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CAIIB

Module-A Unit-5

Rural Banking

CAIIB Rural Banking Module A Unit 5- Agriculture Economy

Introduction

- Agriculture and allied activities clocked a growth of 3.0% at constant pace during 2020-21, with record production of food grains. According to the estimates, the share of agriculture and allied sector in overall Gross value added (GVA) increased by 1.5% to 16.3%.
- In northern India, there are two main seasons – **Kharif (July to October) and Rabi (October to March). The season between March and June is known as Zaid** and is a minor season. Agriculture year is from July to June. Indian agriculture is largely monsoon dependent. About 90 per cent of annual rainfall is received during monsoon season, i.e., months of June to September. These rains are brought about by southwest monsoon. The annual average rainfall in India is about 120 cm whereas global average is about 100 cm.
- Livestock raising or animal husbandry is an important component of agriculture in India. Livestock sector plays a significant role in the welfare of India's rural population, as it employs a major section of the countries labour force.

Structure And Characteristics Of Indian Agriculture

Small Holder Agriculture

- As per the Sixth Agriculture Census, there has been a decline in the average size of operational land holdings in India, reflecting the immense population pressure on the limited land resource available for cultivation. The average size of operational land holdings dropped to 1.08 ha in 2015-16.
- Landholdings in the marginal category (less than 1 ha) constitute 68% of the operational holdings in the country (2015-16). In terms of area operated, the share of operational holdings by marginal farmers constituted 24% of the total operational holding during 2015-16.

Land Use

- With a view to conserving top soil and to prevent soil erosion and land degradation, GOI has been implementing various programs across the country. For developing degraded lands, GOI has been implementing the **National Watershed Development Project for Rainfed Areas (NWDPRA), Soil Conservation in the Catchments of River Valley Project & Flood Prone River (RVP&FPR), Reclamation and Development of Alkali & Acid Soils (RADAS), Watershed Development Project in Shifting Cultivation Areas (WDPSCA) and the Integrated Watershed Management Program (IWMP).**
- The gross irrigated area over gross cropped area hovers around 50 per cent. There is a need to bring more cropped area under assured irrigation in order to increase production and productivity. The ultimate irrigation potential of the country is estimated at about 140 million ha.

Cropping Pattern

- The cropping pattern indicates the proportion of area under different crops, at a given point of time.
- **Multiple cropping** offers potential not only to increase food production but also helps in decreasing land degradation.
- A cropping system refers to a set of crop systems, making up the cropping activities of a farm system. The cropping system comprises all components required for the production of a particular crop. A cropping system usually refers to a combination of crops in time and space.
- The combination in time occurs when crops occupy different growing period and combinations in space occur when crops are inter- planted. The crops are grown solo or mixed (mixed-cropping) or in a definite sequence (rotational cropping). The land may be occupied by one crop during one season (mono-cropping) or by two crops during one season (double- cropping) which may be grown in a year in a sequence.

Allied Activities of Agriculture

- **Milk Production:** India continues to be the largest producer of milk in the world. The increased production in milk contributed to increase in per capita availability of milk over the years and as per the available data (March, 2019), the per capita availability of milk was 394 grams.
- **Meat Production:** India has world's largest population of livestock and it produces around 5.3 million MT of meat annually. India is the largest producer of buffalo meat and 2nd largest producer of goat meat. The largest producer of meat in the country is Uttar Pradesh producing 23% of the total meat followed by West Bengal
- **Poultry Sector:** Poultry is one of the fastest growing sub-sectors of animal husbandry. The per capita availability of eggs has also increased from 63 eggs/annum (2014-15) to 81 eggs per annum, in 2020.
- **Fisheries:** India is the second largest producer of fish in the world. It contributes 5.68% of the global fish production. India is also a major producer of fish through aquaculture, and ranks second in the world, after China.

Role Of Agriculture In Economic Development

The developmental role of agriculture can be summarized as provider of food, employment to a large number of people, market for non-agricultural goods and a source of foreign exchange earnings. These are termed as product contribution, factor contribution, market contribution and foreign exchange contribution respectively.

Product Contribution:

Agriculture contributes to the Gross Domestic Product, which is a measure of total output produced in an economy during a year. In a developing economy, where per capita income is rising, non-agricultural sectors are expected to grow faster than agricultural sector, the reasons being

- Demand for food and other agricultural products is less income-elastic than for non-agricultural products (Engel's law);
- Increasing use of inputs from non-agricultural sector in agriculture due to technological advancement (technological effect);
- Improved role of marketing services in distribution, storage and processing reduces farmer's share in consumer rupee (urbanization effect).

Factor Contribution:

The factor contribution of agriculture to economic development is resource transfers – labour and capital – to other sectors. Agricultural labour is transferred to non-agriculture sector, without causing any noticeable reduction in agricultural production process, as most of the transferred labour were either unemployed or partially employed. Transfer of capital from agriculture has two preconditions viz.

- **Generation of market surplus of agricultural products, and**
- **Net-savings from farming to exceed investment need in agriculture.**

Market Contribution:

- The agricultural sector, because of its large size, is the major market for domestic industrial products. Agriculture sector's market contribution also includes the sale of food and other agricultural products to non-agriculture sectors.

Foreign Exchange Contribution:

- Agriculture contributes to foreign exchange earnings by exporting its surplus. Diverse agro-climatic conditions in India are conducive to grow various crops almost round the year.

Agriculture-industry Linkage

Two kinds of linkage are identified – backward and forward.

- **Backward linkage** is measured in terms of the ratio of intermediate inputs purchased from other industries and total output of a particular industry.
- **Forward linkage** is measured in terms of the ratio of intermediate output sales to other industries and total sales including final consumer sales of a particular industry.

Total linkage is defined as the sum of forward and backward linkage.

- However, due to modernization of agriculture, the use of fertilizers, pesticides and mechanical aids have increased backward linkages. As regards forward linkages, it is observed that industries based on processing of agricultural products such as grain milling, textile manufacturing and fruit and vegetable canning are often pioneering industries in the process of industrialization.

Issues In Economic Development

- **Agriculture Versus Industry:** incomes from non-agricultural sector are much higher than incomes from agricultural sector. In economically developed economies, industry and services sectors dominate the economy. Yet, The role of agriculture remains important as it is less capital-intensive and employs large number of people.
- **State Versus Market:** In the process of economic development, the roles of state and market are complementary. Markets work best in a stable macroeconomic environment in which, taxes are predictable, prices are stable and government budget is balanced. Therefore, conducive policy environment is necessary for efficient functioning of markets.
- **International Trade:** The issue relating to international trade is concerned with import substitution versus export promotion. Experience has shown that subsidized import substitution generally limits competition, dampens innovation and productivity growth.

Resources In Agriculture

Resources are scarce and classified as land, labour, capital and management.

- **Land:** Land includes all natural resources, which have an exchange value, covering land, water, air, sunshine and forests, which are useful now as well as in future. Land is immobile and Fixed in quantity but provides wide variation in fertility. Quality of land depends on soil quality, nutrient level and water holding capacity.
- **Labour:** The main characteristics of labour are that its supply cannot be rapidly increased or reduced and division of labour is associated with efficiency in production. Work force in agriculture in India includes cultivators, agricultural labourers and those engaged in livestock, forestry, fishing, plantation, orchards and allied activities.
- **Capital:** Agricultural capital broadly includes money invested in livestock, machinery and buildings. It has two components – working capital and fixed capital. A possible source of capital is credit, which is defined as the capacity or ability to borrow money.
- **Entrepreneurship:** The role of entrepreneurship or management is to co-ordinate and put to use various factors of production with a view to achieving specific goals.
- **Resource Productivity and Efficiency:** The concept of productivity and efficiency are related to resource use and are useful for comparison and improvement in resource use efficiency. Productivity is important, as resources like land are limited, and so production can increase through increase in productivity. Allocating resources to maximize net economic benefits is termed as efficiency.

Technical Change In Agriculture

It is broadly referred to as changes in techniques of production, resulting from scientific research and experience.

Embodied technical change refers to the introduction of new technology in the form of physical inputs like use of tractor or other machines. Disembodied technical change is improved managerial ability due to better information on weather and prices.

Seeds:

- Seed is the basic and most critical input for sustainable agriculture. It is estimated that the direct contribution of quality seed alone to the total production is about 15-20 per cent, depending upon the crop and it can be further raised up to 45 per cent, with efficient management of other inputs.
- **The Indian Seed Program** includes the participation of Central and State Governments, the Indian Council of Agricultural Research (ICAR), state agricultural universities, the cooperatives and private players. There are 15 state seed corporations besides the National Seeds Corporation and the State Farms Corporation of India, at the national level.
- The Ministry of Agriculture is implementing a central sector scheme **"Development and Strengthening of Infrastructure facilities for production and distribution of quality seeds"** on all India basis, since 2005-6, in order make available quality seeds of various crops to the farmers, at affordable price and in time, so as to enhance seed replacement rate, boost seed production in private sector and help the public sector seed companies to enhance their production.

Fertilizer:

The Government has taken a number of measures to improve fertilizer application in the country. A new scheme, the **National Project on Management of Soil Health & Fertility (NPMSF),** has been introduced in 2008–09, with a view to setting up of 500 new Soil Testing Laboratories (STLs) and 250 Mobile Soil Testing Laboratories (MSTLs) and strengthening of the existing State STLs for micronutrient analysis.

- **Soil Health Management (SHM):** Soil Health Management (SHM) component under the National Mission for Sustainable Agriculture is to promote soil test-based-balanced use of fertilizers, through setting up/strengthening of soil testing laboratories, trainings and demonstrations on balanced use of fertilizers.
- **Soil Health Card (SHC) scheme:** In 2014–15, Soil Health Card Scheme was introduced to assist State Governments to issue soil health cards to all farmers in the country. It will provide information to farmers on nutrient status of their soil along with recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility. Soil status will be assessed regularly every 3 years, so that, nutrient deficiencies are identified for taking corrective measures.
- **Concept of customized fertilizers:** In order to encourage balanced use of fertilizers, a new concept of customized fertilizers has been introduced. These fertilizers are soil- specific and crop-specific. Organic fertilizers, namely city-based compost and vermin compost, and bio-fertilizers, namely rhizobium,

azotobacter, Azospirillum and phosphate solubilizing bacteria, have been recognized and incorporated in Fertiliser Control Order FCO 1985.

Constraints In Agricultural Development

Land Ownership And Operation:

Land reforms include abolition of intermediaries, tenancy reform, fixation of land ceiling, consolidation of land holding and co-operative management of land.

The NITI Ayog has set up an expert committee under the Chairmanship of Dr T Haque, to prepare a model agricultural land leasing act, in consultation with the states. The key features of the **Model Land Leasing Act 2016** proposed by the expert committee are as follows:

- Legalize land leasing to promote agricultural efficiency, equity and poverty reduction.
- Legalize land leasing in all areas to ensure complete security of land ownership right for landowners and security of tenure for tenants for the agreed lease period.
- Remove the clause of adverse possession of land in the land laws of various states, as it interferes with free functioning of land lease market
- Allow automatic resumption of land after the agreed lease period, without requiring any minimum area of land to be left with the tenant, even after termination of tenancy,
- Allow the terms and conditions of lease to be determined mutually by the land owner and the tenant without any fear on the part of the landowner of losing land right or undue expectation on the part of the tenant of acquiring occupancy right for continuous possession of leased land for any fixed period.
- Facilitate all tenants including sharecroppers to access insurance bank credit and bank credit against pledging of expected output.
- Incentivize tenants to make investment in land improvement and also entitle them to get back the unused value of investment at the time of termination of tenancy

Land Fragmentation:

- It refers to a small or incomplete part or piece of land broken off or separated from the whole land to which, it originally belongs. Increasing human and animal population has reduced the availability of land, over the decades.
- Per capita availability of land has declined from 0.91 hectares in 1951 to 0.27 hectares in 2011, and is projected to slide further to 0.20 hectares in 2035.

Capital Formation:

- Capital formation is essential for capacity building and is a key to growth, development and sustainability. Therefore, a decline in capital formation warrants a serious study and may act as a constraint to agricultural development, if corrective measures are not taken in time. it is important to increase the capital

formation in agriculture sector by both public as well as private sector investments.

Marketing Aspects:

- Agriculture being a seasonal activity, the arrival of commodities in the market, in bulk, leads to fall in prices. This necessitates building up of adequate on-farm storage and extended storage facilities in market yards, to avoid slump in prices that can happen due to heavy arrivals. Similarly, absence of adequate and efficient transportation facilities would tend to depress the prices of agricultural commodities in surplus areas, despite high ruling prices in deficit areas.
- Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM), 2017, provides wider options for farmers to sell produce and get better prices. Seeking to create a barrier-free market for agricultural produce and livestock across the country, the Centre has unveiled a model law and urged states to adopt it.

Emerging Issues In Agriculture

Agriculture and Environment

- Agriculture contributes to a number larger of environmental issues that cause environmental degradation including climate change, deforestation, biodiversity loss, dead zones, genetic engineering, irrigation problems, pollutants, soil degradation, and waste.
- Among some of these problems is the depletion of underground aquifers through over drafting. Soil can be over-irrigated because of poor distribution uniformity or management waste water, chemicals, and may lead to water pollution.

Climate Change and Agriculture

- Global warming is projected to have significant impacts on conditions affecting agriculture, including temperature, precipitation and glacial run-off.
- Agriculture has been shown to produce significant effects on climate change, primarily through the production and release of greenhouse gases such as carbon dioxide, methane, and nitrous oxide. In addition, agriculture that practices tillage, fertilization, and pesticide application also release ammonia, nitrate, phosphorus, and many other pesticides that affect air, water, and soil quality, as well as biodiversity.

Export Competitiveness of Agriculture

- India's aspirations regarding increasing agriculture exports from USD 40 bn to USD 100 billion are well-suited to capture the opportunity offered by global food and agriculture trends.
- The High- Level Expert Group (HLEG) on agricultural export (set up by the 15th Finance Commission) estimates that this will naturally influence the domestic agriculture market and result in meaningful job creation.

Agricultural Diversification and Food Security

Crop diversification: With the advent of modern agricultural technology, especially during the period of the Green Revolution, there is a continuous surge for diversified agriculture in terms of crops, primarily on economic considerations.

The crop pattern changes, are the outcome of the interactive effect of many factors which can be broadly categorized into the following five groups:

- Resource related factors, covering irrigation, rainfall and soil fertility.
- Technology related factors, covering not only seed, fertilizer, and water technologies, but also those related to marketing, storage and processing.
- Household related factors, covering food and fodder self-sufficiency requirement as well as investment capacity.
- Price related factors, covering output and input prices as well as trade policies and other economic policies that affect these prices either directly or indirectly.
- Institutional and infrastructure related factors, covering farm size and tenancy arrangements, government regulatory policies.

National Food Security Mission

- **National Development Council (NDC),** adopted a resolution to launch a Food Security Mission comprising rice, wheat and pulses, to increase the annual production of rice by 10 million tons, wheat by 8 million tons and pulses by 2 million tons by the end of the Eleventh Plan (2011-12).
- Accordingly, a Centrally Sponsored Scheme, **'National Food Security Mission' (NFSM),** was launched in October 2007. The Mission continued during 12th Five Year Plan, with new targets of additional production of food grains of 25 million tons comprising of 10 million tons rice, 8 million tons of wheat, 4 million tons of pulses and 3 million tons of coarse cereals, by the end of 12th Five Year Plan.

Value Chain in Indian Agriculture

- Agriculture value chains provide considerable scope to improve small farmers' access to markets and financial resources, reduce transaction costs, mitigate supply and market risks and build human and social capital, there are constraints in organizing and stabilizing AVCs in developing countries like India, with a larger number of small farm holdings.
- Strengthening the AVC and linking and integrating them into the Global Agriculture Value Chains (GAVC) is suggested to increase the competitiveness of agriculture exports and benefit from the global demand for agriculture and horticulture products.
- Some of the successful models where financing of value chains provided a crucial role in developing the value chains including a small holder value chain are VAPCOL in Gujarat, MAHAGRAPES in Maharashtra and SAFAL in Delhi.

National Mission For Sustainable Agriculture (NMSA)

NMSA, one of the eight missions under the **National Action Plan on Climate Change (NAPCC),** seeks to address issues associated with climate change. Adaptation and mitigation strategies were devised for ensuring food security, equitable access to food resources, enhancing livelihood opportunities and contributing to economic stability of the people at the end.

The major components of mission are:

- **Rain fed Area Development (RAD)** components of the Mission focuses on Integrated Farming System, Value Addition & Farm Development Activities, with emphasis not only on maximizing the farm returns but also to mitigate the impacts of climatic aberrations.
- **On-Farm Water Management (OFWM)** focuses on enhancement of water use efficiency (WUE) by promoting micro irrigation, efficient water application & distribution system, secondary storage & drainage development and reduction of conveyance loss of water, However, this component has now been subsumed with the recently launched Centrally Sponsored Scheme **"Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)"**
- **Soil Health Management:** aims at promotion of location as well as crop specific sustainable soil health management including residue management, organic farming;
- **Climate Change & Sustainable Agriculture Modelling & Networking (CCSAMN)** provides creation and bidirectional dissemination of climate change related information and knowledge by way of piloting climate change adaptation/mitigation research/model projects in the domain of climate smart sustainable management practices and integrated farming system suitable to local agro - climatic conditions.

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