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Reforms in the Agriculture Sector

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Abstract-

India's economy has historically been based mostly on agriculture. Agriculture still has a proud place in the country's environment despite substantial industrialization over the previous 60 years. It employs almost 60% of the nation's workers. The best way to understand agriculture's importance in the national economy is to comprehend its involvement in different areas. India's economy depends heavily on the agriculture industry. The use of AI, IoT, drones, and biotech for precision farming, better resource management (water, fertiliser), climate resilience, and increased yields while lowering environmental impact through data-driven insights and automation is one way to address technological issues in agriculture. These issues include access barriers for smallholders, high costs, data security, and the need for skilled users. Drones for monitoring, robotics for work, sensors for soil health, and AI for prediction are important solutions that increase productivity and sustainability. A number of changes, including public disinvestment, rural development programs, improved credit availability, efficient technology management, exploring new frontiers, and foreign direct investment (FDI), can overcome these problems. A developed and civilized country should respect its agricultural industry and protect the well-being of its farmers

Keywords- Land Reforms, Unbalanced development, rural reforms, frontiers, Public Disinvestment, FDI.

Introduction:-

India's economy has historically been based mostly on agriculture. Agriculture still has a proud place in the country's environment despite substantial industrialization over the previous 60 years. It employs almost 60% of the nation's workers. The best way to understand agriculture's importance in the national economy is to comprehend its involvement in different areas. India's economy depends heavily on the agriculture industry. The use of AI, IoT, drones, and biotech for precision farming, better resource management (water, fertiliser), climate resilience, and increased yields while lowering environmental impact through data-driven insights and automation is one way to address technological issues in agriculture. These issues include access barriers for smallholders, high costs, data security, and the need for skilled users. Drones for monitoring, robotics for work, sensors for soil health, and AI for prediction are important solutions that increase productivity and sustainability. A number of changes, including public disinvestment, rural development programs, improved credit availability, efficient technology management, exploring new frontiers, and foreign direct investment (FDI), can overcome these problems. A developed and civilized country should respect its agricultural industry and protect the well-being of its farmers

India's economy has always been supported by the agricultural sector. Agriculture continues to be a source of pride for the country despite substantial industrialisation over the previous 60 years. Approximately 60% of all workers in the nation are employed in the agricultural industry. By taking into account the role of agriculture in various economic sectors, the role of agriculture in the national economy can be described. India's economy depends heavily on the agricultural industry, especially in rural areas. In comparison to other sectors' contributions to the GDP, which fell from 7.8% to 1.8% and is currently 2.4%, the government has allocated significantly less money to agriculture and irrigation. There hasn't been much production.

Along with scientific storage, cereals and pulses are more productive. Purchasing multi-crop land is prohibited. 61% of the capacity for agri-storage is provided by government financial organisations (owned and rented). Grain preservation is equally crucial. The silos are located between 100 and 200 kilometres apart in the United States. There, farmers store their livestock. Coupons are given to them. When the market is strong or they need money, farmers cash coupons.

Need and Importance of the study-

The agriculture sector is the art and science of cultivating the soil, growing crops, and raising livestock. This includes the preparation of plant and animal products for common people to use and their distribution to local and global markets. It provides most of the food and fabrics: Cotton, wool, and leather. These are agricultural products. It supports wood for construction and paper products. All products and the agricultural methods used may vary from one part of the world to another.

Objectives –

1. To study the challenges and thrust areas before the agriculture sector.

2. To provide suggestions for the thrust areas of the agriculture sector.

Research Methodology:-

In this study, the research work is related to the reforms in the Agriculture sector and their impact on micro-irrigation, income, technology, investment, land reforms, and market information. Hence, the data is collected from secondary data sources like newspapers, tax records, censuses, and government departments like housing, social security, electoral statistics, tax records, internet searches and libraries, GPS and remote sensing, km progress reports, journals, newspapers and magazines, books, personal sources, world economic forum reports, the economic survey of India, and five-year plan documents.

A. Findings of the study:-

1. Funds not spent on micro irrigation:-

The impending introduction of the food security bill in Parliament and the escalating food inflation have underscored India's agricultural shortcomings. Agriculture experts have constantly stressed building up an extensive irrigation system, as 60% of the agricultural field is rainfed. But each year, a substantial part of the funds released by the Central Government. for micro irrigation lie unused. A recent report by MCX and PWC has revealed the huge difference between funds allocated and spent in rupees. ₹. 28,215 lakh of the center assistance remained idle in the years 2008–2009 under the micro-irrigation programme across the states.

2. Income:-

The two tables of agricultural income are directly attributable to low prices. It is fashionable to say that the prices of food and food products are high and hurt the common man. The WTO has a formula to measure the aggregate support given to agriculture. It is called the aggregate measure of support. So far as India is concerned, the AMS is negative. That means, notwithstanding input subsidies and minimum support prices, India's farmers bear the burden of a negative subsidy! India's agricultural products are subsidising consumers.

3. Bad Monsoon:-

In a bad year, when the monsoon fails or the crop is affected, he slips further down the ladder. The farming community gets impoverished. Many sink deeper into debt. Some commit suicide. The monsoon was erratic from 2000–2001, and as a result, rice output declined by 3.1 million metric tonnes. In 2001–

2002, if floods were there in one part of the nation and drought in another, the situation would become worse.

4. Limited use of technology:-

With effect from 1961 onwards, the focus shifted to the use of seed fertilizer and water technology, known as the new agricultural action plan. However, the new strategy succeeded only in wheat and, to a small extent, in rice, other foods, and non-food crops, which did not show perceptible improvement in production. Dry land cultivation was not touched at all by the new agricultural strategy.

5. Decline in Investment in agriculture:-

We have generally been allowed the opportunity to understand that government. The investment was significant in boosting growth in agriculture. Besides, the role of the government was not only to raise investment but also to induce private investment in agriculture.

6. Public investment is a great disappointment.

After showing an unhand in the seventies, public investment in real terms has generally declined, probably due to the diversion of resources from investment to current expenditure in the form of increased input and input subsidies.

7. Failure of land reforms:-

The government . failed to implement the land reform measures, resulting in marginal farmers, fewer labourers on the land, or protection of tenants from exploitation or eviction. The government . reconciled itself to its failure to push for progressive land reforms and shifted the emphasis to technological changes.

8. Unbalanced agricultural development:-

The bulk of the increase in output, particularly food grains, had been concentrated in a few progressive regions that were already enjoying high levels of food grain consumption. As a result, the marketable surplus of food grains had been rising at a high rate in these states, resulting in the accumulation of large stocks with the government. with the attendant problems of storage and distribution and the cost of storage and distribution.

9. Failure to control the growth of the rural population:-

The government failed to arrest the rapid growth of the population in rural areas and also to create non-agricultural employment in the rural sector so that those who could not be provided land in the programme of land redistribution could be provided non-agricultural employment to make a living. A programme of enlarging non-agricultural employment, if it could grow faster than the increase in the total labour force, could, after some time, help to reduce the excessive pressure of the population on land.

10. Lack of standardization and grading:-

In the absence of standardisation and grading, adulteration is the consequence. Each middleman may adulterate the produce to his short-run advantage. This poses a problem in assigning prices to the commodities as per the quality specifications. It is alleged that no proper relation exists between the price

and quality of the agricultural commodities, and this situation thwarts the farmers from formulating a remunerative price insistent on the quality of the product.

11. Lack of Market information:-

If the Marthe mechanism has to work efficiently, The market information is of two types, viz., market intelligence and market news. Market intelligence indicates a record of past information about prices, arrivals, etc. Market news provides current information on prices, arrivals, etc. But in reality, the farmers, more often than not, are in the dark as far as this information is concerned. The farmers do not have information on the existing prices of the product in the important markets. By and large, the farmers rely on the price information furnished by the traders. The price information provided generally is quite advantageous to the traders rather than to the farmers.

12. High Cost-

Despite technology's potential advantages, such as better resource management and profit, smallholder farmers face significant barriers to accessing digital agriculture due to high costs (devices, data, maintenance) and low digital literacy (lack of skills, training, infrastructure). In order to close the gap between farmer reality and technology promise, solutions include integrated training,

13. Data issues -

Protecting large, complex data from emerging cyber threats (ransomware, phishing, insiders) while maintaining availability, integrity, and compliance (GDPR, HIPAA) is at the heart of data difficulties, especially security concerns and infrastructure requirements. In order to prevent significant financial losses, reputational harm, and operational interruptions, a strong infrastructure is essential for scalability, performance, and cost containment. This requires investments in encryption, access controls, advanced technology (AI, blockchain), and qualified staff.

14. Skill GAP-

There is a severe skills shortage in the agriculture industry, which makes it urgently necessary to hire people who are qualified to oversee more complicated, technologically advanced systems. Rapid technological development, a shift to sustainable practices, and the migration of younger, better-educated workers to cities are all contributing factors to this skills gap.

B. Suggestions:-

1. Rural Reforms:-

All this calls for a range of rural reforms at various levels. Our Krishi Vigyan Kendras and extension service system have an indirect need for restructuring and improvement. We do not see here any new, big ideas on how we can extend the benefits of modern science and technology effectively to our farmers. All over the country, we find bureaucratic hurdles have put a stop to revitalising our extension service. We hope our scientists and technologists and the Ministry of Food and Agriculture will look into it and find new pathways to revitalise our extension services. The way our agricultural universities and research institutions work, we are required to revitalise the Indian agricultural research system.

2) More credit:-

We have to think fresh in the way we extend credit to our farmers, and we say so for more than one reason. As our agriculture becomes. more commercialised, there will be more belief in the commercialised inputs of agriculture. Farmers will need, therefore, more credit. If you are operating a system in which more and more innovation is also a byproduct of the functioning of not the public sector system but of private enterprise, that's the reality. In our own country as well as abroad. Now, for a greater

reason, science and technology are also being increasingly privatized. What are the implications of transforming our agriculture in this new era of increasingly privatised science and technology? This is also an issue over which we must ponder. If we don't pay adequate attention to this aspect of sustaining our agricultural growth in this new era, public-private partnerships are nothing more than buzzwords. We have to convene around a viable development strategy and seek guidance as to how to cope with this buzzword.

3) Vision:-

Our vision of rural India is a modern agrarian industrial and service economy co-existing side by side, where people can live in well-equipped villages. There is much that modern science and technology can do to realise this vision. We do believe that knowledge can contribute a great deal to this gigantic national effort. Therefore, scientists have to play an exceedingly important role in this realm.

Many of us have been preoccupied with the problem of agricultural production, and productivity has hit a growth plateau. Dr. Swami Nathan has repeatedly alerted us to the need to give a new boost to agricultural research. We do recognise the need to increase the efficiency of the utilisation of inputs, the need to improve farm management practices, and the need to reduce post-harvest.

4) **Technology Management:-**

We have to focus more attention on the management of cultural research and technology systems. We must also ponder why Bihar, which was chosen to be the original location of the Indian Institute of Agricultural Research, has failed to catch up with the rest of the country. We also do believe there is a need for increased application of science and modern technology to forest conservation and management, environmental protection, management of our animal husbandry resources, water conservation, and utilisation of herbs and plants. We need a harmonious blend of advanced science and technology, appropriate technology, and local knowledge to ensure an equitable distribution of the benefits of new knowledge.

5) Seven Components:-

a) Soil health enhancement through concurrent attention to the soil's physics, chemistry, and microbiology.

b) Water harvesting, water conservation, and sustainable and equitable use of water

c) Access to affordable credit and crop and life insurance reform.

d) Development and dissemination of appropriate technologies.

e) Improved opportunities, infrastructure, and regulations for Marthe’s marketing of produce.

f) The application of science & Biotechnology for the improvement of seeds and utilization of herbal and other plants.

g) The application of science to animal husbandry to improve the productivity of our livestock and poultry.

6) New Frontiers:-

The focus of our agriculture has also shifted from low-value crops to high-value crops. Apart from government-funded search and extension work, we now have privately funded R&D and extension services, like e-couple. As we saw earlier, with the recent privatization of science and technology, there is also an implication for the future of our agricultural growth. How to manage this technological

revolution that does not hurt our farmers but enables us to reach new frontiers of production is something we do believe requires some fresh thinking.

Our scientists must work with the government. and non-government. organizations, local bodies, and corporations to impart knowledge to their users. The revolution in information technology has opened up new opportunities. It has made it easier for us to impart knowledge to our users. However, the market for knowledge has not yet fully developed in rural areas. It is the responsibility of government or non-governmental organizations, farmers' organizations, and suppliers of such knowledge-based services to create such a market.

7) Tasks on the horizon: -

Our track record in these areas has been impressive and holds the promise of more development. Perhaps a much sharper focus is required on strategic research in plant technology. Plants as biofactories are seen as potential procedures for drugs, vaccines, biofuels, and bioplastics. Research in these areas can be enormously beneficial to a country like ours. It can have a global act too, but for all, they need a research system that is well-functioning and adequate for the tasks that are on the horizon.

If the pattern of energy consumption and utilisation in Indian agriculture can be altered, made more environmentally friendly, and made less dependent on fossil fuels, it could have far-reaching consequences for our growth process, our environment, and the well-being of our people.

Indian agriculture certainly needs new investments. It needs new productive-enhancing measures. It needs a new wave of entrepreneurship. The agricultural credit system must respond to the needs of the farmers. And so should our scientists and managers. A greater public-private Partnership is required, but it must not remain a mere buzzword. It can contribute to the revitalization of public OT institutions and programmes, and for this, we must use all our knowledge, wisdom, and experience both in the public and private sectors.

8) Much needs to be done:-

We admit that much still needs to be done to improve the prospects. prospects. For farmers, especially in refrain-ideas and dry-land agriculture, we will need to work towards ensuring remunerative prices for our farmers. We are aware of the acute distress of our farmers, who bear the burden of heavy debt. Most importantly, we must ensure that more people get employment in manufacturing and service so that the disproportionate burden on agriculture in providing a livelihood to two-thirds of our population gets reduced.

The results of our efforts to improve agriculture are visible in some places. Farmers are getting better prices for many crops. This helps hurt the common man when the prices of essential foods rise. foods rise. Commodities go up. We need to understand that if we want better prices for farmers so that they earn a better livelihood, the prices of what they produce and sell will have to go up.

9) Training:

Physical manuals (such as AGRIKIT) and focused, hands-on training are required. **Affordable Technology**: Creating low-bandwidth, offline, or inexpensive solutions. **Policy & Investment**: Infrastructure, subsidies, and the creation of local content are supported by the government and non-governmental organizations.**Hybrid Approaches**: Integrating traditional radio and in-person extension with digital information.

10) Proactive Security:

Data masking, incident response, stringent access control, and encryption. **Strategic Investment**: Providing personnel, training, and security technology. Modernising infrastructure means making

systems more resilient and scalable. **All-encompassing policies**: protecting data at every stage of its existence.

11) Policy and Investment-

Foreign direct investment (FDI) and public-private partnerships (PPPs) are essential policy instruments for focused rural development, utilising the resources and productivity of the private sector to construct infrastructure, boost technology adoption, and expand market access in neglected areas.

12) Financial support -

By directly supplying capital, lowering lender risk, and improving farmers' financial literacy and infrastructure, financial support increases credit availability for technology adoption in agriculture.

13) Training and Management-

Modern technologies and data-driven decision-making must be integrated with structured training programs provided by both public and private organisations for farmers to manage technology effectively and grow their skills. This tactic gives farmers the ability to maximise output, reduce waste, and improve sustainability.

14) Others:-

a) To promote public investment in agricultural research, rural infrastructure, and irrigation.

b) To increase rural credit with a low interest rate.

C) To introduce the aerial programme for dry-land farmers. e.g., water management, the Land Development Programme.

d) To provide security for the farmer who suffers a loss from the international currency Currency Depression.

e) To provide a better minimum price or reasonable price through a marketing system to the farmers from the backward districts, backward states, and poor states as well.

f) To take corrective action on the debts of farmers.

15) Human Resources-

The complicated problems of human resources and the demand process need to be classified in detail to assess the impact of various contributing indicators on policy alternatives. The graduates from countries outside of the agricultural education system constitute supply, whereas demand stems from various employment avenues.

Conclusion:-

Hence, as a mature and civilised nation, we must cherish its agriculture and protect its farmers. If the price for a robust agricultural sector is to pay a rupee ore for a kilogramme or litre of food products, we must be prepared to pay that price.

I usually turn to my favourite philosopher, Saint Thiruvalluvar, who wrote over 2000 years ago, "Aran Izhu Kathu aPallaviNikki Maran zhukka." Manam Udayathu Arasu (English) They are good rulers who observe ethics, commit no crime, and walk the path of righteousness and courage. Thus, great importance is attached to your deliberations, and I conclude by wishing you success in your endeavour.

Reference:-

1. P. Chidambaram, A view from outside, India Portfolio Published, India Penguin, Mar/2008, pp 5-7, New Delhi,
2. S. Subba Reddy P. Raghu Ram, T.V. Neela Kanta Sastry, I. Bhavani Devi, Agriculture Economics, OXFORD AND IBH, Edition-2, 2004, pp 525-530, New Delhi,
3. Indian Express, Business economics – June 30, 2014, pp 5-7, New Delhi,
4. India- 2012, Ministry of Information and Broadcasting, Government of India, 56th Edition, pp 72-80, New Delhi,
5. Economic Survey - 2013-2014, Ministry of Information and Broadcasting, Government of India, pp 158-159, New Delhi,
6. Dr. Vimal Jalan, India's Economic Policy- Preparing for the 21st Century, India Penguin, November 1997, pp 126-127, New Delhi,
7. Datta & Sundaram, Indian Economy, S. Chand Publication, 2016, Edition 72, pp 108-109, New Delhi,
8. A. N. Agrawal, Indian Economy, Developmental Problems and Policies, New Age International Publisher, Edition- 43rd, pp 580-585, New Delhi,
9. Dr. Vimal Jalan, Indian Economy, India Penguin, Sep/ 2004, pp 185-189, New Delhi,
10. Sandip Krishnamurthy, E-Commerce Management, 2003, Edition-3, Ohio, Canada, New Delhi,
11. Dr. Manmohan Singh- Indian Agricultural Sector, Speech at UNO on agriculture & WTO. Ministry of Information and Broadcasting, Government of India, March 2008, pp 5-9, New Delhi,