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FARMING BASED LIVELIHOOD SYSTEMS

Objectives :

1. To make the students aware about farming based livelihood systems in agriculture
2. To disseminate the knowledge and skill how farming based systems can be a source of livelihood

Syllabus :

- Status of agriculture in India and different states, Income of farmers and rural people in India,
- Livelihood-Definition, concept and livelihood pattern in urban & rural areas,
- Different indicators to study livelihood systems.
- Agricultural livelihood systems (ALS) : Meaning, approach,approaches and framework ,
- Definition of farming systems and farming based livelihood systems
- Prevalent Farming systems in India contributing to livelihood.
- Types of traditional & modern farming systems.
- Components of farming system/ farming based livelihood systems- Crops and cropping systems, Livestock, (Dairy, Piggery, Goatry, Poultry, Duckry etc.), Horticultural crops, Agro--forestry systems, Aqua culture Duck/Poultry cum Fish, Dairy cum Fish, Piggery cum Fish etc.,
- Small, medium and large enterprises including value chains and secondary enterprises as livelihood components for farmers,
- Factors affecting integration of various enterprises of farming for livelihood.
- Feasibility of different farming systems for different agro-climatic zones,
- Commercial farming based livelihood models by NABARD, ICAR and other organizations across the country,
- Case studies on different livelihood enterprises associated with the farming.
- Risk & success factors in farming based livelihood systems,
- Schemes & programmes by Central & State Government,
- Public & Private organizations
- involved in promotion of farming based livelihood opportunities.
- Role of farming based
- livelihood enterprises in 21st Century in view of circular economy, green economy, climate
- change, digitalization & changing life style.

Lecture No. 1 **Date :**

STATUS OF AGRICULTURE IN INDIA AND DIFFERENT STATES

Indian Agriculture :

Indian agriculture, which began around 11,000 years before present (BP) with the domestication of animals and early cultivation of plants, has made significant progress over the millennia. This found place in the ancient scripts of Vedas, Upanishadas, Ramayana and Mahabharata. Agriculture in India has been a complex mosaic of distinct agro-ecosystems, differentiated by climatic, soil, vegetation and other natural features, often heterogeneous, unorganized and subjected to vagaries from 'seed to market'. Historically, food shortage in pre-independent India caused serious impacts as agriculture was monsoon-dependent and unfavourable rains and natural calamities resulted in crop failures. The planning process in the independent India, therefore identified agriculture as the most prioritized sector and emphasized that 'everything can wait but agriculture'. In spite of the odds of uncertain weather, declining soil health, increasing atmospheric temperature and emergence of virulent pest and pathogens, which are continuing post-independence, Indian agriculture achieved several landmarks primarily due to science-led agricultural development. The most signifying milestone has been food security that brought confidence and raised the country's stature globally. We must not forget the ill memories of 'ship to mouth' till 1950s. It is the toiling work of millions of our farmers, scientists and the planners that transformed India from a food deficit country to a food surplus and net food exporter nation. The food grain production, which was merely 51 million tons (Mt) in 1950/51 increased over 6 times to over 314 Mt in 2022. The country has also become the largest producer of milk, pulses and jute and second largest producer of rice, wheat, cotton, fruits and vegetables in the world. India is also one of the leading producers of spices, fish, poultry, livestock and plantation crops. However, Indian agriculture continues to battle several intimidating challenges of increasing productivity, profitability and resilience at the backdrop of increasing population, depleting natural resource base, aggravating climate change and reducing farm income. We are now reimagining the Indian agriculture and prioritized for enhancing farmers income (200%), reducing fertilizer use (25%) and water use (20%), increasing

use of renewable energy (50%), reducing greenhouse gas emission intensity (45%) and rehabilitating degraded land of 26 million ha (Mha). India, being a signatory and prominent member of the United Nations, has several international commitments such as Panchamrit and carbon neutrality, land degradation neutrality, biodiversity conservation, regional agricultural development and Sustainable Development Goals (SDGs). Fortunately, advances in science have opened new avenues for addressing the challenges and fulfilling the priorities and commitments. A multi-pronged strategy with integration, diversification, intensification, customisation, farm mechanization, value addition and market access are the way forward to realise the full potentials of Indian farming with focus on profitable commercialization and export, ecosystem approach, sustainable agri-food system involving smart farmers and farming, post-harvest value addition and entrepreneurship engaging youth and women. Indian Council of Agricultural Research (ICAR) and the National Agricultural Research, Education and Extension System (NAREES), are determined to harness the advances of science and technology to infuse pull and push in agriculture for an all-round welfare of the society.

Agricultural research in India :

Systematic research in the country started with the establishment of Imperial Council of Agricultural Research (1929) in Delhi, which is known today as Indian Council of Agricultural Research (ICAR). This is the apex body with its headquarters at New Delhi for coordinating, guiding and managing research and education in agriculture including animal sciences and fisheries. The Council is an autonomous organisation under the governance of Department of Agricultural Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India. Established on 16th July 1929 as a registered society under the Societies Registration Act (1860) in pursuance of the report of the Royal Commission on Agriculture, ICAR now has 113 research institutes, 74 agricultural universities, 4 deemed-to-be-universities, 3 central universities and 731 Krishi Vigyan Kendras spread across the country. With these, ICAR leads one of the largest National Agricultural Research and Education System (NARES) in the world. India has one of the largest agricultural research human resource capitals in the world with

approximately 30,000 scientists and more than 100,000 technical & supporting personnel in the NARES. ICAR footprints are also extended to the neighbouring countries and several international, national and regional research organizations and universities are engaged with ICAR in agricultural research and development. Additionally, private and non-Governmental organizations and farmers themselves have done significant agricultural research in their own fields.

Landmark achievements in Indian agriculture :

In the year 1950-51 for which the data of agricultural production of majority of the commodities are available by the authorized sources, we have been producing about 135 Mt from agriculture and allied sectors. In 2021-22, total production of food and nonfood items was about 1300 Mt. This achievement is one amongst the very few noticeable landmarks in the history of Independent India. There has been multi-fold increase in the production of all the commodities, in spite the net sown area remaining almost constant at about 140 Mha. The country has witnessed a rainbow revolution in the agricultural commodities. The various colors of the Rainbow Revolution indicate various farm practices such as Green Revolution (Foodgrains), White Revolution (Milk), Yellow Revolution (Oil seeds), Blue Revolution (Fisheries); Golden Revolution (Fruits); Silver Revolution (Eggs), Round Revolution (Potato), Pink Revolution (Meat), Grey Revolution (Fertilizers) and so on. Thus, the concept of Rainbow revolution is an integrated development of crop cultivation, horticulture, forestry, fishery, poultry, animal husbandry and food processing industry.

Fig. 1. Revolutions in Indian agriculture

India now is one of the largest agri-producers globally, ranking within the top 5 countries. These have enabled not only self-sufficiency in food, but also export of agri-commodities worth US$ 50 billion. Production of most of the agricultural

commodities has increased by 6 to 68 times with only 1.3 times increase in area (Table 2). Thus, the country, which was food scarce till 1950, transformed itself into food shortage by 1960, food sufficient by 2000, food secured by 2010 and food surplus by 2010 onwards (Fig. 2). During the ongoing COVID-19 pandemic situation also, food production systems have been meeting the demands, with innovative interventions across the value chain. There are also indications that the greenhouse gas (GHG) emission intensity in agriculture is reducing and fertilizer use efficiency is improving in recent years (Pathak and Ayyappan 2020). A blend of science, technology, extension and policy has contributed in this journey of transforming the country from food scarce to food surplus nation.

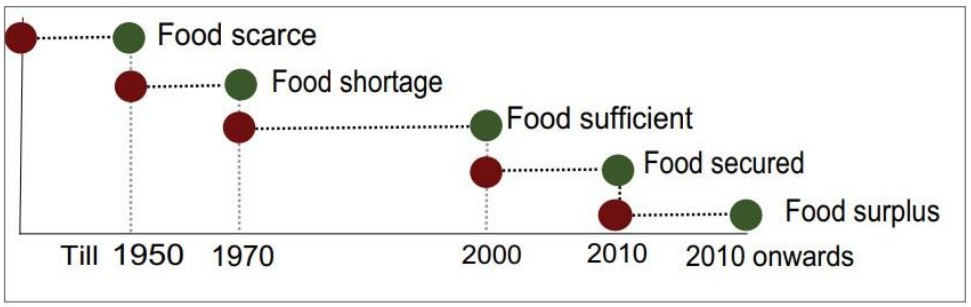


Fig. 2. Transformation of India from food scarce to food surplus nation

Table 2 : Production of agricultural commodities and cultivated area in the country in 1950-51 and 2021-22

Commodity	1950-51	2021-22	Times increase
Food grains (Mt)	51	314	6.2
Vegetables & fruits (Mt)	25	333	13.3
Milk (Mt)	17	210	12.4
Egg (billion)	1.8	122	67.8
Fish (Mt)	0.8	14.2	17.8
Net sown area (Mha)	130	140	1.1
Gross sown area (Mha)	150	198	1.3

Reference :

- Indian Agriculture after Independence – Pathak, H.; Mishra, J.P. and Mohapatra, T. (2022), Indian Council of Agricultural Research, New Delhi 110 001.

Highlights :

- *Nearly three-quarters of India's families depend on rural incomes.*
- *The majority of India's poor (some 770 million people or about 70 per cent) are found in rural areas.*
- *India's food security depends on producing cereal crops, as well as increasing its production of fruits, vegetables and milk to meet the demands of a growing population with rising incomes.*

While agriculture's share in India's economy has progressively declined to less than 15% due to the high growth rates of the industrial and services sectors, the sector's importance in India's economic and social fabric goes well beyond this indicator. First, nearly three-quarters of India's families depend on rural incomes. Second, the majority of India's poor (some 770 million people or about 70 percent) are found in rural areas. And third, India's food security depends on producing cereal crops, as well as increasing its production of fruits, vegetables and milk to meet the demands of a growing population with rising incomes. To do so, a productive, competitive, diversified and sustainable agricultural sector will need to emerge at an accelerated pace.

India is a global agricultural powerhouse. It is the world's largest producer of milk, pulses, and spices, and has the world's largest cattle herd (buffaloes), as well as the largest area under wheat, rice and cotton. It is the second largest producer of rice, wheat, cotton, sugarcane, farmed fish, sheep & goat meat, fruit, vegetables and tea. The country has some 195 m ha under cultivation of which some 63 percent are rainfed (roughly 125m ha) while 37 percent are irrigated (70m ha). In addition, forests cover some 65m ha of India's land.

Agricultural production and yield :

List of 10 Leading Agricultural States in India

The following are the top agricultural states in India by crop production –

Sr. No.	State	Major Crops Grown
1.	Punjab	Wheat, Rice, Cotton
2.	Uttar Pradesh	Wheat, Sugarcane, Rice, Maize
3.	Maharashtra	Sugarcane, Cotton, Rice
4.	Madhya Pradesh	Soybean, Wheat, Rice
5.	Rajasthan	Bajra, Wheat, Pulses, Oilseeds
6.	Bihar	Rice, Wheat, Maize
7.	Andhra Pradesh	Rice, Sugarcane, Chillies, Oilseeds
8.	Karnataka	Coffee, Sugarcane, Rice, Oilseeds
9.	Tamil Nadu	Rice, Sugarcane, Banana, Oilseeds
10.	West Bengal	Rice, Jute, Pulses, Oilseeds

1st Leading Agricultural State in India — Uttar Pradesh

Uttar Pradesh is the largest agricultural state in India. Agriculture has always played a very significant role in the economic development of Uttar Pradesh. It is India's largest producer of several food grains such as wheat, rice, sugarcane, and potatoes. Some of the other major crops produced are pulses, oilseeds, milk, and sugarcane. The fertile Gangetic plains and favorable climate allow for double cropping in most parts of the state, contributing immensely to agricultural production. Rice-wheat is the dominant cropping system practised here. Sugarcane is another important cash crop. Dairy farming and animal husbandry also forms an crucial part of the rural economy. The agricultural sector employs about 80% of the state's workforce. Uttar Pradesh has achieved tremendous growth in food grain production over the past few decades, consolidating its position as India's biggest producer as well as the leading agricultural state.

2nd Leading Agricultural State in India — West Bengal

West Bengal is renowned for its high rice production, contributing significantly to the nation's food supply. The state also excels in growing jute, earning it the nickname "Jute Bowl of India." Tea plantations in Darjeeling produce world-famous tea. Additionally, West Bengal is a major producer of fish due to its extensive water bodies and favorable climate. The state's agriculture is diversified with fruits, vegetables, and flowers, playing a vital role in its economy.

3rd Leading Agricultural State in India — Madhya Pradesh

Madhya Pradesh, known as the "Heart of India," is a leading agricultural state with significant production of soybeans and pulses. The state's diverse topography and climate support the cultivation of wheat, rice, and maize. MP is also a major producer of oilseeds, particularly soybeans, contributing to India's vegetable oil industry. Horticulture is another vital sector, with the state producing various fruits and vegetables, bolstering its agricultural output and rural economy.

4th Leading Agricultural State in India — Karnataka

Karnataka stands out for its diverse agricultural activities, notably the cultivation of coffee and spices in the Western Ghats region. The state is also a major producer of silk, earning it the title of India's "Silk State." Millets, rice, and sugarcane are other significant crops grown in Karnataka. Its favorable climate and varied geography enable the cultivation of a wide range of horticultural crops, including fruits and vegetables, supporting the state's agricultural economy.

5th Leading Agricultural State in India — Maharashtra

Maharashtra is a leading agricultural state, known for its significant production of cotton and sugarcane. The state's diverse agro-climatic zones also support the cultivation of rice, wheat, and pulses. Maharashtra is a major producer of fruits like grapes, oranges, and bananas, and has a robust horticulture sector. The state's dairy industry is well-developed, contributing to its agricultural output. Additionally, Maharashtra's progressive farming techniques and irrigation projects enhance its agricultural productivity.

6th Leading Agricultural State in India — Punjab

Punjab, often called the "**Granary of India**," is renowned for its extensive wheat and rice cultivation. The state's fertile soil and efficient irrigation systems make it a leading contributor to India's food grain production. Punjab also grows significant quantities of maize and barley. The dairy sector is strong, with substantial milk production. Punjab's agriculture is characterized by mechanization and high yields, making it a crucial player in ensuring national food security.

7th Leading Agricultural State in India — Andhra Pradesh

Andhra Pradesh is a key agricultural state, prominently producing rice, making it one of India's top rice producers. The state's favorable climate supports the cultivation of various crops, including tobacco, cotton, and chilies. Andhra Pradesh is also known for its horticulture, particularly the production of mangoes, bananas, and citrus fruits. The state's extensive coastline supports a thriving fishing industry, contributing to its diverse agricultural and allied activities.

8th Leading Agricultural State in India — Assam

Assam, located in northeastern India, is famous for its tea plantations, particularly in the Assam Valley, producing some of the finest teas in the world. The state's agriculture also includes the cultivation of rice, jute, and oilseeds. Assam's diverse agro-climatic conditions support horticulture, with significant production of fruits and vegetables. The state's abundant water resources contribute to a thriving fishery sector, making agriculture a vital part of Assam's economy.

9th Leading Agricultural State in India — Haryana

Haryana is a prominent agricultural state, known for its high yields of wheat and rice, contributing significantly to India's food grain stock. The state's well-developed irrigation system supports extensive cultivation of these staple crops. Haryana is also a major producer of milk, with a strong dairy industry. Other important crops include cotton, sugarcane, and oilseeds. The state's agricultural success is attributed to modern farming techniques and government support for the sector.

10th Leading Agricultural State in India — Gujarat

Gujarat is a leading agricultural state, particularly known for its cotton and groundnut production. The state's diverse climate and soil conditions support the cultivation of a variety of crops, including wheat, rice, and pulses. Gujarat also has a significant horticulture sector, producing fruits like mangoes and bananas. The state's dairy industry is robust, with the famous Amul cooperative headquartered here. Gujarat's progressive agricultural policies and infrastructure contribute to its agricultural prosperity.

Reference : https://testbook.com/static-gk/top-10-leading-agriculture-states-of-india.

Lecture No. 2 **Date :**

INCOME OF FARMERS AND RURAL PEOPLE IN INDIA

Farmers' Income

Posted On: 21 MAR 2023 6:09PM by PIB Delhi

Farmers' income is estimated through the survey conducted by National Sample Survey Office(NSSO). As per last "Situation Assessment Survey" conducted in 2012-13, Monthly Agricultural Household Income was estimated as Rs.6,426/- which increased to Rs.10,218/- as per the survey conducted in 2018-19.

Government had constituted an Inter-Ministerial Committee in April, 2016 to examine issues relating to "Doubling of Farmers Income (DFI)" and recommend strategies to achieve the same. The Committee submitted its final report to the Government in September, 2018 containing the strategy for doubling of farmers' income through various policies, reforms & programmes.

Agriculture being a State Subject, the State Governments take appropriate measures for development of agriculture and welfare of farmers in the State. However, Government of India supplements the efforts of States through appropriate policy measures and budgetary support and various schemes/ programmes. As per the strategy suggested by DFI Committee, Government has adopted and implemented several policies, reforms, developmental programmes and schemes for achieving higher incomes for the farmers. These include:

1. Unprecedented enhancement in budget allocation :

In the year 2013-14 the budget allocation of Ministry of Agriculture (including DARE) and Ministry of Fisheries, Animal Husbandry & Dairying was only 30223.88 crore. This has increased by more than 4.35 times to Rs. 1,31,612.41 crore in 2023-24.

2. Income support to farmers through PM KISAN :

Launch of PM-KISAN in 2019 -an income support scheme providing Rs. 6000 per year in 3 equal installments. More than Rs. 2.24 lakh crore has been released so far to more than 11 crore farmers as of now.

3. Pradhan Mantri Fasal Bima Yojana (PMFBY) :

Six year - PMFBY was launched in 2016 addressing problems of high premium rates for farmers and reduction in sum insured due to capping. In past 6 Years of

implementation – 37.66 crore farmer applications have been enrolled and over 12.38 crore (Provisional) farmer applicants have received claims. During this period nearly Rs. 25,174 crore were paid by farmers as their share of premium against which claims of over Rs. 1,30,185 crore (Provisional) have been paid to them. Thus for every 100 rupees of premium paid by farmers, they have received about Rs. 517 as claims.

4. Institutional credit for agriculture sector :

i. Increased from Rs. 7.3 lakh crore in 2013-14 with a target to reach Rs. 18.5 lakh crore in 2022-23.

ii. Benefit of concessional institutional credit through KCC at 4% interest per annum has also now been extended to Animal Husbandry and Fisheries farmers for meeting their short-term working capital needs.

iii. A special drive has been undertaken since February 2020 to provide concessional institutional credit with focus on covering all PM-KISAN beneficiaries through Kisan Credit Cards (KCC). As on 30.12.2022, 389.33 lakh new KCC applications have been sanctioned with a sanctioned credit limit of Rs. 4,51,672 crore as part of the drive.

5. Fixing of Minimum Support Price (MSP) at one-and-a half times the cost of production :

i. Government has increased the MSP for all mandated Kharif, Rabi and other commercial crops with a return of at least 50 per cent over all India weighted average cost of production from 2018-19.

ii. MSP for Paddy (common) has increased to Rs. 2040 per quintal in 2022-23 from Rs. 1310 per quintal in 2013-14.

iii. MSP for Wheat increased from Rs. 1400 per quintal in 2013-14 to Rs. 2125 per quintal in 2022-23.

6. Promotion of organic farming in the country :

i. Paramparagat Krishi Vikas Yojana (PKVY) was initiated in 2015-16 to promote organic farming in the country. 32,384 clusters have been formed and an area of 6.53 lakh hectare has been covered benefitting 16.19 lakh farmers. In addition, Under Namami Gange Programme 1.23 lakh hectare area covered and under natural farming 4.09 lakh hectare area covered. Farmers in Uttar Pradesh, Uttarakhand, Bihar and Jharkhand have taken-up organic farming on either side

of the river Ganga to control river water pollution as well as to fetch additional income to farmers.

ii. Government also proposes to promote sustainable natural farming systems through the scheme Bhartiya Prakratik Krishi Padhati (BPKP). The proposed scheme aims at cutting down cost of cultivation, enhancing farmer's income and ensuring resource conservation and, safe and healthy soils, environment and food.

iii. Mission Organic Value Chain Development in North East Region (MOVCDNER) has been launched. 379 Farmer Producer Companies have been formed comprising of 1,89,039 farmers and covering 1,72,966 hectare area.

7. Per Drop More Crop :

Per Drop More Crop (PDMC) scheme was launched in the year 2015-16 which aims to increase water use efficiency, reducing cost of inputs and increasing productivity at the farm level through Micro Irrigation technologies i.e. drip and sprinkler irrigation systems. So far, an area of 72 lakh hectare has been covered under Micro irrigation through the PDMC scheme from the year 2015-16.

8. Micro Irrigation Fund :

A Micro Irrigation Fund of initial corpus Rs 5,000 crore has been created with NABARD. In the Budget Announcement for 2021-22, the corpus of the fund is to be increased to Rs.10,000 crore. Projects worth Rs 4,710.96 crore covering 17.09 lakh hectares have been approved.

9. Promotion of Farmer Producer Organisations (FPOs) :

i. A new Central Sector Scheme for Formation & Promotion of new 10,000 FPOs launched by Hon'ble Prime Minister on 29th February, 2020 with budget outlay of Rs 6865 Crore till 2027-28.

ii. As on 30.11.2022, 4028 no. of FPOs have been registered under new FPO scheme.

iii. Equity Grant of Rs. 65.33 Crore has been released to 1,730 FPOs as on 31.12.2022.

iv. As on 31.12.2022, Credit Guarantee Cover worth Rs. 101.78 crore issued to 583 FPOs.

10. A National Beekeeping and Honey Mission (NBHM) :

Has been launched in 2020 as part of the Atma Nirbhar Bharat Abhiyan to increase productivity of crops through pollination and increase in honey production as an additional source of income. Rs. 500 crore for the period 2020-2021 to 2022-2023 has been allocated for beekeeping sector. 114 projects for assistance of about Rs. 139.23 crore, approved/ sanctioned for funding under NBHM during 2020-21, 2021-22 & 2022-23 till date.

11. Agricultural Mechanization :

Agricultural mechanization is an extremely vital to modernize agriculture and reduce drudgery of farming operations. During the period from 2014-15 to March, 2022 an amount of Rs.5,490.82 crore have been allocated for agricultural mechanization. 13,88,314 numbers of machines and equipments have been provided to farmers on subsidy basis. 18,824 custom hiring centers, 403 high-tech hubs and 16,791 farm machinery banks have been established to make available agricultural machines and equipments to the farmers on rental basis. During the current year i.e. 2022-23, so far an amount of Rs. 585.50 crore have been released for distribution of around 75,391 machines on subsidy, establishment of 3,468 CHCs, 64 Hi-tech hubs and 2281 Village Level Farm Machinery Banks.

12. Providing Soil Health Cards to farmers :

Soil Health Card Scheme was introduced in the year 2014-15 to optimize usage of nutrients. The following numbers of cards have been issued to farmers;

i. Cycle-I (2015 to 2017) – 10.74 crore
ii. Cycle-II (2017 to 2019)- 12.19 crore
iii. Model Village Programme (2019-20)- 23.71 lakh
iv. In the year 2020-21- 11.52 lakh

13. Setting up of National Agriculture Market (e-NAM) extension Platform :

i. 1260 mandis of 22 States and 03 UTs have been integrated to e-NAM platform.
ii. As on 31.12.2022, more than 1.74 Crore Farmers & 2.39 Lakh traders have been registered on e-NAM portal.
iii. Total volume of 7.07 Crore MT & 20.88 Crore numbers (bamboo, betel leaves, coconut, lemon & sweet corn) collectively worth approximately Rs. 2.42 lakh crore of trade has been recorded on e-NAM platform as on 31.12.2022.

14. Launch of the National Mission for Edible Oils – Oil Palm :

NMEO has been approved with a total outlay of Rs 11,040 crore. This will bring an additional area of 6.5 lakh hectare under Oil Palm plantation with 3.28 lakh hectare

in the north-eastern states and 3.22 lakh hectare in the rest of India in the next 5 years. The major focus of the Mission is to provide Viability Prices of fresh fruit bunches (FFBs) to the farmers linked with assured procurement by industry with a simpler price fixing formula.

15. Agri Infrastructure Fund (AIF) :

Since inception of AIF in the year 2020, the scheme has sanctioned an amount of Rs.16,117 crore worth agriculture infrastructure in the country for 22,354 projects. With the support of the scheme, various agriculture infrastructures were created and some of the infrastructure are at the final stage of completion. These infrastructures include 8,752 warehouses, 4,188 primary processing units, 2,635 custom hiring centres, 1,217 sorting & grading units, 859 cold store projects, 163 assaying units and around 4,257 other kinds of post-harvest management projects and community farming assets.

16. Improvement in farm produce logistics, Introduction of Kisan Rail :

Kisan Rail has been launched by Ministry of Railways to exclusively cater to movement of perishable agrihorti commodities. First Kisan Rail was started in July 2020. Till 31st December, 2022, 2359 services on 167 routes have been operated.

17. MIDH - Cluster Development Programmer :

The Cluster Development Programme (CDP) is designed to leverage geographical specialisation of horticulture clusters and promote integrated and market-led development of pre-production, production, post-harvest, logistics, branding, and marketing activities. DA&FW has identified 55 horticulture clusters, of which 12 have been selected for the pilot phase of the CDP.

18. Creation of a Start-up Eco system in agriculture and allied sector :

So far, 1102 Startups during FY 2019-20 to 2022-23 have been finally selected by different knowledge partners and agribusiness incubators of DA&FW. A total of Rs. 66.83 crore grants-in-aid has been released for funding to these Startups to the respective Knowledge Partners (KPs) & RKVY RAFTAAR Agri Business Incubator (R-ABIs) as grants-in-aid support by DA&FW.

19. Achievement in Export of Agri and Allied Agri- Commodities :

The country has witnessed emphatic growth in export of agri and allied commodities. As compared to previous year 2020-21, the Agri and allied export has increased from 41.86 billion USD in 2020-21 to 50.24 billion USD in 2021-22 i.e. an increase of 19.99%.

The efforts of Government at positive implementation of these schemes have yielded remarkable results towards augmenting the income of the farmers. As part of the '***Azadi ka Amrit Mahotsav***', Indian Council of Agricultural Research (ICAR) has released a book, which contains compilation of success stories of 75,000 farmers out of innumerable successful farmers who have increased their income more than two times.

A total amount of funds for Rs. 63,494.84 crore was surrendered by the Department of Agriculture and Farmers Welfare during the last 3 financial years i.e. 2019-20, 2020-21 and 2021-22 on account of following reasons:

(i) Due to unspent balance with States/Implementing Agencies from release made earlier mainly Goa, Tamil Nadu, Bihar, Kerala, Uttar Pradesh etc.

(ii) Due to delay in compliance of Department of Expenditure's guidelines for new procedure of fund release, States could not furnish various compliance statements and also there were unspent balance in State treasury. Single nodal account (SNA) mapping on PFMS portal for many states were also incomplete and various checklist, undertaking etc were not furnished by States/UTs. Therefore, funds were not released to many States/UTs.

(iii) Utilization of mandatory 10% Gross Budgetary Support allocation for North Eastern States is constrained on account of low capacity, saturation in entitlement based scheme, less Gross Cropped Area as compared to the national average and community land holding in NE States.

This information was given by the Union Minister of Agriculture and Farmers Welfare, Shri Narendra Singh Tomar in a written reply in Lok Sabha today.

Reference : https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1909208

Lecture No. 3 **Date :**

LIVELIHOOD-DEFINITION, CONCEPT AND LIVELIHOOD PATTERN IN URBAN & RURAL AREAS

- The dictionary definition of livelihood is a 'means to living'
- ***Livelihood*** can be defined as the activities, the assets and the access that jointly determine the living gained by an individual or household.
- A livelihoods comprises the assets (Natural, Physical, Human, Financial and Social Capital), the activities and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household (Chambers and Conway, 1992).
- ***Sustainable livelihood :*** A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.
- ***Rural livelihood diversification :*** Rural livelihood diversification is defined as the process by which rural households construct an increasingly diverse portfolio of activities and assets in order to improve their standard of living.

"What is a livelihood", few would struggle to answer.

"Making a living", "supporting a family", or "my job" all describe a livelihood. The term is well recognized as humans inherently develop and implement strategies to ensure their survival. The hidden complexity behind the term comes to light when governments, civil society, and external organizations attempt to assist people whose means of making a living is threatened, damaged, or destroyed. From extensive learning and practice, various definitions have emerged that attempt to represent the complex nature of a livelihood.

A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. (Chambers & Conway, 1991)

In order to better understand how people develop and maintain livelihoods, the UK Department for International Development (DFID), building on the work of

practitioners and academics, developed the Sustainable Livelihoods Framework (SLF). This framework is an analysis tool, useful for understanding the many factors that affect a person's livelihood and how those factors interact with each other.

The SLF views livelihoods as systems and provides a way to understand:

1. the assets people draw upon
2. the strategies they develop to make a living
3. the context within which a livelihood is developed
4. and those factors that make a livelihood more or less vulnerable to shocks and stresses

What is Urban Livelihood?

Urban areas, in a nutshell, are defined as areas where modernization took place. These areas generally consist of an extensive population. For instance, metropolitan cities such as Bangalore, New Delhi, Mumbai, and so on are urban areas. Livelihood, on the other hand, is simply defined as the lifestyle of an individual or their occupation. Thus, the civics chapter on rural and urban livelihood covers the basic details into distinguishing forms of urban livelihood. You will learn about the lifestyles of different people, jobs available in the industry, and the functioning of different urban areas or cities.

Types of Urban Livelihoods

1. Urban Livelihood of Street Workers

In cities and towns, you might often come across several individuals working in the streets. For instance, ice-cream sellers, vegetable vendors, rickshaw pullers, cobblers, and so on, are some of the working individuals that you may stumble across on streets. These are recognized as self-employed individuals. Moreover, they don't work in permanent shops. Their occupation is carried out from anywhere and anywhere. While some of these individuals move around in cycles, some of them live and maintain their work in shacks. About a majority of these workers briefly migrate from rural areas to earn money for a living and provide for their family.

2. Self Employed Business

Another type of urban livelihood is those of the self-employed business. Clothe stores, cafes, medicine shops, and other such businesses are run by self-employed

businesses. These are individuals that establish their own organizations. Several businessmen are even worth billions. For instance, businesses that established multinational corporations and even other small business owners. These businesses are categorized into the organized sector and unorganized sector. When it comes to occupation in urban areas, organized sector businessmen are those whose businesses and accounts are monitored. In unorganized sectors, small businesses invest money on their own and make profits steadily.

3. Organized Sector Workers

Most of the urban livelihood falls into this category of working professionals. For instance, civil engineers, doctors, and marketing managers are some of the workers that fall into this category. They are bound to earn the maximum salary annually in the city. However, they don't work on hourly wages like that of labourers. These workers have access to a wide range of perks, unlike the factory labourers. Some of these perks may be medical insurance, the company's retirement plan, paid leaves; and so on. Due to this, these types of jobs are in extreme demand. Cities consist of the rich and the poor. This extreme gap that coexists in urban livelihoods is rather unfortunate and saddening.

4. Factory Workers :

Lastly, urban Livelihoods also consist of factory workers. These individuals aren't formally employed. Due to this, they briefly are categorized into the unorganized sector. While you now know what is urban livelihood, factory workers are solely unofficially employed individuals for urban livelihood occupation. Occupation in urban areas is vast and comprehensive. Factory workers work at the convenience of the employer. They further earn a drastically small amount of income for the work they do. Labourers that lift Harvey packages, sewers in clothes factories, etc., are some examples of this type of urban livelihood.

RURAL LIVELIHOOD

Rural livelihood is the engagement of rural population in various economically productive occupations. The hallmark of rural livelihood is agriculture and allied occupations. Major livelihood activities for rural population are cultivation of food and cash crops, fish farming, cattle rearing, dairying, food processing, wood

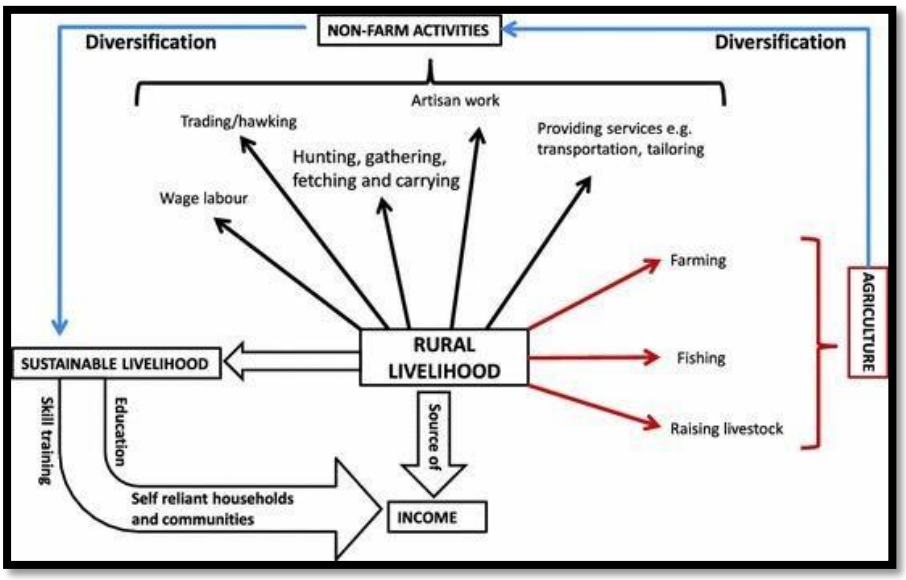
industries, organized plantation activities such as rubber, tea, cashew, coffee, cardamom, pepper etc. It can be seen that there is a gradual and increasing urbanization and industrialization of rural livelihood. There are several emerging occupations in the rural sector, such as, rural transportation, rural communication, rural health and education sector, rural infrastructure, export oriented organic farming, horticulture, floriculture etc. Increasing the rural and urban connectivity, such as, urban projects offers new avenues of rural livelihood.

There is close connection and collaboration between rural and urban livelihood. Knowingly or unknowingly we are following an urban model of economic development. While the government announces the smart city project, we should not forget that new towns and cities emerge from developed villages. Every village is in a process of transformation to city. There is constant rural urban as well as urban rural migration of skilled as well as unskilled people. Therefore, there is a common consideration for non-agricultural occupations in both rural and urban areas. In the context of urbanization of rural areas, division of nonagricultural occupations in the rural and urban sectors is arbitrary and unreasonable. What can be called typically rural livelihood is the agricultural and allied occupations.

Accepting the basic premise that, rural livelihood is what rural populations do, rural livelihood can broadly be grouped into agricultural and non-agricultural activities. Nonagricultural activities are similar to what urban populations are engaged in. Agricultural and allied occupations are typical of rural livelihood. There is a large number of people who are engaged in agriculture and allied activities like cattle rearing, fish farming, dairying etc. Landless people constitute the vast majority of rural mass who are engaged in agriculture and allied occupations. When we discuss about rural livelihood we should exclusively think about the agriculture and allied occupations. Rural livelihood is related to rural development.

Rural livelihood is just one key component of rural development. Rural development considers all the agricultural and non-agricultural livelihood options. In ideal situations, rural and urban development considerations are similar or ideally developed villages are similar to the ideally developed cities and towns. It is a challenge to distinguish rural and urban development factors. When we consider rural

livelihood independent of rural and urban development, we need to concentrate on purely agricultural and allied occupations, the factors influencing their promotion and the consideration for the sustainable rural livelihood.



Rural livelihoods as a source of income

Types of rural livelihoods:

1] Agriculture Labourers :

Agriculture labourers are those people in rural areas who work as labour in fields and get daily wages. They comprise two- fifths of the total rural population in India! These labourers do not own land of their own, thus are forced to work in the lands of richer farmers. Even if some labourers own land, it is extremely small and not enough for the family. These workers are sadly exploited by rich farmers, as they don't have any alternative ways to earn money and they come in plenty as 'cheap labour' for the fields.

2] Farmers :

This group consist of villagers who carry out farming activities in their own lands. They sow seeds, weed and harvest crops by themselves and also reap the profits themselves. However, eighty percent of these farmers also have very small land holdings and need to depend on other sources of income like having a poultry or dairy business. To earn enough money to barely survive, these farmers borrow money from money lenders for seeds, fertilisers, etc., and are at great risk of being in debt. This is why we hear of so many unfortunate news of farmer suicides in India.

3] Farmers with Other Sources of Income :

The farmers who do not earn enough from their land, or by working on other rich farmer's lands need other sources of income. They work in mills near the farms or sell milk of the cows that they own. Selling other by-products like sap, collecting wood, leaves of certain plants, fruits, etc., helps them to sustain and survive. Some farmers also seasonally go to the cities or towns to work as wage earners as there is more opportunity to earn money in cities.

4] Rich Farmers and Landowners :

The "rich" farmers that we have spoken about above are in a very small percentage in rural areas. They are the ones who own most of the land and hire agricultural labourers to work for them. They are also the exploitative village money lenders and also generally own the nearby mills and small factories.

5] Other Service Providers

In villages, apart from labourers, farmers and landlords, there are also people who provide basic services. Barbers, nurses, village teachers, etc., are small professionals who are found in villages. Some of them are self- employed and some are employed under government schools or hospitals.

Factors affect rural livelihood :

There are several personal, social, economic, cultural, religious, geographical, climatic and ecological factors that affect rural livelihood. These factors are important considerations when we have to promote sustainable livelihood.

1. Personal factors :

Most important factor in rural livelihood is personal interest and motivation. The recent trend in India is a fascination for urban livelihood. Seldom can we find educated and qualified manpower engaged in agricultural and allied occupations. Unless the rural population is sincerely interested in continuing cultivation, dairying, cattle rearing, fish farming and other allied occupations, rural livelihood options cannot be protected and promoted. These occupations constitute the primary economic activity. People show a gradual trend of shifting from primary sector to secondary and tertiary sectors of occupations. This shift is generally considered as sign of economic progress. In order to protect a nation's economic stability, we need to

reverse this false trend. We need to convince the people that investment and engagement in the secondary and tertiary sectors at the cost of the primary sector is harmful to the nation and its people. Government has to take measures to increase the personal interest, motivation, knowledge, skills and attitude of the people to turn towards primary sector and practice sustainable forms of agriculture such as organic farming, export oriented organic horticulture and floriculture. There are highly profitable agricultural and allied activities which will in the long run, stabilize our economy and economic growth. We need to leave behind the myth that increasing share of economy in the secondary and the tertiary sectors is the sign of economic progress. Increasing share of national economy in the secondary and tertiary sector is the indicator of national dependency on other people and nations 6 for its survival and development. On the other hand, increasing share of primary sector in the national economy is the indicator of self-reliance, independence and sustainable progress.

2. Social factors :

Social factors constitute the demographic, gender, family, educational, caste and class factors. Often the rural livelihood is not the matter of personal choice, but a social obligation. One's social and demographic factors influence their particular livelihood options. There are traditional and household occupations, caste based occupations and socially imposed rural occupations in the agricultural and allied sectors. Government and civil society organizations have to take special care in dealing with these social factors that influence rural livelihood. There are both positive and negative impacts of social factors. Positively, these factors provide with social stability and collective responsibility. Negatively they conflict with individual aspirations, interests, abilities, talents and motivations. Maintaining a judicious balance between social change and social stability is the most challenging task in dealing with rural livelihood.

3. Economic factors :

Inheritance of wealth and the land resources in the rural areas is an important factor in rural livelihood. There is a vast majority of landless agricultural labourers who are engaged in rural livelihood options. They fluctuate between rural and urban

livelihood seasonally. Since most of the agricultural operations are seasonal by nature, they have no other option that shifting from one occupation to another. Since they seldom own rural resources such as land and cattle, they have limited opportunity in the agriculture allied engagements. They prefer to migrate seasonally to urban areas and engage in non-agricultural, unskilled occupations such as construction, domestic labour, daily wager, and casual labour in the industrial and manufacturing houses. Securing productive assets to the rural mass is a challenge for the civil authorities dealing with rural livelihood.

4. Cultural factors :

Cultural factors in the rural areas are mainly concerned with caste factors. Other cultural factors are linguistic and regional considerations. These factors have indelible impact on one's livelihood options in the rural areas. Cultural factors play the same role as that of social factors 7 with regard to rural livelihood. Rural livelihoods for many are culturally determined and the individuals have limitations in the choice of a desired occupation. The government and civil society organisations have challenging task to deal with all the cultural factors that interfere with the people's livelihood options.

5. Religious factors :

Religion is another important cultural factor which has significant influence upon rural livelihood. Certain occupations are considered meritorious from certain religious perspectives and certain others are considered undesirable. Religion sometimes interferes with the personal, social and national interests and the civil agencies as well as the government face great challenge to deal with such religious forces while dealing with rural livelihoods.

6. Geographical factors :

Geographic factors include the type of soil, availability of water, distance from the sea and the height from the sea level. All these factors affect all the agricultural and allied activities. They are the major considerations while dealing with rural livelihood. The government and non-government agencies working in the rural sector have to take due consideration of all these geographical factors while designing new

projects for protecting and promoting rural livelihood options. Conservation of soil and water is the chief geographical consideration in the context of rural livelihood.

7. Climatic factors

Climatic factors include the possibility of monsoon rainfall, wind, cyclone or flood conditions, severity of winter and summer etc. Climatic conditions are related to geography of a particular village. Therefore, geographical and climatic factors are often considered together and they have significant impact on rural livelihood. Climatic conditions are often beyond human control and we need to adapt to such conditions. Rural livelihood options have to take due consideration of all the climatic forces. For example, the cropping pattern, rotation of crops and farming schedules have to be in accordance with the climatic factors.

8. Ecological factors

Ecological factors refer to the environmental impacts of rural livelihood. It is related to the sustainability of the rural livelihood. Rural livelihood should not affect the ecological balance or endanger the environment. They should not pollute, water, air and soil resources. People need to engage in such economic activities that would protect the environment or inflict minimum damage to the natural resources. From ecological perspective, tribal livelihood options are most eco-friendly and the urban livelihood options are the least eco-friendly. Rural livelihoods are sometimes eco-friendly and sometimes ecologically harmful. Deforestation, soil erosion and water contamination (due to the use of pesticides) are often cited as harmful impacts of agricultural and allied activities. Farmers need to be taught about organic farming and the ways and means to practice rural livelihoods in harmony with nature. This is related to the sustainable rural livelihood.

Difference between rural livelihood and urban livelihood

Sr. No.	Rural Society (Pre-industrial Society)	Urban Society (Industrial Society)
1.	Life in the society was very simple and reflected in the way of living, dressing, food habits, shelter and manners etc.	Life in the city is not simple but very complex and complicated.
2.	The people in the society had homogeneity and thus enjoyed more or less the same social status.	The people in the city belong to different castes, creeds, religions and cultures, thus do not enjoy the same social status.
3.	In the rural society there was very little scope for occupational mobility.	In cities there are many occupations, so occupational mobility is as well as frequent.
4.	Here the family played a very significant and predominant	In the cities hold of families is not strong, and many functions which role. Its hold was very strong. the families used to perform have been taken away by other institutions and associations.
5.	In villages there is no fast change and as such no necessity for social adaptability.	In the cities there must be fast mobility and adaptability to suit ever changing fast life.
6.	In the rural society culture was very deep-rooted. Everyone loved culture and cultural heritage above everything else.	In the cities it is different to find pure culture.
7.	In a rural society there is no division of labour.	In an urban community there is always division of labour and specialization in job allotment.
8.	Rural society did not give due and proper respect to the womenfolk.	In urban communities women enjoys comparatively high social status.
9.	In this society people loved nature and natural bounties. They were religious minded and afraid of gods and goddesses.	In cities, people have no time to stand and gaze at the nature. They are not religious minded but more materialistic.
10.	There were very few chances of providing employment and incentives	The cities provide both incentive and employment to the people and to the unemployed by the society. thus frustrated villages find solace in the cities which respects ability and judges their worth.

Lecture No. 4 **Date :**

DIFFERENT INDICATORS TO STUDY LIVELIHOOD SYSTEMS

In the agricultural sector, indicators are variables that can be measured or observed to reflect the state of a system. They can be used to assess the sustainability and condition of land, and to help identify problems and risks. Indicators can also help determine if current farming practices are effective.

Indicators are **"measurable variables"** for evaluating the performance of something (de Olde *et al.*, 2016).

Generally, indicators are part of a larger sustainability framework, which includes dimensions (e.g., environment, economic, and social) and themes (e.g., waste and greenhouse gas emissions) (de Olde *et al.,* 2016; Kouchner *et al.,* 2019). In both standard and assessment initiatives, indicators are the mechanism through which sustainability is operationalized in that they translate the various themes into measurable variables. Specifically, in assessment initiatives, indicators define the aspects of sustainability that farmers are to measure, and how they are to measure them. In standard initiatives, indicators delineate the sustainability practices, plans, and measurements farmers need to implement in order to be certified as sustainable.

Indicators that can be used to measure livelihood systems in India:

1] Accessibility to resources:

This includes access to education, credit, healthcare, and food.

Access to resources for livelihood in India is affected by a number of factors, including:

- ***Institutions :*** These include local administration, non-government organizations (NGOs), and state agencies, which determine rules and regulations, land tenure, and the market.
- ***Social and political organization :*** These include civil society, which influences access to resources through people and people's movements.
- ***Social relations :*** These include gender, class, age, and ethnicity, which affect how different groups within a community live.
- ***Access to natural resources :*** Access to land, water, forests, fisheries, and pastures is essential for sustainable poverty reduction.

- ***Access to financial resources :*** More secure access to financial resources can help improve livelihoods.
- ***Access to education and training :*** Improved access to education and training can help improve livelihoods.
- ***Access to nutrition :*** Improved access to nutrition can help improve livelihoods.
- ***Social environment :*** A more supportive and cohesive social environment can help improve livelihoods

2] Livelihood diversity:

This includes the number of livelihood options available to people.

Livelihood diversification in India is a process that helps rural families improve their standard of living by building a diverse portfolio of activities and social support systems. Here are some examples of livelihood diversification in India:

- ***Mixed crop-livestock farming :*** India practices mixed crop-livestock farming, with cattle, goats, and fowl being common.
- ***Livestock :*** Livestock provides stability in income, food security, transport, fuel, and nutrition for rural families.
- ***Poultry :*** Poultry accounts for the largest share of livestock in India.
- ***Handicrafts :*** Handicrafts are a significant source of income in rural areas, and include pottery making, basket making, weaving, printing, and painting.
- ***Farm to non-farm :*** Some people have diversified from farm to non-farm activities, such as trading milk, running tea stalls, and opening small restaurants.
- ***Farm diversification :*** Farm diversification is a strategy for fostering economic growth and development in hilly regions. This includes shifting from traditional crops to more valuable ones, and engaging in additional activities like dairy farming, poultry, and fishery.

3] Adaptive capacity:

This includes the ability of individuals to adapt to changing circumstances.

Adaptive capacity is the ability of a system or institution to adjust to and respond to potential damage. It is important because change is ongoing and uncertain,

and intentional transformation takes time. In India, studies have shown that adaptive capacity is inversely associated with vulnerability. This means that higher adaptive capacity is associated with lower vulnerability.

Here are some ways to enhance adaptive capacity:

- ***Invest in protective actions :*** Individuals can invest in actions to minimize future losses to assets, lives, health, income, and finance.
- ***Access public goods :*** Individuals can benefit from public goods created by the government or non-government institutions. These include disaster shelters, loan finance, and improved information dissemination on weather forecasts.
- ***Improve infrastructure :*** Physical and financial infrastructure development can help enhance adaptive capacity

4] Disaster risk reduction:

This includes the effectiveness of measures taken to reduce the risk of disaster.

Measures taken to mitigate disasters might be either structural (like flood dikes) or non-structural (e.g. land use zoning). Hazard mapping, Adoption, and enforcement of land use and zoning practices, and implementing and enforcing building codes are some disaster mitigation strategies.

- **Impacts of a Disaster :**

Natural disasters can drastically alter the lives of people and families fortunate enough to survive them. However, the impact of a natural disaster can frequently affect an entire nation as well as communities, cities, and states. Even when human communities are not significantly impacted, natural disasters can have a significant negative influence on the ecosystem.

Some of the severe impacts of disasters are

- Injuries
- Death
- Psychological distress
- Unemployment
- Loss of Livelihood
- Destruction of Physical Capital
- Loss of Financial Resources

- Social and economic Disruption
- Environmental Damage

Study in detail about Biological Disaster Management for UPSC preparation!

Disaster Management in India :

India has a history of being extremely vulnerable to natural disasters. Therefore, it is important to have proper natural disaster management in India. The Indian government has changed how disaster management is thought about during the last few years. The new strategy is based on the conviction that disaster mitigation must be included in the development process for development to be sustainable.

Image: Disaster Management Cycle in India

Check out the article on Urban Flooding with this link!

Elements of Disaster Management in India :

There are 4 elements of Disaster Management in India: Risk Reduction, Mitigation, Quick Response, and Recovery. These are also known as disaster management techniques in India. Let's discuss each element in detail.

- ***Risk Reduction*** **:** Risk is a measurement of the anticipated losses resulting from a hazardous occurrence of a specific size occurring in a given location over a defined time frame. Disaster risk reduction is the idea and practice of lowering the risks associated with disasters by systematic attempts to identify and reduce the causes of disasters.
- ***Mitigation*** **:** Disaster mitigation strategies remove or reduce the consequences and risks of hazards by preventative actions performed before an emergency or disaster happens. Measures taken to mitigate disasters might be either structural (like flood dikes) or non-structural (e.g. land use zoning). Hazard mapping, Adoption, and enforcement of land use and zoning practices, and Implementing and enforcing building codes are some disaster mitigation strategies.
- ***Quick Response*** **:** Quick response is an important element of disaster management in India. It is associated with emergency response systems and reduces or avoids the damages caused by disasters.

- ***Recovery*** **:** The implementation of short-term actions that restore essential information and records together with the return of regular business operating procedures and practices is part of the recovery phase. In this phase, the damage is evaluated, stabilisation and recovery methods are used, records, information, and equipment are restored, and operations are resumed.

Disaster Management in India: Stages

Disaster management in India constitutes 3 important phases:

- ***Pre Disaster*** **:** To reduce the probability that hazards may cause losses to people, property, or the environment and to make sure that these losses are reduced during a disaster.
- ***During a Disaster*** **:** To reduce victims' suffering by ensuring the satisfaction of victims' needs and necessities.
- ***Post Disaster*** **:** To accomplish a quick and lasting recovery that does not repeat the initial vulnerable circumstances

5] Survival and livelihoods protection threshold:

This includes the percentage of households that have enough food, cash, and income to meet their survival needs.

The survival and livelihoods protection thresholds in India are the minimum income required to cover basic needs and sustain livelihoods:

- ***Survival threshold :*** The total income needed to cover the minimum food energy needs, food preparation and consumption costs, and water for human consumption.
- ***Livelihoods protection threshold :*** The total expenditure needed to ensure basic survival, maintain access to basic services, and sustain livelihoods in the medium to longer term. When a household's total income falls below the livelihoods protection threshold, it may indicate that the household is forgoing necessary investments in their regular income generating activities and basic services.

6] Ownership and access to productive assets :

This includes the percentage of households that are able to protect, replace, increase, or improve their productive assets. Physical assets include land, buildings,

livestock, agricultural implements & machinery, non-farm business equipment, transport equipment and household durables while shares, deposits, cash & kind dues receivable and cash in hand were considered under financial assets.

7] Productivity enhancement :

This includes the percentage of households that improve their production through new practices, technology, or training.

There are several ways to enhance productivity in India, including:

- ***Agricultural research and extension :*** Strengthening agricultural research and extension systems is important for agricultural growth. This includes reforming systems, replacing aging researchers, and providing access to new technologies.
- ***Irrigation :*** Expanding and using small- and large-scale irrigation can increase agricultural productivity.
- ***Cooperative farming :*** Uniting scattered lands under a cooperative farming system can encourage farmers and increase productivity.
- ***Agricultural education :*** Promoting distance education and organizing "Kisan Choupal" to solve farmers' problems can help improve agricultural productivity.
- ***Mechanization :*** Providing subsidies on agricultural machinery can help interested farmers.
- ***Organic farming :*** Promoting organic farming can help ensure sustainable farming.
- ***National Food Security Mission :*** The National Food Security Mission has increased the production and productivity of oilseeds, reducing the import burden.
- ***Livestock development and fisheries :*** Enhancing income through livestock development and fisheries can help improve food security.
- ***Food management :*** Using technology in food management and computerizing the targeted public distribution system can help improve food security.

8] Access to livelihoods support services and markets :

This includes the availability of services and markets that support livelihoods.

Here are some initiatives in India that provide access to livelihoods support services and markets:

- ***Access Livelihoods Consulting India (ALC India) :*** A social enterprise that offers services to marginalized producers, including small and marginal farmers, weavers, tribals, and small livestock holders. ALC India's services include:
- ***Access Tribal Livelihood Services (ATLS):*** Offers professional services, including consulting and incubation services, to promote tribal enterprises.
- ***Risk management solutions :*** Helps organizations avoid, mitigate, and identify risks, and recommend risk protection solutions.
- ***Infrastructure services :*** Helps with infrastructure needs assessment, planning, financing, and vendor identification.
- ***IT consulting and application development :*** Helps stakeholders in the livelihoods sector understand technology and realize new possibilities.

National Rural Livelihoods Mission (NRLM) :

Also known as Aajeevika, this mission aims to create platforms for poor rural people to increase their household income. It provides access to financial services and sustainable livelihood enhancements.

Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) :

This mission aims to link the rural poor to sustainable livelihood opportunities and financial services.

Lecture No. 5 & 6 **Date :**

AGRICULTURAL LIVELIHOOD SYSTEMS (ALS) :

MEANING, APPROACH, APPROACHES AND FRAMEWORK

An agricultural livelihood system (ALS) is a livelihood system mainly based on agricultural activities such as crop and livestock production.

Agricultural livelihood system (ALS) processes are crop production, livestock production, aquaculture, forestry, organic fertilizer production (with or without energy recovery), stocks, household consumption, and agricultural trades (Van den Bosch *et al.,* 1998).

An agricultural livelihood is the work of farmers who grow food to support themselves, and it can also include other activities in the agricultural value chain:

- **Farming**: Farmers use their knowledge of natural resources to grow food through activities like sowing, weeding, and harvesting.
- **Processing**: Farmers process agricultural products.
- **Trading**: Farmers trade agricultural products.
- **Marketing**: Farmers market agricultural products.
- **Wage labor**: People provide wage labor on farms.
- **Small businesses**: People work in small businesses that support the agricultural value chain.

The goal of agricultural livelihood is to support sustainable agricultural development. This includes: Optimizing the use of resources, Contributing to social and economic sustainability, Addressing technical challenges, Being aware of the social context of livelihood decisions, and Being sensitive to institutional challenges.

Systems approach :

In system approach all the components and activities are linked, they affect each other. It is not sensible to look at one component by itself without recognizing that what it does and what happens to it will affect other parts of the system.

For example consider what happens when you stub your toe: the whole body may react and different parts may respond differently. Eyes may water, the voice may make appropriate sounds, the pulse rate may increase and hands may try to rub the

damaged toe. It would be very rash to alter any component of a system without regard to the consequences and reactions elsewhere.

You cannot, for example, improve a car (system) by doing research on one wheel and then making it rather bigger than the rest. Or increase the power and size of the engine without regard to the ability of the chassis to support it.

These things are common sense in such familiar contexts- they also apply to biological and agricultural systems.

In agriculture, management practices were usually formulated for individual corp. However, farmers are cultivating different crops in different seasons based on their adaptability to a particular season, domestic needs and profitability. Therefore, production technology or management practices should be developed in view all the crops grown in a year or more than one than one year if any sequence or rotation extends beyond one year. Such a package of management practices for all crops leads to efficient use of costly inputs, besides reduction in production cost. For instance, residual effect of manures and fertilizers applied and nitrogen fixed can considerably bring down the production cost if all the crops are considered than individual crops.

AGRICULTURAL LIVELIHOOD SYSTEMS APPROACHES :

There are multiple approaches to agricultural livelihood systems, including the Sustainable Livelihoods Framework and the Farming Systems Approach:

A] Sustainable Livelihoods Framework :

This framework considers the wider context of people's livelihoods, including their assets, vulnerability, and the policies and institutions that affect them. It also considers the different livelihood strategies and outcomes that determine how assets can be used. The framework can be used to plan new development activities and assess existing activities.

B] Farming Systems Approach :

This approach emphasizes the importance of farmer participation in understanding their goals and objectives. It also ensures that scientific results are adapted to be acceptable to farmers. The approach also produces knowledge about farming systems and tools to help farmers change.

C] Livelihood and Farming System Approach :

This approach can be applied to farm-level data to define a local typology of farming systems. It can also help identify other relevant options for generating income and subsistence, such as hunting, fishing, or gathering.

A] SUSTAINABLE LIVELIHOODS FRAMEWORK

- A framework is a 'particular way of viewing the world'.
- The livelihoods framework is a way of understanding how households derive their livelihoods by drawing on capabilities and assets to develop livelihood strategies composed of a range of activities.
- The framework defines and categorizes the different types of assets and entitlements which households have access to.
- The framework looks at the connections between the local or micro situation and actors, institutions and processes at work in the wider world.

Conceptual framework :

Conceptual framework is a set of ideas that are organized to provide a coherent approach to analyzing and understanding an issue or problem.

- It also spells out the assumptions and values which underlie the concepts.
- The livelihoods framework examines the different elements that contribute to people's livelihood strategies.
- It analyses how forces outside the household or community in 'the external environment' affect them.
- The livelihood framework is a tool to improve our understanding of livelihoods, particularly the livelihoods of the poor.
- It presents the main factors that affect people's livelihoods, and typical relationships between these.
- It can be used in both planning new development activities and assessing the contribution to livelihood sustainability made by existing activities.

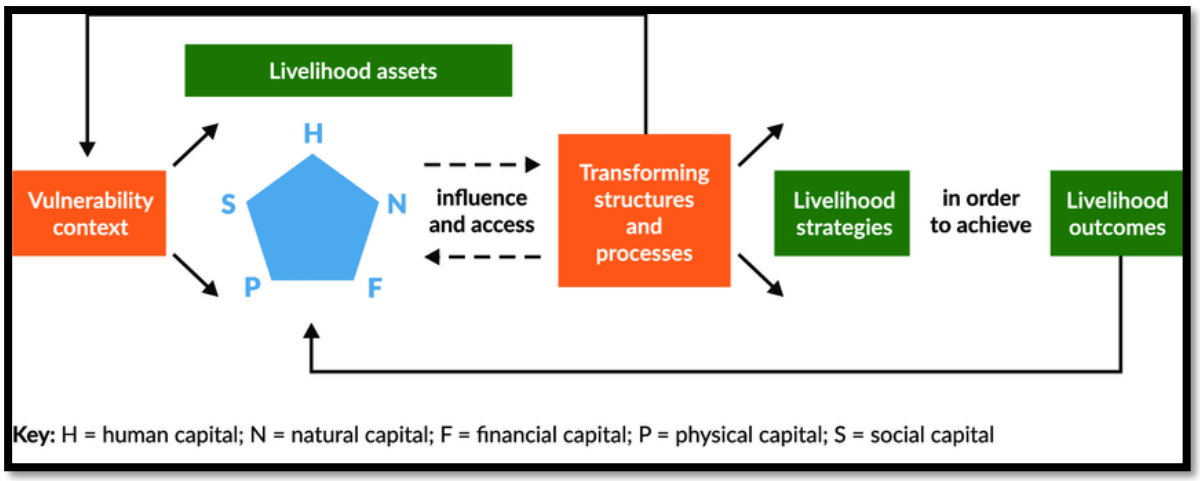
Despite differences in emphasis by different practitioners, the livelihoods framework helps us to:

- Identify (and value) what people are already doing to cope with risk and uncertainty;

- Make the connections between factors that constrain or enhance their livelihoods on the one hand, and policies and institutions in the wider environment;
- Identify measures that can strengthen assets, enhance capabilities and reduce vulnerability.

• **In particular, the framework:**

- Provides a checklist of important issues and sketches out the way these link to each other;
- Draws attention to core influences and processes; and
- Emphasizes the multiple interactions between the various factors which affect livelihoods.



The framework shows how, in different contexts, sustainable livelihoods are achieved through access to a range of livelihood resources (natural, economic, human and social capitals) which are combined in the pursuit of different livelihood strategies (agricultural intensification or extensification, livelihood diversification and migration).

1. Livelihood assets :

- People and their access to assets are at the heart of livelihoods approaches.
- In the original DFID framework, five categories of assets or capitals are identified, although subsequent adaptations have added others, such as political capital (power and capacity to influence decisions).
- The original five categories are :

- ***Human capital:*** skills, knowledge, health and ability to work
- ***Social capital:*** social resources, including informal networks, membership of formalized groups and relationships of trust that facilitate co-operation
- ***Natural capital:*** natural resources such as land, soil, water, forests and fisheries
- ***Physical capital:*** basic infrastructure, such as roads, water and sanitation, schools, ICT; and producer goods, including tools and equipment
- ***Financial capital:*** financial resources including savings, credit, and income from employment, trade and remittances

- Assets can be destroyed or created as a result of the trends, shocks and seasonal changes in the vulnerability context within which people live.
- Policies, institutions and processes can have a great influence on access to assets - creating them, determining access, and influencing rates of asset accumulation.
- Those with more assets are more likely to have greater livelihood options with which to pursue their goals and reduce poverty.

2. Vulnerability Contexts :

- The vulnerability context within which people pursue their livelihoods includes: –

  Trends: such as economic trends, resource trends
  - ***Shocks:*** such as conflict, economic shocks, health shocks and natural shocks such as earthquakes
  - ***Seasonality:*** seasonal fluctuations in prices, production, health, employment opportunities
- These factors can have a direct impact on people's assets and the options available to them to pursue beneficial livelihood strategies.
- Shocks can destroy assets directly or force people to abandon or prematurely dispose of them as part of their coping strategies – for example selling off livestock in the face of drought or to pay for medical care.

- Not all trends are negative or cause increased vulnerability – for example new technologies, medical advances or positive economic trends can help improve people's livelihoods.
- The vulnerability context of poor people's livelihoods is usually influenced by external factors (outside their direct control and is dependent on wider policies, institutions and processes).
- To support people to be more resilient to the negative effects of trends, shocks and seasonality, development policy-makers and practitioners can support people's access to assets and help ensure that critical policies, institutions and processes are responsive to the needs of the poor.

3. Livelihood strategies :

- Livelihood strategies are the combination of activities that people choose to undertake in order to achieve their livelihood goals.
- They include productive activities, investment strategies and reproductive choices.
- The choice of strategies is a dynamic process in which people combine activities to meet their changing needs.
- For example, in farming households, activities are not necessarily confined to agriculture but often include non-farm activities in order to diversify income and meet household needs.
- Migration, whether seasonal or permanent, is one common livelihood strategy.
- A major influence on people's choice of livelihood strategies is their access to assets and the policies, institutions and processes that affect their ability to use these assets to achieve positive livelihood outcomes.
- People are often forced to compete for limited resources: fundamental to livelihoods approaches is the principle that development support aimed at improving the livelihood strategies of some should not disadvantage those of others now or in the future.

- Social protection programs can support the extreme poor to achieve their own positive livelihoods outcomes in cases where they are unable to compete with those with greater access to assets.

4. Policies, Institutions and Processes (PIPs) :

The PIPs element of the livelihoods framework covers the complex social, economic and political context within which people pursue their livelihoods strategies.

PIPs include the inter-related issues of :

- ***Social relations :*** The way in which gender, ethnicity, culture, history, religion and kinship affect the livelihoods of different groups with a community
- ***Social and political organization :*** Decision-making processes, civic bodies, social rules and norms, democracy, leadership, power and authority, rent-seeking behavior
- ***Governance :*** The form and quality of government systems including structure, power, efficiency and effectiveness, rights and representation
- ***Service delivery :*** The effectiveness and responsiveness of state and private sector agencies engaged in delivery of services such as education, health, water and sanitation
- ***Resource access institutions :*** The social norms, customs and behaviors (or 'rules of the game') that define people's access to resources
- ***Policy and policy processes :*** The processes by which policy and legislation is determined and implemented and their effects on people's livelihoods
- PIPs operate at global, national, regional, district and local levels.
- Key to understanding their impact on local livelihoods is an analysis of the operation, or absence, of links between micro, meso and macro levels.
- Given its complexity, there have been several attempts to 'unpack the PIPs box' to improve understanding of the institutional context, including exploring the links between rights- based and livelihoods approaches, and trying to sharpen our comprehension of the role of governance in sustainable livelihoods.

5. Livelihood outcomes :

- Livelihood outcomes are the goals to which people aspire, the results of pursuing their livelihood strategies.
- Livelihoods approaches stress the importance of understanding and supporting poor people's efforts to achieve these goals.
- Examples of livelihoods outcomes might include: – increased income – reduced vulnerability – increased well-being – improved food security – more sustainable use of natural resources
- Livelihoods outcomes are important because they help us understand:
    - the results of peoples' livelihoods strategies in a particular context
    - why people pursue particular strategies and what their priorities are
    - how people are likely to respond to new opportunities or constraints
- In its simplest form, the framework depicts stakeholders as operating in a Context of Vulnerability, within which they have access to certain Assets.
- These gain their meaning and value through the prevailing social, institutional and organizational environment (Transforming Structures and Processes).

B] Farming system approach :

Farming systems approach relates to the whole farm rather than individual elements; it is driven as much by the overall welfare of farming households as by goals of yield and profitability. Farming systems are closely linked to livelihoods because agriculture remains the single most important component of most rural people's living and also plays an important role in the lives of many people in semi-urban areas. Farming systems involve a complex combination of inputs, managed by farming families but influenced by environmental, political, economic, institutional and social factors. Research and extension institutions are increasingly aware that a holistic approach, drawing on both local and external knowledge, is necessary if they are to be effective in addressing poverty and sustainability. "

Farming System is defined as a complex inter related matrix of soil, plants, animals, implements, power, labour capital and other inputs controlled in part by farming families and influenced to varying degrees by political, economic, institutional and social forces that operate at many levels. The farming system

therefore, refers to the farm as an entity of inter dependent farming enterprises carried out on the farm". The farm is viewed in a holistic manner. The farmers are subjected to many socioeconomic; biophysical, institutional, administrative and technological constraints.

Need for Farming System Approach :

The need for Farming Systems Approach in the present scenario is mainly due to high cost of farm inputs, fluctuation in the market price of farm produce, risk in crop harvest due to climatic vagaries and biotic factors. Environmental degradation, depletion in soil fertility & productivity, unstable income of the farmer, fragmentation of holdings and low standard of living add to the intensity of the problem.

What it is and What it does :

It is an approach for developing farm-household systems, built on the principles of productivity, profitability, stability and sustainability. All the components are complimentary and supplementary to each other. And the development process involves the participation of rural communities. The farming system approach emphasizes understanding of farm household, community inter linkages, reviews constraints and assesses potentials. And it combines improvements desired from better technology. It needs efficient support services and requires better policies. It is continuous, dynamic and interactive learning process based on analysis, planning, testing, monitoring and evaluation.

Why Farming Systems Approach :

- To develop farm – house hold systems and rural communities on a sustainable basis
- To improve efficiency in farm production
- To raise farm and family income
- To increase welfare of farm families and satisfy basic needs.

An intensive integrated farming system addresses two issues, reduction in risk with the monoculture activities and promoting enterprise diversification, value addition and development of alternative income sources with efficient utilization of farm resources. And it brings about enterprise diversification for sustainability and additional benefits, better management of important farm resources like land, labor

and capital etc. Provides an opportunity for effective recycling of the product and by-products, helps to generate flow of cash to the farmers round the year by way of disposal of milk, fruits, fuel, manure etc., beside other agricultural output.

Farming Systems Strategy :

In view of serious limitations on horizontal expansion of land and agriculture, only alternative left is for vertical expansion through various farm enterprises required less space and time but giving high productivity and ensuring periodic income specially for the small and marginal farmers located in rainfed areas, dry lands, arid zone, hilly areas, tribal belts and problem soils.

The following farm enterprises could be combined :

Agriculture alone with different crop combinations

- Agriculture + Livestock
- Agriculture + Livestock + poultry
- Agriculture +Horticulture + Sericulture
- Agro-forestry + Silvipasture
- Agriculture (Rice) + Fish culture
- Agriculture (Rice) + Fish + Mushroom cultivation
- Floriculture + Apiary (beekeeping)
- Fishery + Duckery + poultry

For meaningful execution of integrated farm-enterprises, the following activities should be undertaken by a multi-disciplinary team of extension professionals with farmer's participation and involvement at all stages.

- Thorough understanding of existing farming systems and their components
- Assessment of resource availability in the farm environment and identification of bio-physical, socio-economic, institutional, administrative and technological constraints
- Developments of economic viable and efficient integrated farming systems suitable for various domains
- Diffusion of improved technology and receiving 'feed back' for further improvement of the system as a whole.

- Continuous improvement in components technology to fit into a given farming system
- Improvement in quality of farming system
- Research Extension linkage through "On farm Adaptive Research"
- Development of National and International linkages

C] Livelihood and Farming System Approach :

A livelihood and farming system (LFS) approach is a way to understand the livelihoods of people in rural areas, and to identify strategies that can help reduce poverty and hunger:

- ***Recognize diversity :*** The LFS approach recognizes that the livelihoods of people in rural areas are diverse, including farmers, pastoralists, and fishing families.
- ***Identify constraints :*** The LFS approach helps identify constraints and assess potential, and can help improve technology.
- ***Consider other income sources :*** The LFS approach considers other sources of income, such as hunting, fishing, or gathering, which can be as important as farming for ecosystem management and conservation.
- ***Identify best options :*** The LFS approach can help identify the best options for local land managers by applying farm-level data on inputs and outputs.
- ***Consider socio-economic factors :*** The LFS approach can help identify the factors that drive livelihood systems, such as household-level socio-economic factors.
- ***Consider biophysical conditions :*** The LFS approach can help identify the factors that drive farming systems, such as village-level biophysical conditions.

The LFS approach can help governments, civil society organizations, and the private sector create the right environment and incentives to help farm households achieve agricultural growth and poverty reduction

Lecture No. 6 **Date :**

DEFINITION OF FARMING SYSTEM AND FARMING BASED LIVELIHOOD SYSTEM

Farming system :

1. Farming system refers to the *farm as an entity of interdependent farming enterprises carried out on the farm*.
2. Farming system is a decision making unit comprising the farm, household, cropping and livestock systems that transform land, capital and labour into useful products that can be consumed or sold (Fresco and Westphal, 1988).
3. Farming system represent integration of farm enterprises such as cropping system, animal husbandry, fisheries, forestry etc. for optimal utilization of resources bringing prosperity to the farmer.
4. It is a resource management strategy to achieve economic and sustained production to meet divers requirement of farm household while a system preserving resource base and maintaining high level environmental quality (Lal and Millar, 1990).
5. Farming system are characterized by their physical, biological and socio-economic setting and by the farm families, goals and other attributes access to resources, choices of productive enterprises and management practices.

Farming system concept :

'Farming' is a process of harnessing solar energy in the form of economic plant and animal products. 'System' implies a set of interrelated practices and processes organized into functional entity i.e. an arrangement of components or parts that interact according to some process and transform inputs into outputs. Farming system is therefore, designed as a set of agricultural activities organized into functional unit(s) to profitable harness solar energy while preserving land productivity and environmental quality and maintain desirable level of biological diversity and ecological stability. The emphasis is more on system rather than gross output. In other words 'farming system' is a resources management strategy to achieve economic and sustained production to meet diverse requirement of farm household while a system preserving resource base and maintaining high level environmental quality (Lal and Millar, 1990).

In farming system all the activities, decision, management, input/output, purchase/sale and resources utilized make the matrix of farming system which interacts with socio-economic and bio-physical environment for purchasing the necessary inputs and disposing the outputs by utilizing the natural resources (land, water, air, sunshine etc.) effectively. Sustainability is the objective utilization of inputs without impairing the quality of environment with which it interacts. Therefore, it is clear that farming system is process in which sustainability of production is the objectives.

Objectives of farming system :

Overall objective evolve technically feasible and economically viable farming system models by integrating cropping with allied complementary enterprises for irrigated, rainfed, hilly and coastal areas with a view to generate income and employment from the farm. The specific objectives are :

1. To identify existing farming systems in specific area and assess their relative viability.
2. To formulate farming system models involving main and allied enterprises for different farming situation.
3. To ensure optional utilization and conservation of available resources and effective recycling of farm residues within system.
4. To maintain sustainable production system without damaging resources base/environment.
5. To raise overall profitability of farm household by complementing main/allied enterprises with each other.

Scope of farming system :

Farming enterprises include crop, livestock, poultry, fish tree crops, plantation crops, sericulture etc. a combination of one or more enterprises with cropping, when carefully chosen, planned and executed, gives greater dividends than single enterprises, especially for small and marginal farmers. Farm a unit is to be considered and planned for effective integration of the enterprises to be combined with crop production activity. Integration of farm enterprises depends on many factors such as

- Soil and climatic features of the selected area.
- Availability of the resources, land, labour and capital.
- Present level of utilization of resources.

- Economics of proposed integrated farming system.
- Decision-making skill of the farmer.

Classification of farming system :

For the purpose of agricultural development and devise meaningful measures in agricultural policy, it is advisable to group of farms with similar structural properties into classes. It is important in this context that relevant criteria for purpose of classification used and no single criterion allows the formation of means classes.

1. Collective Farming System :

It includes direct collection of farm products from non arable lands. It may include either regular or irregular harvesting of uncultivated plants. Hunting and fishing usually go hand in hand with collection. In pre historic times, activities of this kind were major sources of food supply. In some region these activities still provide rather important additions to the subsistence food grained from organized production in arable farming and husbandry. Only in few cases the wild oil-palms in some parts of West Africa, the gum Arabic of the Sudan, the wild honey of Tanzania is collecting a major cash earning activity.

2. Cultivation Farming :

In this system farming community cultivates the land for growing crops for obtaining maximum production per unit area. Cultivation farming is major farming system and further classified into different groups based on different criteria.

A] On the basis of type of rotation :

The word rotation has two meanings according to the time period involved. There a long term alternation between various types of land use such as arable farming, tree farming, grass land use, fallow etc. rotation means the sequence of these basic types of land use on given field. Within arable farming, there is also a term crop rotation which means short term sequence of arable crops on one field.

a) **Natural fallow system :** describes a situation where cultivation alternates with an uncultivated fallow. The natural fallow vegetation may be following forms.
   i. A forest fallow : comprises woody vegetation with trunks and a closed canopy in which trees are ecologically dominant.
   ii. A bush fallow : comprises dense wood vegetation without trunks.
   iii. A savanna fallow : comprises a mixture of fire resistant tree and grasses in which the grasses are ecologically dominant.

iv. A grass fallow : comprises grasses without woody vegetation.

b) Ley system : In this system several years of arable farming are followed by several years of grasses and legumes utilized for livestock production.

i. Unregulated ley : In this system natural vegetation of various grasses, bushy growth on pasture is allowed to grow durig the period of fallow. This is improperly managed pasture.

ii. Regulated ley system : During the period of fallow certain types of grasses are grown or planted. These are well management pastures with fencing and adopting rotational grazing system.

iii. Field system : In this system arable land and grassland are clearly separated from each other. The grassland associated with field systems is usually treated as permanent grassland, whether it is rough or well cared.

iv. Perennial crop system : Crops that cover the land for many years are grown. Perennial field crops like sugarcane and sisal, bush crops like tea and coffee and tree crops like oil-palm and rubber.

B] On the basis of intensity of rotation :

It is denoted by 'R'. A relatively simple and appropriate criteria for classification in the relationship between crop cultivation and fallowing within the total length of one cycle of land utilization.

$$R = \frac{\text{Number of years of cultivation}}{\text{Length of cycle of land utilization}} \times 100$$ (Joosten, 1962)

The length of cycle = Number of years of arable farming + number of fallow years

'R' indicates the proportion of the area under cultivation in relation to the total area available for arable farming e.g. if 40% of available land in one holding is cultivated than R = 40.

a) Shifting cultivation : Because of shifting of fields within a broad area of wild vegetation many fallow years follow a short period of cultivation 'R' is very small i.e. <33.

b) Fallow farming : Percentage of area cultivated annually is higher in relation to the total area available for arable farming. 'R' reaches or exceeds the value 33.
R=<66 and >33

c) **Permanent cultivation :** When land is cultivated nearly every years or even more often.

R=>66

Permanent cultivation again classified according to degree of multiple cropping.

d) **Multiple cropping :** In this system more than one crop is cultivated on the same piece of land.

If 'R' = 150 means 50% area under two crops in years

If 'R' = 300 means three crops in years are grown.

C] According to the water supply :

Farming practices with or without irrigation is categorised as

a) **Rainfed farming :** Farming without irrigation is widely referred to as rainfed or dry farming. Crops are sown taking into consideration annual rainfall of the region.

b) **Irrigated farming :** Water is applied though external sources in addition to natural sources.

D] On the basis of cropping pattern and animal activities :

The farms are grouped according to the leading crops and the livestock activities of the holding. Each activity has different requirements as to climate, soils, markets and inputs. Therefore those farms can be grouped together whose gross returns (sales + household consumption + changes in stock) are similarly constituted e.g. coffee-banana holding, rice-jute holding etc.

E] On the basis of implements used for cultivation :

In various parts of the world land is cultivated with implement or without implement or a very simple tools are used. In Sahara, millet is sown without land preparation by few nomads. Shifting cultivators frequently sow in ashes without touching the soil. Rice growers in Madagascar, Sri Lanka and Thailand using animals for land preparation. A large number of cattle's are driven across the moist field to trample down the soil until it becomes ready for planting. In some parts of the world planting sticks and digging sticks are used. However, with the exception of these pre-technical methods it is classified as

i. Hoe farming or spade farming

ii. Farming with plough and animal traction

iii. Farming with plough and tractors

F] On the basis of degree of commercialization :

a) **Subsistence farming :** Where no sale of crop and animal product is done.
b) **Partly commercialized farming :** Where more than 50% of the value of produce is for home consumption.
c) **Commercialized farming :** Where more than 50% of the produce is for sale.

G] On the basis of grass land utilization :

This system involves the rearing of animals of economic production. It is classified on the basis of degree of nomadism.

a) **Total nomadism :** System in which animal owners do not have permanent place of residence. They do not practice regular cultivation and their families move with the herds.
b) **Semi-nomadism :** Animal owners have a permanent place of residence near which supplementary cultivation is practiced. However, for long periods of time they travel with their herds to distinct grazing areas.
c) **Transhumance :** Under this system farmers with a permanent place of residence send their herds with herdsmen for long period of time to distinct grazing areas.
d) **Partial nomadism :** Farmers have permanent residence and who have herds at their disposal which remain in the vicinity.
e) **Stationary animal husbandry :** Where the animals remains on the holding or in the village throughout the entire year.

H] On the basis of size of farm and share of gross income received from different sources :

When farms in group are quite similar in kind and production of the crops and livestock that are produced and the methods, practices used in production the group is called as type of farming.

1.	According to the size of farm	:	i. Small scale farming ii. Large scale farming
2.	According to the proportion of land, labour and capital investment	:	i. Intensive farming. ii. Extensive farming
3.	According to the value of products or income	:	i. Specialized farming ii. Mixed farming iii. Diversified farming
4.	According to the supply of irrigation	:	i. Irrigated farming ii. Dry farming
5.	According to the nature of produce	:	i. Crop farming ii. Livestock raising

1] According to the size of farm :

a) **Small scale farming :** Farming is done on a small size of holding. Capital and labour risk is small and scale of production said to be small.

Advantages :

1. Intensive cultivation is possible.
2. Per unit output is more.
3. Loss is less due to natural calamities
4. Farms is easy to manage

Disadvantages :

1. More per unit cost of production
2. Mechanization is not possible
3. No employment throughout the year

b) **Large scale farming :** When farming is done on large scale with large amount of capital, labour organization and risk is called as large scale farming. In India 40-50 ha land holding may be called as large scale farming.

Advantages :

1. Production is more economical
2. Per unit production cost is less
3. Mechanization on farm is possible
4. Better marketing of agricultural products
5. Subsidiary occupations are possible
6. Increases bargaining power of farmers

Disadvantages :

1. More loss in case of less demand and more production
2. More loss in case of labour strike and natural calamities
3. Difficult to manage the farm

c) **Diversified farming :** Farming having several enterprises or sources of income but no source of income equals as much as 50% of the total receipt.

Advantages :

1. Better use of land, labour and capital
2. Farmer get regular income throughout the year
3. Provides employment throughout the year
4. Risk of failure of crop due to natural calamities or market price is less.

Disadvantages :

1. Due to more crop diversification competition for resources within crops increases.
2. Maintaining various types of machineries for various crops is not possible.
3. Supervision on various enterprises is difficult

d) Mixed farming : Farming in which crop production is combined with raising of livestock.

Advantages :

1. More efficient utilization of land, labour and other resources
2. By-product of crops are useful fed for livestock
3. Balance food is available
4. Provides money thought the year
5. Maintaining soil fertility through manure.

2] According to the value of product – Specialized farming :

The farm on which 50 per cent or more income is received from a single source (Crops, livestock, dairy, poultry).

Advantages :

1. Better use of land
2. Better marketing
3. Less labour and equipment's are needed
4. Costly and efficient machinery can be kept
5. Efficiency and skill is increased

Disadvantages :

1. Greater risk
2. Land, labour and capital not fully utilized
3. By-products cannot be fully utilized due to insufficient livestock
4. Knowledge of farm enterprises becomes limited.

3] According to the land labour and capital investment :

a) **Extensive cultivation :** When more are is brought under cultivation to increase the output.

b) **Intensive cultivation :** More inputs are used to increase the production on same land. Land remained fixed, however, inputs are increases.

4] On the basis of type of ownership (Corporate, non-corporate and co-operative farming) :

1. **Family farming :** All agricultural operations are carried out by family members. Management of inputs and farm is also done by the family members. The income is distributed by the head of the family as per family need.

2. **Co-operative farming :** All the members have ownership in the business. They pool required resources voluntarily to run the business. The income is distributed according to their share. Members are force to level the society of any time without losing ownership right.

   a) **Co-operative better farming :** Farming is done by the members independently. They have ownership on the land. The follow recommended plan of cultivation. They obtained all the inputs from society. At the end of year profit is distributed amongst the members.

   b) **Co-operative joint farming :** The members have ownership on the land and cultivation is done jointly. Cultivation plan is prepared by the managing committee and accordingly the work is carried out. Net profit is distributed amongst the members according to inputs pooled by them.

   d) **Co-operative tenant farming :** Land is owned by the co-operative society on freehold or loose hold basis. Whole land is divided into sub plots and distributed amongst the members on rent. Members have no ownership on the land. The cultivation plan is prepared by the co-operative society and members have to follow it. The society supplying all the inputs and arrange for marketing of the produce. The profit is distributed to the members in proportion to rent paid to society.

   e) **Co-operative collective farming :** The land is acquired by the society either as freehold or leasehold. But the farming is done collectively by the members. Members

have no ownership on the land. The profit is distributed according to inputs arranged by the members.

3. **Institutional farming :** Farms are used for conducting research/demonstration by an institute. Farming is not done on commercial scale. Farm is well laid out and equipped.

4. **Capitalistic farming :** Land is owned by businessman/capitalist. All the investment is made by capitalist. Labourers are employed and paid. Intensive and improved methods of cultivation are adopted. Profit/loss of the business is borne by the capitalist.

5. **State farming :** Farming is done by Govt. Farm manager and other staff is appointed for agricultural operations and day to day working. Farm may be mechanized or unmechanized depending upon the size. Govt. fixes the policy and provides finance for salary and contingencies. The profit/loss entirely borne by the government.

6. **Personal farming :** Farmers have ownership on the land and farming is done independently. The right of ownership is heritable and transferable. Farmers have small holding and they grow crops as per family requirement. Profit/loss is borne by farmers himself.

7. **Collective farming :** The members surrender their land, livestock and implement to the society. The members of the society elect a managing committee which is responsible for allocation of work, distribution of income, marketing etc.

8. **Corporate farming :** This is just like a capitalistic system of farming out the right of ownership is on the basis of shares taken by the members. The profit/loss is shared by members proportionately.

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Year : 2024-25

: Theory Notes :

FARMING BASED LIVELIHOOD SYSTEMS

CC-112

Credit (2+1) = 3

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