFRs have been reducing substantially across most States. To hasten the drop, States should tackle the socio-economic issues confronting India's largely youthful demography rather than seeking neo-Malthusian approaches to population control. The focus should rather be on community driven approach of development and focusing on the human rights and fundamental rights provided in the constitution.

