Forum of Enterprises for Equitable Development

Nurturing India's Future

Marginal Farmers and the Viksit Bharat Vision

POLICY BRIEF 01

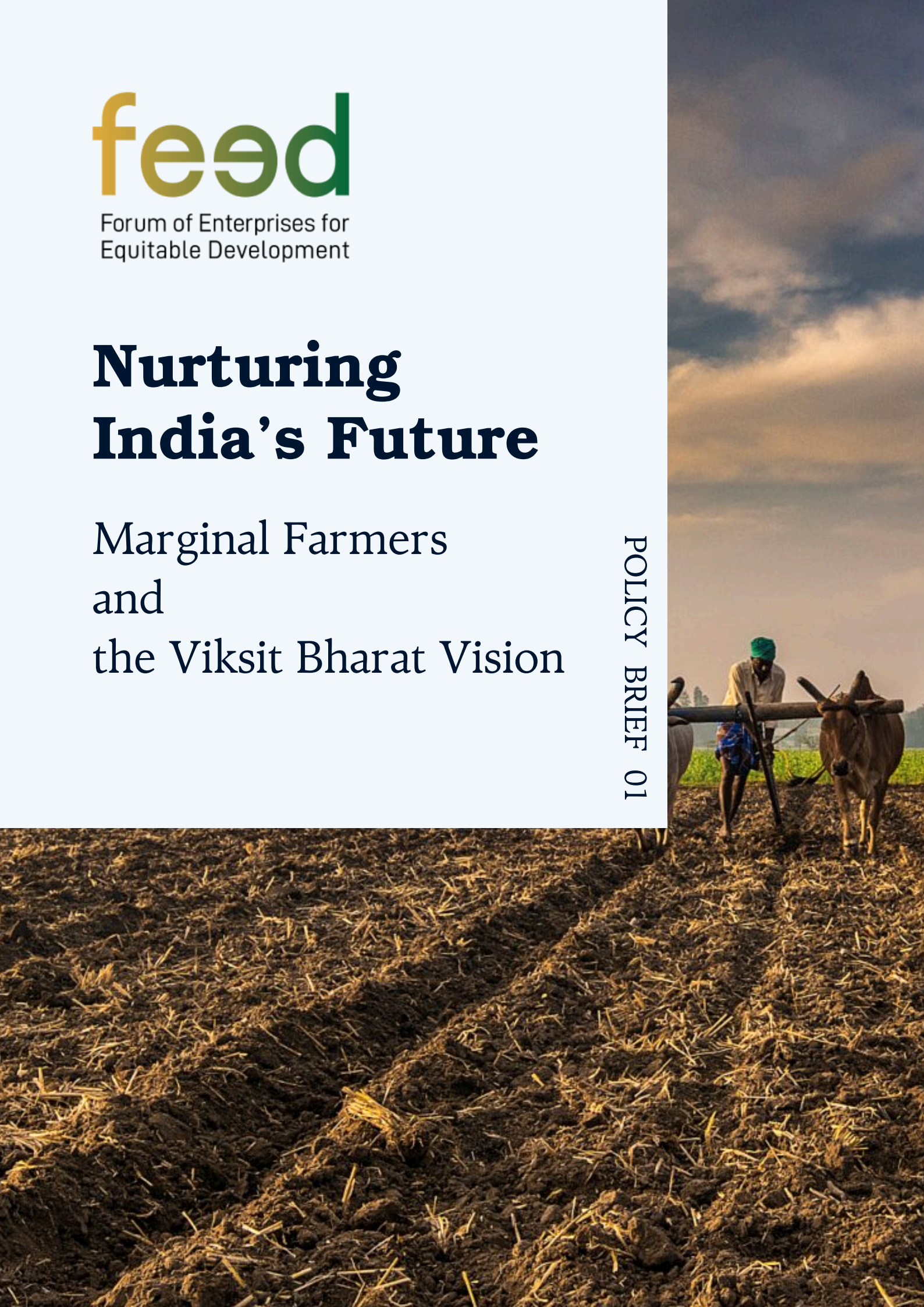


Table of Contents

Introduction

The seeds of aspiration have been sown in the hearts of India's citizens, aiming to transform the nation into a developed country by 2047. This ambitious goal requires burning the candle at both ends, utilizing both the natural and human resources with which our country is endowed. According to the World Bank's classification, India, with a per capita GNI of $2,390 in 2022, is currently a lower-middle-income economy. To achieve developed nation status by 2047, India's per capita GNI must increase approximately sixfold from its current level.

However, economic growth alone is not enough. For development to be inclusive, the incomes of the masses must rise sustainably. This depends significantly on improving farm incomes, as 45.8% of the working population is engaged in agriculture, with an average landholding size of just 1.08 hectares (ha) (2015-16). Despite this large workforce, agriculture contributes only about 18% to the overall GDP (2022-23).

Resolving farmer issues and creating conditions that allow their incomes to improve substantially and sustainably is essential for an inclusive and sustainable development process. This is not just a matter of economic policy but a cornerstone in accomplishing the goal of Viksit Bharat by 2047.

Agriculture, therefore, holds the key to unlocking India's potential. Enhancing agricultural productivity, diversifying crop patterns, and improving market access are critical steps. Moreover, addressing state-wise income disparities and encouraging sustainable practices will ensure that the benefits of growth are widely shared, laying a robust foundation for a prosperous and inclusive India.

The Desirable Shifts Yielding Undesirable Outcomes

Historical Decline in Agriculture's GDP Share

Over the past seven decades, India's agricultural sector has witnessed a significant transformation. The share of agriculture in the overall GDP has plummeted from 54% in 1950-51 to a mere 18% in 2023-24. This stark decline reflects the country's shift towards industrialization and service-oriented economic activities. However, while agriculture's contribution to GDP has diminished, the proportion of the workforce engaged in agriculture has not decreased at a comparable rate.

In 1950-51, 70% of India's workforce was engaged in agriculture. By 2022-23, this figure had reduced to 45.8%. Although this represents a substantial decrease, it highlights the fact that nearly half of the working population is still reliant on agriculture for their livelihoods, despite its reduced economic significance.

Workforce Dynamics in Agriculture

The absolute number of people employed in the agricultural sector has increased dramatically, from 97.2 million in 1951 to 263.1 million in 2011 (Census data). However, within this sector, the relative proportion of cultivators has fallen from 72% in 1951 to 45% in 2011, while the proportion of laborers has risen from 28% to almost 55% during the same period. This shift indicates a growing trend where more individuals are working as laborers rather than as independent cultivators, likely due to the lack of economies of scale that make small-scale farming less viable.

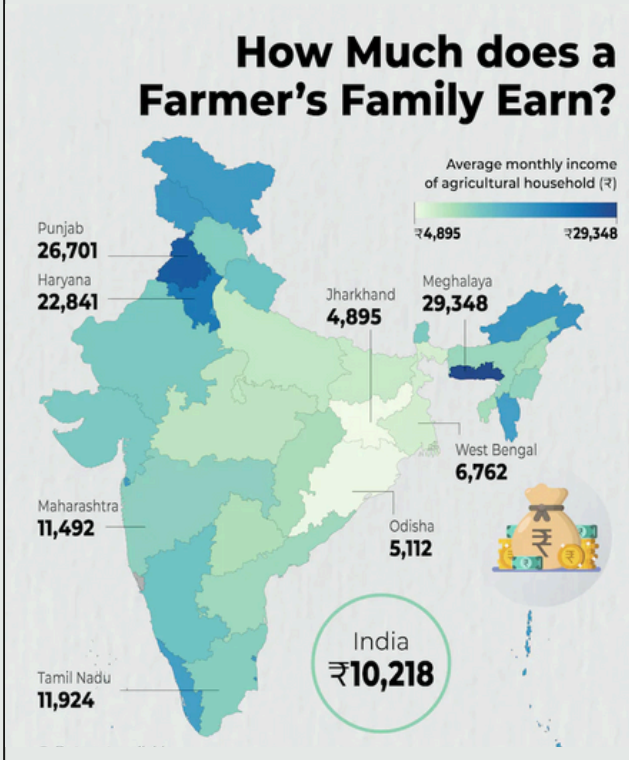
Challenges in Workforce Transition

Several factors contribute to the slow migration of labor out of agriculture. One significant factor is the lack of skills required for transitioning to non-agricultural sectors. Many agricultural workers lack the training and education needed to secure employment in more lucrative industries. Additionally, the periodic labor force survey (PLFS) data reveals a concerning trend: real wages in rural areas have experienced negative growth over the past five years. From 2019-20 to 2023-24, the average annual growth rate of the agriculture wage rate was -0.6%, and the non-agriculture wage rate was -1.4%.

Farmers' Income: A Comprehensive Analysis

Agriculture is the backbone of India's economy, but the incomes of those who till the soil tell a different story. Over the past five years, the agricultural sector has registered an average annual growth rate of 4.184% at constant prices. The real income of the average Indian farmer rose at a moderate rate of 3.4% per annum from 2002-03 to 2018-19. This growth pales in comparison to the non-agricultural sector, which has been growing at around 6.4% per annum over the last two decades.

In 2002-03, the monthly income of an average farming household was recorded at Rs. 2,115 (equivalent to Rs. 7,160 in 2021-22 prices). By 2018-19, this figure had risen to Rs. 10,218 (adjusted to Rs. 12,132 in 2021-22 prices). While this increase is noteworthy, it is insufficient when juxtaposed with the rising costs of living and the comparative growth in non-agricultural incomes.



State-wise Variation in Farmers' Incomes

Interestingly, states that specialize in high-value agriculture—such as Jammu and Kashmir (fruits), Kerala (spices, rubber), Himachal Pradesh (fruits), Uttarakhand (fruits), and West Bengal (vegetables and jute)—exhibit higher incomes on a per hectare basis.

A wide variation in the monthly incomes of agricultural households is observed across various states. This disparity is influenced by several factors, including landholding size, crop and livestock productivity, cropping intensity, and the type of crops grown—whether staple crops or high-value agricultural produce.

The SAS survey (2018-19) highlighted that farmers in states like Meghalaya (Rs. 29,348), Punjab (Rs. 26,701), and Haryana (Rs. 22,841) enjoy higher monthly incomes compared to their counterparts in Jharkhand (Rs. 4,895), Odisha (Rs. 5,112), West Bengal (Rs. 6,762), and Bihar (Rs. 7,542). For instance, the average income of farmers in Haryana grew at 6.1% as compared to a mere 0.4% in Jharkhand during the period from 2002-03 to 2018-19.

High-Value Agriculture vs. MSP Crops

States relying more on horticulture, livestock, and fisheries, which operate without Minimum Support Prices (MSPs), tend to have market-driven, demand-driven systems that yield better incomes per hectare than MSP-supported crops like wheat and rice. However, the transition from MSP crops to high-value agriculture is fraught with challenges.

Small farmers often struggle to manage the risks associated with moving away from assured returns guaranteed by MSP crops. Market price fluctuations, unpredictable weather patterns, and a lack of infrastructure connecting farms to markets compound the uncertainty. These factors make it difficult for smallholders to shift towards more lucrative, yet riskier, high-value agriculture.

Moving Beyond the Price Factor

The Productivity Conundrum

India's agriculture sector, despite its impressive growth in various products and states, continues to grapple with low productivity levels compared to other major agricultural countries. The pace of modernization remains sluggish, and the sector's reliance on outdated agricultural practices like flood irrigation and fertilizer broadcasting is a significant concern. While productivity improvements have occurred, they have often been accompanied by rising average production costs, which, in turn, necessitate higher output prices to maintain profitability. This scenario underscores the increasing dependence of the agricultural sector on government support, diminishing its competitive edge.

The Role of Non-Price Factors

While remunerative prices play a critical role in incentivizing farmers, the significance of non-price factors in driving agricultural growth cannot be overstated. These factors encompass advancements in technology, improved production methods, and post-harvest value addition, all of which are essential for sustainable growth. Unfortunately, the agricultural sector has seen limited progress in these areas, largely due to the focus on price support and subsidies.

Technological Advancements and Modernization

The slow pace of modernization in Indian agriculture is a significant barrier to growth. Embracing advanced technologies and innovative farming practices can revolutionize the sector. Precision agriculture, for instance, can optimize input usage, enhance crop yields, and reduce environmental impact. Additionally, modern irrigation techniques like drip and sprinkler systems can conserve water and improve irrigation efficiency, addressing the critical issue of water scarcity.

Research and Development (R&D)

Investments in agricultural R&D are crucial for developing high-yielding, pest-resistant crop varieties and innovative farming techniques. Strengthening R&D infrastructure and fostering collaborations between research institutions, universities, and the private sector can accelerate the development and dissemination of cutting-edge technologies.

Extension Services and Capacity Building

Effective extension services are vital for disseminating knowledge and best practices among farmers. Training programs and capacity-building initiatives can empower farmers with the skills and knowledge needed to adopt modern farming practices. Extension services should focus on educating farmers about the benefits of sustainable practices, efficient resource management, and the use of technology in agriculture.

Market Regulation and Infrastructure Development

A well-regulated market environment and robust infrastructure are essential for the efficient functioning of the agricultural sector. Improving market access, reducing transaction costs, and enhancing storage and transportation facilities can significantly boost farm incomes and reduce post-harvest losses.

Balancing Price and Non-Price Factors

Agriculture is poised to play a pivotal role in India's growth story, but achieving this potential requires significant adjustment programs to address the challenges posed by previous policy legacies, particularly for marginal farmers. The effectiveness of agricultural production in responding to changes in the terms of trade between agriculture and the rest of the economy has become a critical factor in shaping comprehensive adjustment programs.

To truly transform agriculture into a remunerative livelihood, it is essential to focus on both price and non-price factors. While non-price factors, such as technological advancements and improved resource use, offer substantial growth potential, remunerative prices are crucial for motivating farmers to leverage these opportunities. A balanced approach that addresses both aspects is vital for the sustainable growth and development of the agricultural sector.

Government Initiatives and Policies

The Indian government has introduced several initiatives to address these challenges and promote agricultural growth. Programs like the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) provide direct income support to farmers, while the Per Drop More Crop scheme encourages efficient water use. The National Mission on Sustainable Agriculture (NMSA) and the Digital Agriculture Mission aim to modernize agricultural practices and leverage technology for better outcomes.

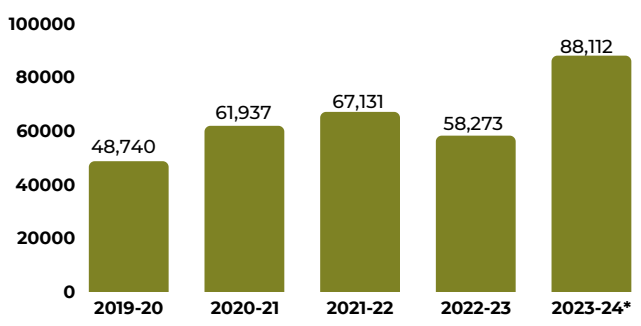
Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)

The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme is a landmark initiative aimed at providing direct income support to farmers. Under this scheme, eligible farmers receive financial assistance of ₹6,000 per year in three equal installments. This financial aid helps to alleviate the immediate financial burdens faced by farmers, enabling them to invest in agricultural inputs and improve their overall productivity.

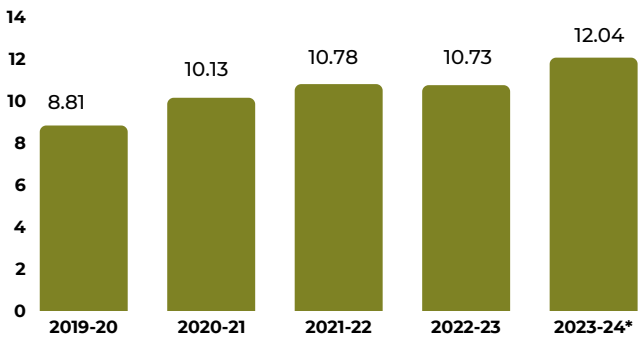
Challenges:

Beneficiaries of the PM-KISAN scheme have encountered several challenges during the registration process. Many farmers faced difficulties in obtaining revenue records and opening bank accounts. Mistakes in Aadhaar entries, such as incorrect numbers, have also created obstacles. In remote areas, inconsistent internet access, limited digital literacy, and lack of functioning mobile phones make it difficult for farmers to receive OTPs or navigate digital platforms, further complicating registration. The digital divide, marked by poor network coverage, exacerbates these issues. Additionally, inconsistent execution of scheme guidelines and unclear communication about non-payment reasons frustrate farmers and undermine their trust in the system. Moreover, the presence of bogus and fraudulent beneficiaries, including cases where both husband and wife are listed as beneficiaries, calls for stricter scrutiny.

Amount Disbursed under PM-KISAN (in crores)



No. of farmer beneficiaries (in crores)



Policy Recommendation:

To address these challenges, the government should implement a more robust, offline support system to assist farmers with registration and documentation, particularly in remote areas. Enhancing digital literacy programs and improving network infrastructure can help bridge the digital divide. Additionally, a regular audit and verification process should be established to eliminate fraudulent beneficiaries, ensuring that only eligible farmers receive the benefits. Improved communication channels should be developed to provide clear guidance on registration procedures and reasons for non-payment, thereby building trust in the scheme.

Per Drop More Crop under PMKSY

The initiative is part of the Pradhan Mantri Krishi Sinchai Yojana (PMKSY), focusing on enhancing water-use efficiency at the farm level. By promoting micro-irrigation techniques such as drip and sprinkler systems, this initiative ensures that each drop of water is utilized effectively, thereby conserving water and boosting crop yields. This approach is crucial for sustainable agriculture, especially in water-scarce regions.

Challenges:

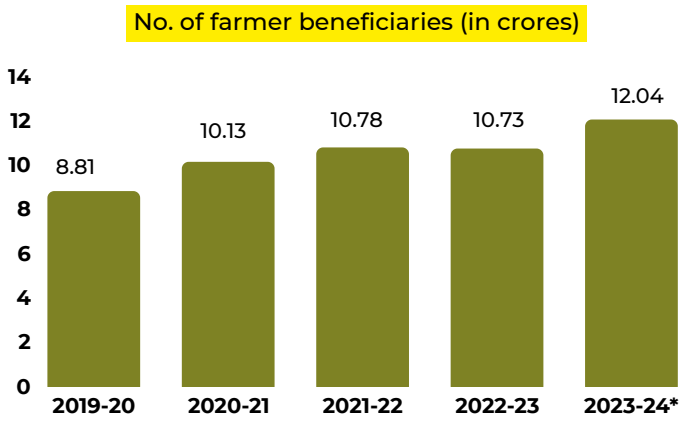
India's agricultural water usage is highly inefficient, with the country using approximately 560 billion cubic meters (BCM) of water to produce 320 million tons of food grains—much higher than China's 385 BCM for 571 million tons. This inefficiency is compounded by a critical decrease in India's per capita water availability, which has dropped from over 5,000 cubic meters at independence to just 1,500 cubic meters today, exacerbating the challenges posed by a growing population and diminishing water tables.

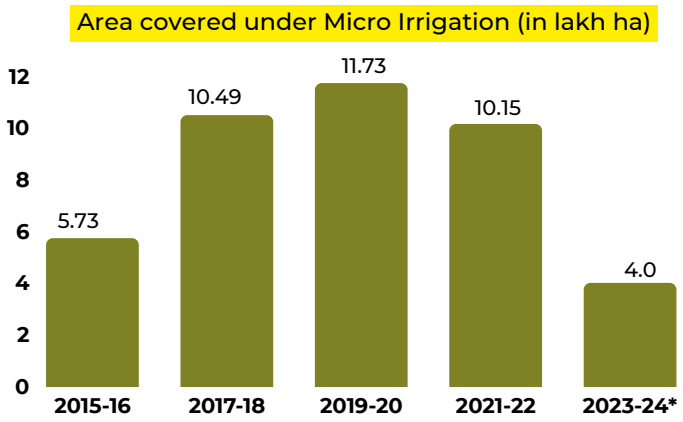
One major issue with the PDMC scheme is the accessibility and affordability of drip irrigation technology. The high fixed cost of drip systems remains a barrier for many farmers, even with the subsidy provided by the government. Non-adopters often cite the inability to afford the initial investment as a significant deterrent. Additionally, the installation of drip systems requires a filtration unit to handle water impurities, but subsidies do not cover this component, further discouraging adoption.

One major issue with the PDMC scheme is the accessibility and affordability of drip irrigation technology. The high fixed cost of drip systems remains a barrier for many farmers, even with the subsidy

provided by the government. Non-adopters often cite the inability to afford the initial investment as a significant deterrent. Additionally, the installation of drip systems requires a filtration unit to handle water impurities, but subsidies do not cover this component, further discouraging adoption.

Another concern is the lengthy process for receiving subsidies, with farmers often waiting more than a year for disbursement. This delay in financial support hampers the timely adoption of the technology. Furthermore, drip irrigation systems require regular maintenance, such as dealing with clogged laterals and emitters, and replacing parts that degrade due to exposure to weather conditions. These ongoing maintenance costs and challenges serve as disincentives, particularly for non-adopters who are reluctant to embrace micro-irrigation (MI) technology.





Policy Recommendations:

To enhance the effectiveness of the PDMC scheme, the government should consider increasing the subsidy for drip irrigation equipment, including coverage for essential components like filtration units. Streamlining the application process and speeding up the subsidy disbursement timeline would also encourage quicker adoption. Additionally, providing support for regular maintenance, possibly through training programs or maintenance subsidies, could help farmers manage the upkeep of their irrigation systems, thereby increasing the overall adoption rate of MI technology.

National Mission on Sustainable Agriculture (NMSA)

The National Mission on Sustainable Agriculture (NMSA) aims to promote sustainable agricultural practices that are resilient to climate change. It focuses on soil health management, efficient water use, and the adoption of climate-smart agricultural practices. By encouraging farmers to embrace sustainable techniques, NMSA seeks to enhance agricultural productivity while minimizing the environmental footprint.

Challenges:

The agriculture sector in India is rapidly evolving but faces significant challenges, such as soil depletion and the impact of extreme weather conditions. According to the Third Biennial Update Report submitted by the Government of India in 2021 to the United Nations Framework Convention on Climate Change (UNFCCC), agriculture contributes 14 percent of the country's total greenhouse gas (GHG) emissions. Within this sector, 54.6 percent of GHG emissions stem from enteric fermentation, 17.5 percent from rice cultivation, 19.1 percent from fertilizers applied to agricultural soils, 6.7 percent from manure management, and 2.2 percent from the field burning of agricultural residues.

In this context, achieving sustainable agriculture goals is increasingly challenging due to the continuous growth of chemical fertilizer subsidies in India. The country is the second-highest consumer of chemical fertilizers globally, with usage around 636 lakh metric tonnes. Despite this high consumption, several reports indicate widespread deficiencies in micronutrients and organic carbon in Indian soils.

Policy Recommendations:

To address these issues, there is a pressing need for more scientific assessments and inquiries into maintaining healthy soil conditions. Additionally, establishing market-based mechanisms is crucial to encourage farmers to adopt natural farming practices and transition to chemical-free agriculture. Without these changes, the goals of sustainable agriculture under the NMSA may remain unfulfilled.

Case Study:

The Digital Way Forward

Digital Agriculture Mission and e-National Agriculture Market (e-NAM)

The Digital Agriculture Mission aims to leverage technology to transform the agricultural sector. The e-National Agriculture Market (e-NAM) is a crucial component of this mission, providing a unified online platform for trading agricultural commodities. e-NAM facilitates better price discovery, transparency, and reduces market inefficiencies. By connecting farmers directly to buyers, it ensures fairer prices and expands market access.

e-NAM Performance at a glance till 31st Dec 2023

Record Registrations

1.76 crore
Farmers

3405
Farmer Producer Organizations

Record Trade

3.19 lakh
Trade Value (in Rs. Cr.)

8.96
Trade Volume (Cr. MT)

National Food Security Mission (NFSM)

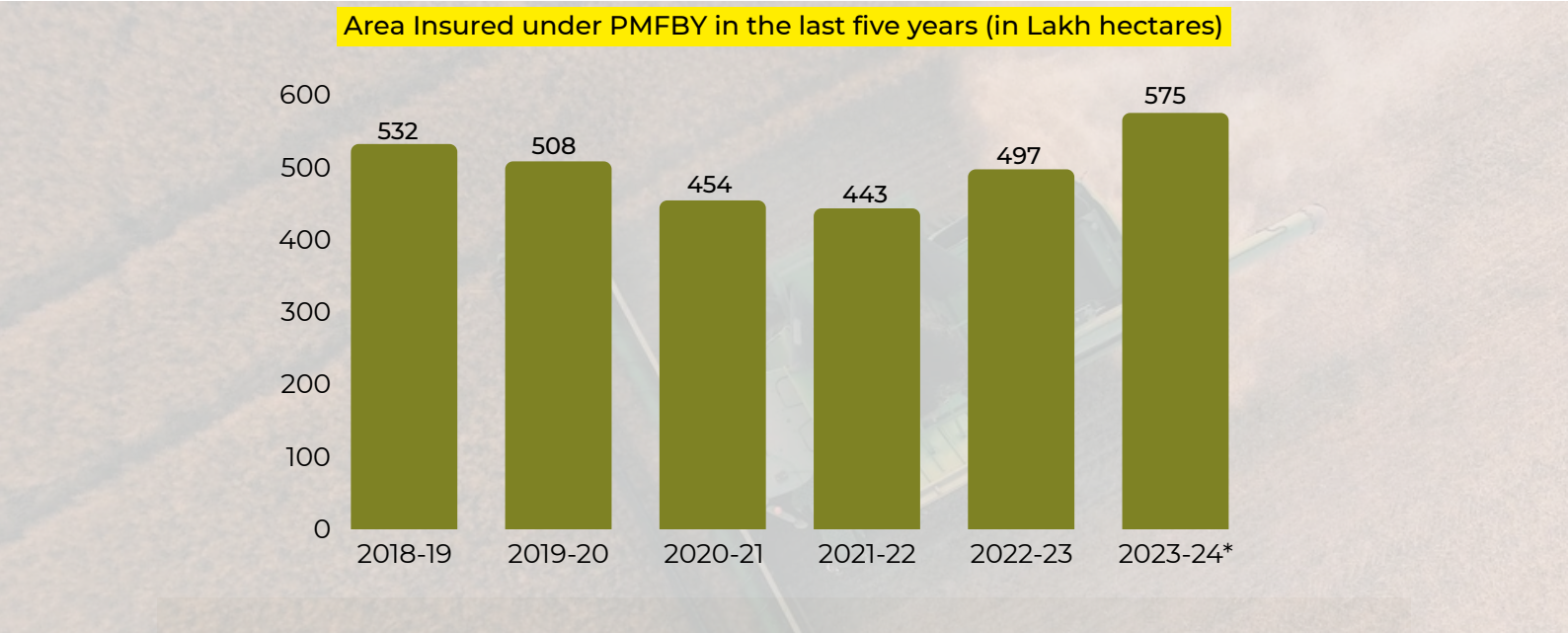
The National Food Security Mission (NFSM) is a nationwide program designed to enhance the production and productivity of food grains and commercial crops. This is achieved through the demonstration of crop production and protection technologies, access to high-yielding varieties, integrated nutrient and pest management techniques, efficient water-saving devices, and capacity building for farmers. The NFSM aims to ensure food security by increasing the availability of high-quality food grains and commercial crops.

Crop Diversification Programme (CDP) under Rashtriya Krishi Vikas Yojana

The Crop Diversification Programme (CDP) is being implemented under the Rashtriya Krishi Vikas Yojana (RKVY) to promote and demonstrate better production technologies for alternative crops. This initiative aims to divert paddy cultivation to other crops and restore soil fertility through the cultivation of legumes. By promoting crop diversification, the CDP enhances soil health and reduces the over-reliance on water-intensive crops like paddy.

Pradhan Mantri Fasal Bima Yojana (PMFBY)

Launched in 2016, the scheme aims to offer extensive insurance coverage against crop failure to stabilize farmers' income. However, the initiative has faced challenges, with farmers encountering significant issues such as unpaid dues amounting to thousands of crores, while insurance companies have profited. By the second year of the PMFBY in 2017-2018, enrollment numbers dropped significantly, reducing coverage below 2015 levels. Despite the target of 50% for 2018-2019, coverage remained below 26% in 2017-2018. In 2020, several states opted out of the scheme, choosing not to participate.



Issues with the PMFBY:

- **Exclusion of Marginal Farmers:** Despite the scheme's intentions, a significant portion of smaller farmers remains outside the crop insurance network. The percentage of marginal farmers participating in the scheme declined from 18.08% to 16.55% between 2018 and 2020 for the Kharif season.

- **Segregation of Insurance and Disaster Relief:** A key challenge is differentiating between insurance as a commercial product and disaster relief, which has social implications, especially for subsistence farmers who may not be commercially viable. For these farmers, insurance should be designed as a Social Protection Policy rather than a commercial risk management tool.

- **Financial Burden on the Government:** The government pays approximately 80-85% of the insurance premium, placing a substantial burden on the exchequer. This can lead to delays in premium payments, subsequently delaying the claims-benefit process for farmers.

- **Inadequate Infrastructure and Databases:** The lack of adequate databases for determining premiums and indemnities, coupled with insufficient infrastructure, hampers the implementation of crop insurance, particularly in backward states. Additionally, the process of fixing farm gate prices for non-MSP crops is complex and may lead to disputes.

- **Trust Deficit Among Farmers:** Farmers are wary of the scheme due to a trust deficit stemming from the mandatory credit-linked insurance. Premiums are often deducted from farmers who have taken loans from banking institutions without their consent or even knowledge.

- **Barriers to Insurance for Tenant Farmers:** Legal restrictions on leasing agricultural land in states like Kerala and Jammu & Kashmir, and conditional leasing in states like Bihar, Madhya Pradesh, Uttar Pradesh, and Telangana, prevent many tenant farmers from accessing crop insurance.

Policy Recommendations:

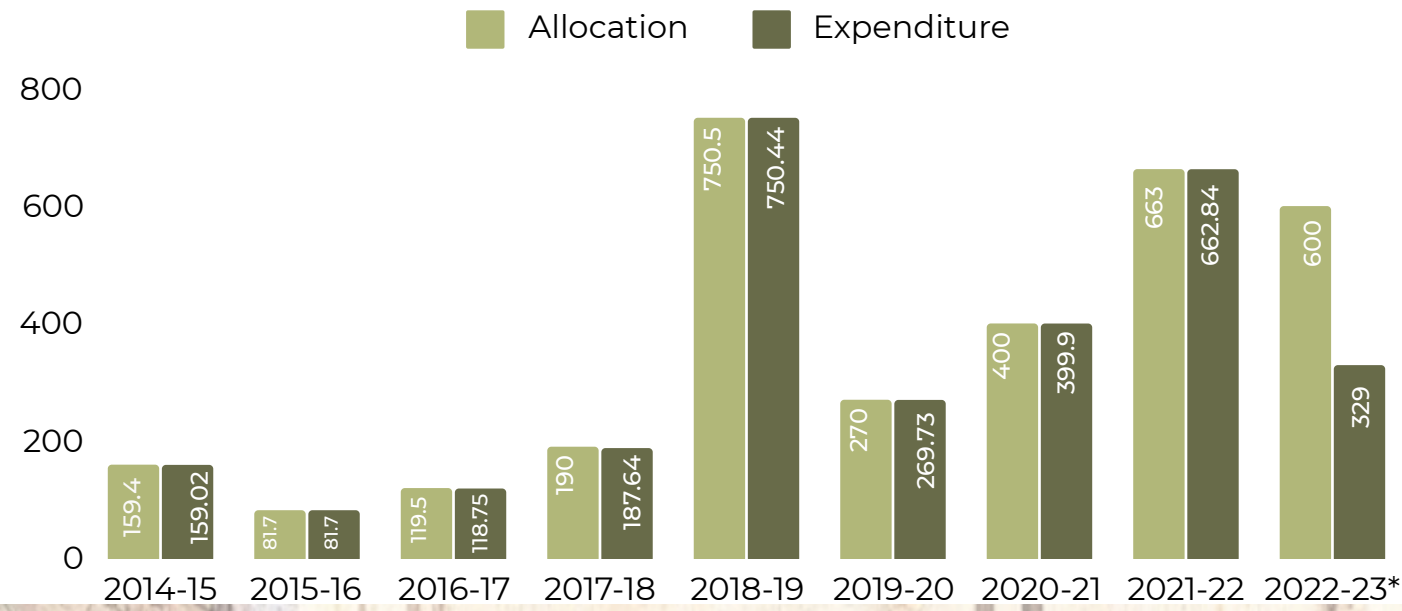
- **Timely Claim Settlements:** Ensuring strict adherence to timelines for claim settlement is crucial to providing adequate and timely compensation to farmers.
- **Promoting Competitive Pricing:** Introducing at least two insurance companies in a cluster of villages within a state could help farmers benefit from competitive pricing for insurance products.
- **Unified Regulatory Framework:** Developing a regulatory framework that integrates insurance systems covering both yield and price risks will promote increased participation and stability in the scheme.
- **Revenue-Protection Insurance:** Implementing revenue-protection insurance could encourage greater farmer participation, ensuring that they are better protected against financial losses due to crop failures or price fluctuations.
- **Incentivize Participation of Marginal Farmers:** Introduce targeted subsidies or reduced premium rates specifically for marginal farmers to encourage their inclusion in the crop insurance network.
- **Enhanced Data Infrastructure:** Invest in building a robust and comprehensive agricultural database that includes detailed crop yield data, weather patterns, and farm-level information. This would improve the accuracy of premium and indemnity calculations.
- **Simplified and Transparent Claim Process:** Establish village-level facilitation centers to assist farmers in navigating the claim process, ensuring that they understand their rights and obligations under the scheme.
- **Flexibility in Land Leasing Policies:** Advocate for policy reforms in states where land leasing is restricted, allowing tenant farmers to lease land legally and access crop insurance. Introduce flexible leasing arrangements that protect the rights of both landowners and tenant farmers, ensuring that tenant farmers can participate fully in the PMFBY.
- **Grievance Redressal Mechanism:** Set up an accessible and effective grievance redressal system at the district and state levels to address issues related to the scheme, such as delays in premium payments, discrepancies in claim settlements, and miscommunication with farmers.

Enhancing Animal Husbandry and Fisheries

Rashtriya Gokul Mission (RGM)

The Rashtriya Gokul Mission (RGM) is dedicated to the conservation and development of indigenous bovine breeds, with a focus on enhancing milk productivity and quality through scientific breeding techniques. The mission supports the establishment of Gokul Grams, integrated cattle development centers designed to improve the genetic makeup of cattle. With an allocation of Rs 2,400 crore over five years, RGM aims to establish 2 lakh IVF pregnancies during this period, further advancing its goals of genetic improvement and sustainable development in the dairy sector.

Allocation and Expenditure made under RGM since 2014-15 (in crore)



Issues with the RGM:

India's indigenous cattle breeds are well-adapted to local conditions and vital to the agrarian economy. However, these breeds face genetic erosion, low productivity, and neglect due to a preference for high-yielding exotic breeds. The livestock census shows a 9% decline in indigenous breeds, while exotic breeds increased by 20%.

The Rashtriya Gokul Mission (RGM), launched in December 2014 to conserve and promote indigenous breeds, has struggled with achieving its physical targets. A parliamentary report highlighted that only 379 bulls were inducted for artificial insemination (AI) against a target of 1,000. Similarly, the production of sex-sorted semen doses reached only 2 million against a target of 3 million, and the number of AIs conducted in 2019-20 fell short of the 88 million target, reaching only 63 million. The Central Frozen Semen Production & Training Institute (CFSP&TI), a key component of RGM, has consistently lagged behind in semen production, sales, revenue generation, and training.

To address these issues, there is a need to enforce stricter accountability measures for states and research institutes with large unspent balances under the scheme. Additionally, enhancing productivity through breed improvement and incentivizing private sector collaboration should be prioritized.

Case Study:
Tamil Nadu's Unique Cattle Health Management Initiative

Under the Rashtriya Gokul Mission, Tamil Nadu has made significant strides in cattle health management by issuing Aadhaar-like unique cards for 28% of its cattle and buffaloes over the past two years. Launched in 2017, this ambitious project aims to enhance breed health and prevent the sale of unhealthy animals in markets.

To date, approximately 18 lakh cows have been covered. The initiative also involves recording animal owners' details, including land and cattle ownership and fodder sources, in the Information Network for Animal Productivity and Health (INAPH) software, developed by the National Dairy Development Board.

In this system, exotic cattle breeds receive yellow health cards, indigenous and nondescript cows are issued orange cards, and buffaloes are given grey cards. This color-coding system helps in efficient health management and tracking.

National Programme for Dairy Development (NPDD)

The National Programme for Dairy Development (NPDD) aims to bolster the dairy sector by enhancing infrastructure for milk procurement, processing, and marketing. By improving the supply chain and ensuring better market access, NPDD seeks to increase dairy farmers' incomes and meet the growing demand for dairy products. Implemented from 2021-22 to 2025-26 with a total outlay of Rs. 1,790 crore, the program focuses on infrastructure for quality milk testing equipment and primary chilling facilities.

Additionally, the Dairy Processing and Infrastructure Development Fund (DIDF) is being implemented with the objective of creating and strengthening milk processing, value addition, and chilling facilities, with a total outlay of Rs. 11,184 crore.

Fisheries and Aquaculture Infrastructure Development Fund

The Fisheries Infrastructure Development Fund (FIDF) aims to enhance the fisheries sector by developing critical infrastructure such as fishing harbors, cold storage, and processing units. By improving post-harvest management and market linkages, FIDF helps fishers increase their incomes and contribute to the blue economy. With a total fund size of Rs. 7,522.48 crore, the Department of Fisheries (DoF) has approved proposals amounting to Rs. 5,588.63 crore, with project costs restricted for interest subvention to Rs. 3,738.19 crore across various States/UTs, including private beneficiaries. The Tripartite MoA is executed between the concerned State Government (loan availing), NABARD, and the Department of Fisheries, Ministry of Fisheries, Animal Husbandry, and Dairying, GOI, which funds the State/UTs Projects under FIDF through NABARD.

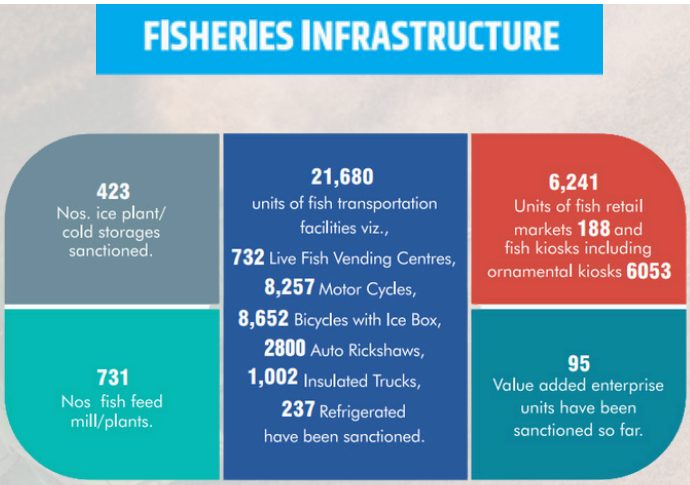
Physical Progress under NPDD

13.08 lakh

Farmers Benefitted

22.09 lakh

liters per day milk processing capacity established



Animal Husbandry Infrastructure Development Fund (AHIDF)

The Animal Husbandry Infrastructure Development Fund (AHIDF) is being implemented to fund eligible projects set up for investment in processing and value addition in the animal husbandry sector through scheduled banks with an outlay of ₹29,610.25 crore up to 2025-26.

Under the scheme, credit facilities are available for the establishment of dairy processing and value addition infrastructure, meat processing and value addition infrastructure, animal feed manufacturing plants, breed improvement technology and breed multiplication farms, animal waste to wealth management, and veterinary vaccine and drugs production facilities.

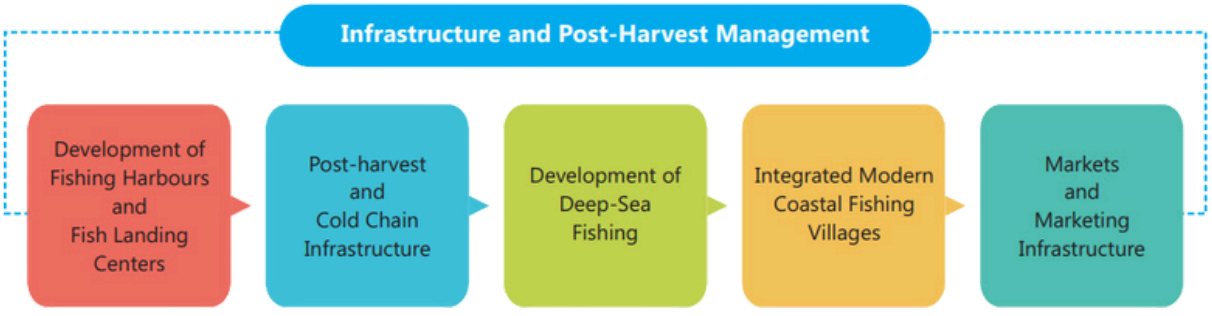
To date, a total of 415 projects worth Rs. 7,052.57 crore have been marked eligible. It has created additional 141.04 lakh litre per day (LLPD) of milk processing capacity, 79.24 lakh tonnes (lt) of feed processing capacity and 9.06 lt of meat processing capacities, an increase of 2-4 per cent in the overall processing capacity in dairy, meat and animal feed sector.

Pradhan Mantri Matsya Sampada Yojana (PMMSY)

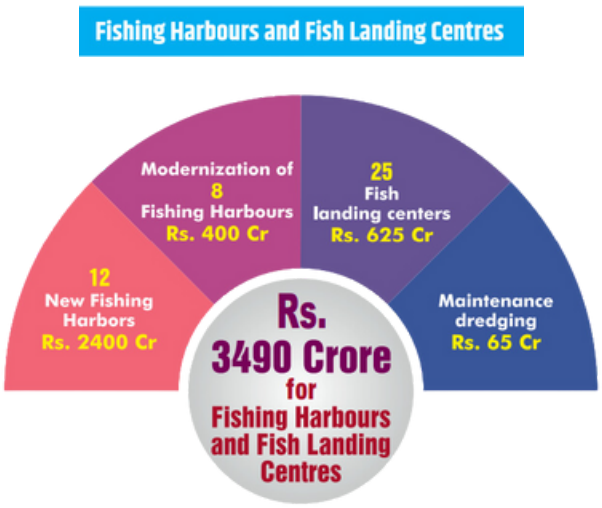
The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a comprehensive scheme aimed at the sustainable development of the fisheries sector, focusing on enhancing fish production, improving post-harvest infrastructure, and promoting aquaculture. PMMSY seeks to double fishers' incomes and ensure sustainable livelihoods through a holistic approach to fisheries management.

Major Components

A sum of Rs. 526 crore has been earmarked under PMMSY to bring an additional 4,000 hectares of saline area under shrimp aquaculture in Haryana, Punjab, Rajasthan, and Uttar Pradesh. Additionally, Rs. 852 crore has been allocated for cold-water fishery development. The scheme aims to install 20,000 cages in reservoirs and water bodies, which would produce an additional 60,000 metric tons of fish by 2025.



PMMSY also envisions revolutionizing the seaweed farming sector, increasing seaweed production from current levels to 11.2 lakh tonnes (wet weight) within five years, with an investment of Rs. 640 crore dedicated to developing seaweed farming, including seaweed seed banks, nurseries, tissue culture units, processing, and marketing units. Furthermore, PMMSY has earmarked Rs. 3,490 crore for the modernization and development of fishing harbors and fish landing centers, and Rs. 1,000 crore for establishing a retail network by setting up ultra-modern fish kiosks and other market infrastructure in urban, peri-urban, and semi-urban locations.



Major achievements in FY 2022-23 (as on 31st March, 2023) are as follows:

a. Central assistance of Rs. 1,174.90 Crores released for Fisheries sector

b. Assistance provided for bringing 4,449.75 ha area under Inland aquaculture

c. 8,392 Nos of Recirculatory Aquaculture Systems (RAS) and 497 Nos of Biofloc approved.

d. Approved installation of 11,075 Nos cages and 177 ha pens in reservoirs and other open water bodies

e. Approved establishment of 317 Nos of fish/prawn hatcheries

f. Approved 783.39 ha of pond area approved under saline-alkaline culture

g. Approved 726 Ornamental Fish rearing units.

h. Approved 180 Deep Sea Fishing Vessels and 500 up gradation of existing fishing vessels

i. Constructed 42 Bio- toilets in mechanized fishing vessels

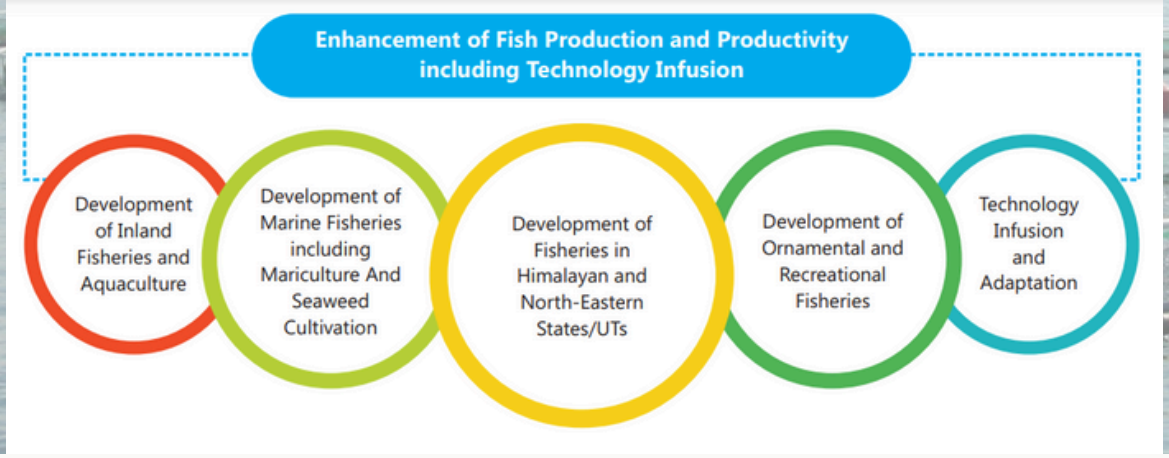
j. 2,263 Nos replacement boats and nets for fishermen

k. Approved 171 cold storages and 594 feedmill units

l. 17 Fish retail markets and 3,127 fish kiosks including ornamental kiosks approved

m. Livelihood and nutritional support for 5,87,198 fishers' families for conservation of fisheries resources during fishing ban/lean period

n. 80 nos Matsya Seva Kendra for extension and support services



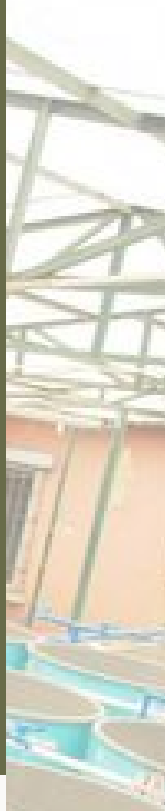
Issues with the Fisheries:

India is the third-largest fish-producing country globally, contributing 7.56% of the world's fish production. However, the Gross Value Added (GVA) from fishing and aquaculture remains lower than other agriculture and allied sectors. This is largely due to the reliance on traditional fish trading practices, with no efficient electronic trading platform in place. Small and marginal aqua farmers, with limited bargaining power, are often forced to sell their produce to middlemen and traders at fixed prices, resulting in lower returns despite high-quality produce. Additionally, post-harvest losses, estimated at around ₹61,000 crores annually, exacerbate these issues, with the industry utilizing only 1% of the total storage capacity available in the country.

On the production side, the sector faces challenges such as slow adoption of new techniques and technologies, limited extension services, and a lack of quality inputs and access to credit. Upgrading vessels, adopting the latest technologies, and making other necessary advancements require substantial investments. However, due to limited financial capacity and poor access to credit, the fishing community struggles to make these investments. Government schemes for purchasing vessels (like deep sea fishing vehicles), technology adoption, and welfare promotion exist, but they often require a significant beneficiary contribution (in the form of a loan/matching amount), making them inaccessible to many small-scale fishers.

Case Study:
Adoption of Modern Technologies in the Fisheries Sector

To address rising demand and growth expectations, the Indian fisheries sector must embrace modern techniques and technologies. However, the adoption of advanced hatchery technologies, water-efficient practices like Recirculating Aquaculture Systems (RAS), sustainable marine production methods such as mariculture, and mechanized boats with GPS/satellite tracking is currently limited. For instance, despite a potential for mariculture production ranging from 4 to 8 million tonnes annually, actual production is less than 0.01 million tonnes per year. Similarly, while RAS can yield up to 500 metric tonnes of fish per hectare annually, its use remains minimal compared to traditional systems, which produce 2–10 metric tonnes per hectare.



RAS systems offer significant advantages by using only 100 litres of water to produce 1 kg of freshwater shrimp, compared to the 15,000 litres required by traditional methods. This substantial reduction in water usage not only conserves water but also eases the pressure on freshwater ecosystems. The limited uptake of these advanced technologies underscores the urgent need for the fisheries sector to adopt modern practices to boost productivity and ensure sustainability.

Policy Recommendations:

1. Support for Technology and Training: Implement a holistic approach to provide comprehensive support for easy access to technology, equipment, training, and credit. This will facilitate the large-scale adoption of new techniques and methods by fishers and fish farmers.

2. Public-Private Partnerships (PPP): Encourage the development of fisheries infrastructure through PPP models, including value chain infrastructure, mega fisheries parks, state-of-the-art harbours, and domestic fish markets. This collaborative approach can enhance infrastructure and market access.

3. Dedicated Fund for Startups: Establish a dedicated fund for fishery startups, similar to the dairy sector's model, to provide early-stage funding for innovative aquaculture models and technologies.

4. Collectivization of Producers: Aggregate small and marginal producers into fish farmer or fisher-based institutions. Forming producer organizations will improve access to investments, infrastructure, technology, inputs, and markets.

5. Financial Stability for FFPOs: Provide grant support and zero-interest loans to Fish Farmer Producer Organizations (FFPOs) to help stabilize their operations and acquire essential resources.

6. Adoption of Water-Efficient Technologies: Promote the use of new-age technologies like Recirculating Aquaculture Systems (RAS) to reduce freshwater usage, particularly in areas with limited access to electricity and water resources.

7. Enhance Domestic Fish Supply Chain: Address inefficiencies in the domestic fish supply chain, such as high infrastructure costs for cold storage and processing equipment. Implement an 'entrepreneurial model' to support small and micro-level enterprises in production clusters, facilitating access to necessary infrastructure and resources.

Conclusion

India's agricultural sector is central to the nation's goal of becoming a 'Viksit Bharat' (Developed India). As the backbone of the economy, agriculture must evolve to meet modern demands and overcome historical challenges. Balancing price and non-price factors, such as fair pricing, quality inputs, and improved credit facilities, is essential for sustaining agricultural growth. Where sustainable practices, supported by initiatives like the National Mission for Sustainable Agriculture (NMSA), are crucial for long-term resilience. Digital technology can revolutionize farming, offering real-time information and market access. Agri-tech start-ups will be leading this charge, applying innovations throughout the agricultural value chain.

Diversification and liberalization are key to accelerating growth in sectors like dairy, poultry, and horticulture. Government schemes like the Pradhan Mantri Matsya Sampada Yojana (PMMSY) and the National Livestock Mission can create off-farm employment, aiding workforce transition and enhancing rural economies. Similarly, the Rashtriya Gokul Mission (RGM) highlights the importance of preserving indigenous cattle breeds, essential for rural livelihoods and biodiversity. The fisheries sector, despite its significant contribution to global fish production, faces challenges like traditional practices and post-harvest losses. The adoption of modern techniques, such as mariculture and Recirculating Aquaculture Systems (RAS), is vital for boosting productivity and conserving resources.

As India plans for its future, agriculture must play a central role, with strategic interventions and robust government support driving the sector's transformation. By empowering farmers with the right tools and technologies, India can unlock the full potential of its agricultural sector, ensuring inclusive growth, employment generation, and long-term sustainability.

Acknowledgements

We extend our sincere gratitude to the individuals and teams who contributed to this work.

- Concept and Coordination: Mr. Suryamani Roul and Mr. Ankush Singh
- Designed by: Apaar Wadhwa

Your invaluable contributions have been instrumental in bringing this work to fruition.

Forum of Enterprises for Equitable Development

Office Unit No.1 C.S-2,
Neeti Bagh, New Delhi-110049
www.feed.net.in
contact@feed.net.in