Current Status and Doable Strategies to Double Farmer's Income in India by 2022

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ABSTRACT

The maximum relevant measure to assess farmers' economic well-being and sectoral change is income, and the arena's crises and distresses damage farmers' livelihoods and wellbeing. With the goal of providing appropriate coverage on wages security, the Indian government has planned to double farmers' earnings by 2022, the country's platinum jubilee year. To gain a better grasp of the current situation, researchers looked at the spatial and temporal trends in household revenues from crop manufacturing, animal farming, wages, and non-farm activities. The study of farmers' house financial gain across regions and holding sizes between 2003 and 2013 used data from the National Sample Survey Office (NSSO extensive)'s state of affairs assessment survey to determine the potential and capability for doubling farmers' incomes (DFI) through 2022. According to the NSSO statistics, the percentage of income has increased significantly from 5 to 12 percent in cattle farming and 45 to 48 percent in crop production between 2003 and 2013, while wages and non-farm income have decreased. The issues that the farming community will encounter in the coming years are addressed in order to develop appropriate pathways and approaches to increase financial gain. Farmers' financial gain from crop production, farm animal farming, wages, and non-farm activities is the result of action and convergence of technology, extension, institutions, and guidelines to achieve the stated goal. To be on track with DFI by 2022, Indian agriculture requires a rethink, with a special focus on farm income via productivity/efficiency enhancement along with fee reduction, greater charge realization, and income risk covering.

Keywords: Agriculture, Economy, Farmers, reduce cost, Stabilize income

Farmer's Income in India

Small, dispersed estates and a significant reliance on monsoon rainfall define Indian farming. Farming is not a successful company or enterprise, and operating small holdings is generally unviable. It's a job in a field where there's a lot of hidden unemployment and never-ending uncertainty at every step of farm operation. Increase farm production, boost market access, and grow the industrial and service sectors, where excess farmers might find jobs, are all needed to double farmers' income. The agricultural-based Indian economy needs a high level of agriculture income for the farmers who feed the country's 1.25 billion people. According to the NABARD-conducted All India Rural Financial Inclusion Survey (NAFIS), the average agriculture household income in 2016-17 was just Rs 8,931. Crop cultivation, horticulture, dairy, poultry, fisheries, other linked activities, non-farm activities, and wage jobs are all sources of income for farmers. Maharashtra has the greatest per capita yearly agricultural income (Rs 61,400/-), followed by Gujarat (Rs 56,000/-), (Meena et al., 2017). The income gap between farmers and non-farmers has widened in the previous 30 years. In 1983-84, a farm household's average income was about a third of that of a non-farm household. This percentage had dropped to one-fourth by 2004-05.

Due to agricultural growth, there was modest improvement in the following period, up to 2013-14. The Agriculture and Farmers Welfare Department has taken on the task of computing and publishing state-by-state farmers' income on an annual basis in collaboration with the NSSO, Commission for Agricultural Costs and Prices (CACP), National Institute of Agriculture Economics and Policy Research (NIAEPR), and the NITI Aayog. In 2015-16, the current Indian Federal Government stated its ambitious goal of doubling farmers' income by 2022-23. To double in seven years, incomes would have to expand at a rate of 10.4 percent per year. According to the data on farm income growth rates provided by NITI Aayog in its strategy paper on doubling farmers' income, farmers' real income grew at a rate of 3.4 percent between 1993 and 2016. Furthermore, if we consider agriculture's gross value added (GVA) as a proxy for farm incomes, we can observe that the GVA of agriculture has traditionally grown at a pace of 3% per year at constant prices. Following this pattern, it took 25 years (from

1990 to 2016) for real GVA to double.

Non-farm activities now account for over two-thirds of revenue in Indian rural areas, but this hasn't translated into a large increase in job opportunities or a reduction in wage inequities. In the case of labor households and small farmers, non-farm income accounts for more than half of their income. Andhra Pradesh had the greatest non-farm income (74.12 percent), followed by Telangana (54.51 percent) and Karnataka (49.42). (Meena et al., 2017). The non-farm sector and labour market can be useful entrance routes for land-strapped agricultural households looking to increase their income (Birthal et al., 2014). According to Chand et al. (2015), real income increased at a compounded annual rate of 9.94 percent from 2004-05 to 2011-12, the quickest rate in the previous two decades. Chand et al. (2015) drew the following conclusions based on farm income patterns from 1983-84 to 2011-12:

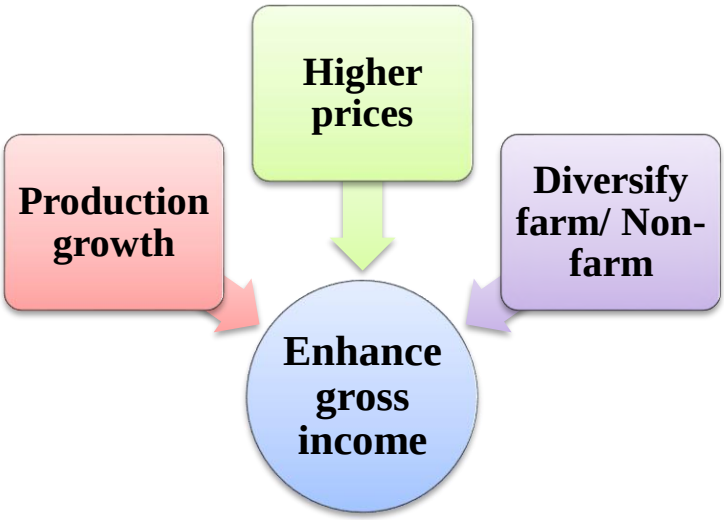
- Farmers' net income, excluding input costs and wage bills, has fluctuated between low and high growth rates over time
- Farm revenue increased at a faster pace in the most recent period, which ended in 2011-12.
- High growth in output, favorable farm produce pricing, and some cultivators leaving agriculture are all necessary for decent farm revenue growth
- Agriculture's high growth can help to eliminate income inequality and promote inclusive growth.
- Agrarian distress appears to be linked to low increase in agricultural revenue.
- Unless they choose high-income generating channels and supplement their incomes through non-farm activities, more than half of farm households in the country will remain poor.

The Situation Assessment Survey (SAS) by the NSSO, which was originally conducted in 2002-03 and then repeated in 2012-13, is the main source of information on farmer income based on large sample surveys. According to these surveys, farmer households' average total income climbed by 11.75 percent per year, from Rs 25,320 in 2002-03 to Rs 77,112 in 2012-13 in nominal terms. Cultivation provided the most income to farmers, increasing from 46 percent in 2002-03 to 48 percent in 2012-13.

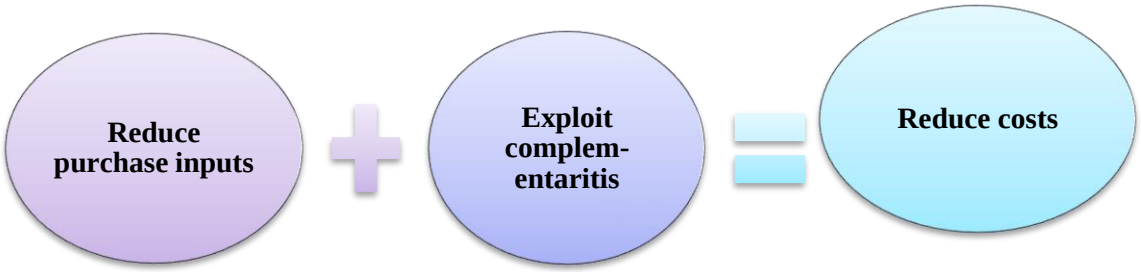
How income can be enhanced?

Farmers' income can be improved in three ways: through increasing gross income, lowering costs, and stabilizing income. Figures a-c indicates possible approaches to attaining these goals:

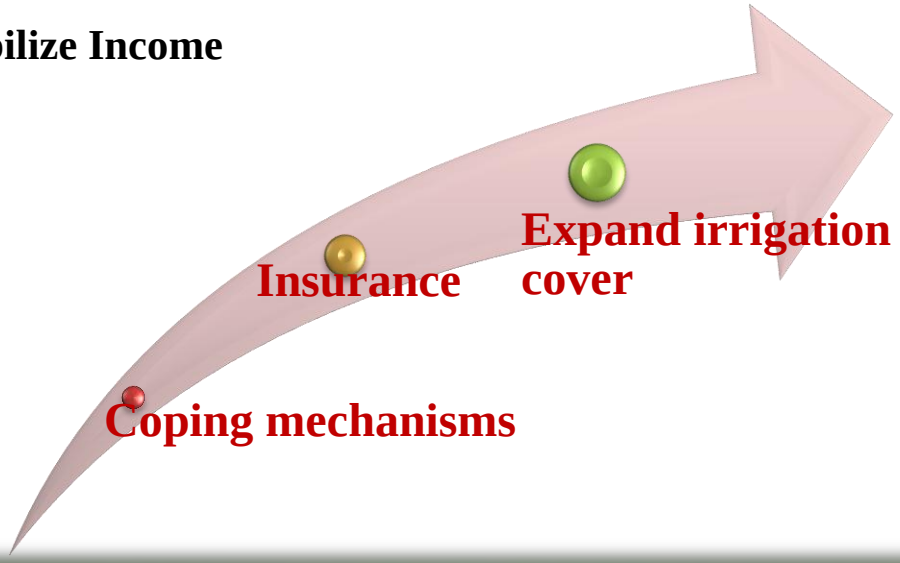
A.



B.



C. Stabilize Income



Micro-irrigation needs focused attention

As an agrarian country, India's current and future agricultural demand difficulties owing to population growth can be met by technical advances for sustainable agriculture. India's agriculture is hampered by water scarcity, making it less profitable and unreliable. Due to the scarcity of water in agriculture, every drop of water available for irrigation has a substantial impact on overall farm efficiency. As a result, making optimum use of existing water is critical, and micro-irrigation is one such creative solution (Priyan and Panchal, 2017). Due to water scarcity in many sections of the country, people are becoming more aware of micro-irrigation systems, and their installation has resulted in major economic and social benefits for the country. Crop yields, less energy use, and reduced use of chemical fertilizers and pesticides are all noticeable advantages. It also provides other benefits such as avoiding the exploitation of groundwater, lowering the cost of weeding, and alleviating the effects of water scarcity-induced labor migration (Viswanathan and Bahinipati, 2015). The irrigation efficiency at the field level can be used to calculate real water savings. Initiatives can be taken at the field level to improve water productivity for agriculture, and the saved water can be used for irrigation of more land or for environmental and social requirements. Micro-irrigation is regarded a vital aspect of the Pradhan Mantri Krishi Sinchayee Yojna (PMKSY), according to IAI et al. (2016), who identified various benefits of this technique. These are:

- Micro-irrigation technology ensures water use efficiency of 50-90 percent, which is possible because micro-irrigation helps to greatly reduce conveyance losses, runoff, evaporation losses, seepage, and deep percolation losses. Water saved might be utilized to expand the area under irrigation or to reclaim degraded or waste land.
- Because a modest flow rate is required, small wells can be used as a source, resulting in energy savings of up to 30.5 percent, which can be employed in other areas
- Direct application of nutrients to the roots results in a 28.5 percent reduction in fertilizer usage, which has a long-term influence on land production
- Agricultural yields have grown, with crop and fruit production increasing by 42.4 percent and vegetable productivity increasing by 52.7 percent, according to the report. This assures a good financial return in exchange for the higher yields
- Because of the improving water situation, farmers can judiciously add more new crops, which 30.4 percent of farmers have done.

Changes in Food Habits

Food consumption habits and preferences have evolved dramatically over the course of a single generation. Foods created from processed mixes, such as Kraft Macaroni and Cheese and Wonder bread, were commonly consumed by children growing up in the 1970s and 1980s. Fast food restaurants were their favorite places to eat. During the winter, they largely ate frozen or canned veggies. Pizza, burgers, and hot dogs were the favorites of the kids. Parents have already expressed their concerns, stating that these consumers do not want to feed their children the same highly processed foods that they consume. If they can afford it, they serve organic goods. They seek to provide healthier meals with "clean labels," which have a short list of ingredients and lower sodium levels. In general, they aim to avoid processed foods. They want more control over what goes into their food, the processes that go into making it, and where the supplies come from. Income, food pricing, socio-cultural and religious preferences, education, local and regional agricultural output, domestic and international food transportation networks, and marketing and retailing all influence dietary choices (Afshin et al., 2014).

This research shows how money and pricing can influence behavior in both rich and poor countries. Increased fruit and vegetable affordability is a top priority for international organizations, and a rise in income would have

a favorable impact on fruit consumption among men and women of all ages and in practically all nations. However, the link between income and fruit consumption was notably poor in the bottom 10% of countries (Muhammad et al., 2017). The link between pricing and consumption was strongest for fruit, processed meat, and sugar-sweetened beverages in low-income nations, but it became much weaker at higher income levels. Taxes to influence prices, on the other hand, could be troublesome due to governments' limited ability to develop efficient and transparent incentive schemes and industry opposition (Barquera et al., 2013). Developing countries are particularly concerned about the impact of these policies on those who are food insecure (Swinnen and Squicciarini, 2012).

Road Map and Action Plan

Quantitative framework for doubling farmers' income has identified seven sources of growth. These are:

1) Increase in productivity of crops
2) Increase in production of livestock
3) Improvement in efficiency of input use
4) Increase in crop intensity
5) Diversification towards high value crops
6) Improved price realization by farmer
7) Shift of cultivators to non- farm jobs

To double earnings, Niti Aayog has advocated for significant investment in irrigation, seeds and fertilizers, as well as new technologies, as well as a shift into high-value commodities like horticulture, poultry, and dairying. India's fertilizer subsidy, which has climbed by almost five times in the last 10 years from Rs 12, 595 crores in 2001-02 to Rs 67, 971/- crore in 2012-14 at current prices, accounts for a large share of agriculture subsidies. The government budgeted Rs 73,000 crore (about 0.5 percent of GDP) for fertilizer subsidies in 2015-16. While the Niti Aayog has advocated for the use of soil cards to customize fertilizer use, the Economic Survey of 2015-16 recommended reforms to boost domestic supply through less restrictive imports and to deliver direct benefits to farmers through the 'JAM' programme (Jan Dhan, Aadhaar, mobile).

The Action Plan under NITIAayog

i. Area under irrigation should be increased by 19% by 2022-23 to 110.4-mn hectares
ii. Availability of quality seed should increase by over 167% to around 8-million tonnes.
iii. Unless efficiency is improved, India would need to up its NPK supplies by 39% to 36-mn tones
iv. ICAR should start giving comprehensive and exhaustive advisories for the entire farm and not just crop specific advisories.

Income Opportunities

Agriculture in India is confronted with a slew of issues. While agricultural profitability is declining owing to rising input costs and unfavorable weather, the quality of natural resources such as soil nutrients and water is rapidly deteriorating. Significantly increasing public investment in agriculture, ensuring higher prices for farmers, lowering input costs, promoting climate-resilient crop varieties, better and more local storage and distribution of food grains, and improving soil and water quality are just a few of the important criteria. The following interventions, however, may be beneficial in this Endeavour:

i) Increase Farm Income through Direct Marketing

The difference between a farmer's input cost and the selling price of his crop is his revenue. The profit made from the sale of crops is dropping as the cost of inputs such as seeds, fertilizers, herbicides, fuel to draw out water, and machinery rises. Non-farm employment income, on the other hand, has increased, making farmers one of India's most impoverished groups. Insurance coverage for all crops and easy access to credit can go a long way toward assuring financial security. More importantly, diversifying revenue streams on a single farm, such as beekeeping, herb gardening, agro-forestry, poultry, and animal raising, might

help mitigate crop failure. Direct income to farmers through a government panel on the lines of the pay commission is another idea gaining traction in Karnataka, and if correctly executed, can help to prevent farmers from migrating to other industries.

ii) Reduce Input Costs & Conserve Resources

Farmers used to help each other in the fields in exchange for a share of the harvest. This not only helped with the labor deficit on the farm, but it also encouraged community sharing. Modern agriculture has made the activity impersonal, as machinery and migrant laborers undertake the work for a fee. Making farming a community venture is the only way to keep escalating input costs in check. Hiring tools through local farmer cooperatives would save farmers money on machines while also providing additional cash. Similarly, linking formal and farmer-saved seed systems through local firms will lower costs and encourage farmers to produce new crop types with a scientific mindset.

iii) On the Water Front

Water availability per capita in India has decreased from 5000 m3 per year in 1950 to roughly 2000 m^3 currently, with a projected decrease to 1500 m^3 by 2025, resulting in significantly less water available for agriculture. The availability of water for agricultural use has reached a catastrophic level, as the country uses more than 80% of its surface water for this purpose. India is the world's greatest user of groundwater, relying on aquifers for nearly 60% of irrigated agriculture and 85% of drinking water supply.

Water-intensive crops like paddy benefit from our input subsidies and commodity price policies. While it is beneficial to use water efficiently in agriculture, there is an argument to be made that water from this sector should be redistributed to other economic sectors such as industry. By 2020, water use might be cut by as much as 21%, resulting in lower rice yields, higher rice prices, and less food grain availability for the poor.

iv) Adaptation to Climate Change

Unprecedented weather patterns and altering rainfall patterns have been observed all around the world in recent years. Farmers' estimates have been thrown off as a result of these incidents, and the typical planting and harvesting cycle of crops has been disrupted, resulting in decreased yields. To deal with this scenario, a high focus should be given to improving climate risk information and tools in order to reduce crop losses due to disasters. Weather forecasts should be created on a block-by-block basis, including village-level outreach. Weather-resistant crop cultivars such as flood and salinity-resistant rice, as well as drought-resistant pulses, should be encouraged and enhanced.

v) Go Local for Food Security

Land rates have risen as a result of increased urbanization and industrialization. While land is the most valuable asset, food demand is increasing as a result of Indians' increased purchasing power and more food waste. As can be seen, Indian agriculture has a number of difficult issues, but solutions are available. However, these can only be applied successfully if people are involved as decision makers, monitors, and evaluators.

Conclusion

To increase farmers' welfare, eliminate agrarian distress, and achieve economic parity between farmers and those working in non-agricultural professions, the Indian government has set a goal to double farmers' income by 2022-23. Micro-irrigation technology can boost yields, reduce water consumption efficiency, lower the cost of water, fertilizers, and manures, and eliminate weeds. All of this added up to an increase in the overall economic benefits gained from optimal water use. This technique is highly significant and praiseworthy since it provides

higher benefits such as irrigation efficiency (50-90 percent), fertilizer (28.5 percent), and energy (30.5 percent).

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