# Chapter 12 Way Forward



Ashok Gulati and Shweta Saini

#### 12.1 Introduction

While the chapters until now in this book tell us about what the situation is and what explains the situation, this chapter builds on these and proposes suggestions for the future.

One thing is crystal clear: if India wants to grow, it cannot do so leaving its agricultural sector behind. In fact, this study tells us that it is worth focusing on agriculture as it has the potential to:

- (i) Solve country's twin-problems of poverty and malnutrition faster and
- (ii) Augment incomes of the largest segment of the country's workforce (agricultural workers). This will boost demand for manufactured products which will trigger a demand multiplier in the economy leading to overall development of the country.

But what is holding back agriculture today? This study has looked at the agricultural sector in six states in detail to decipher what works and what does not work in accelerating growth in agriculture. The study also looks at the overarching environment in which agriculture in India operates, and what reforms are needed in terms of institutional changes to give the right signals to farmers to attract higher investment in this sector leading to faster growth of agricultural GDP as well as the real incomes of the farmers.

Some contours of Indian agriculture are listed below:

(I) *Small-holder agriculture*: Indian agriculture is dominated by small holders. The average landholding size of a farm household has been falling (from

A. Gulati (⊠) · S. Saini

e-mail: agulati115@gmail.com

Indian Council for Research on International Economic Relations (ICRIER), New Delhi, Delhi, India

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2.28 ha in 1970–71 to 1.08 ha in 2015–16) and is likely to shrink yet further. With small and shrinking landholdings, it is always a challenge to access enough capital, quality inputs and insure against various risks that agriculture faces. As farm holdings are quite small, farmers often have to rely on alternate sources of income as exclusive reliance on income from cultivation and cattle rearing are not sufficient for them to sustain themselves. The smaller the size, the greater the dependence on off-farm sources for income. It may, however, be noted that although the small size of holding is a challenge, it is not such an insurmountable problem that it cannot be solved. The example of China may be relevant in this context. China's holding size even today is about 0.7 ha. It was just 0.46 ha when reforms in China started. China's overall gross cropped area is also about 166 million ha compared to India's 198 million ha and yet, China produces more than three times the value of agricultural produce compared to India. The lesson is straight forward: if we can get the incentives right, and if we can get the right investments in infrastructure and agricultural R&D, we can make the economic conditions of our farmers and those dependent on them much better, with lower poverty and lower malnutrition.

- (II) Challenge of aggregation and building value chains: One of the key challenges in small-holder agriculture is to think in terms of building more efficient and more inclusive value chains for different commodities, especially perishables in the country. The Gujarat study in this book has clearly demonstrated that small holders have contributed to the milk revolution in the country, and it started with the aggregation of small surpluses, processing them and linking the processing units to organised retail outlets in major metro cities. The fact that these value chains were inclusive in the sense that they were formed and owned by farmers led to a situation where almost 75-80% of consumer spend is received by farmers. The challenge is to replicate the "AMUL" model in other commodities, especially fruits and vegetables. In this context, thinking of value chains through the creation of farmer producer organisations (FPOs) seems to be the way forward. From that angle, the finance minister's announcement of creating 10,000 additional FPOs (there are already around 4000 FPOs in the country that NABARD and SFAC are handling) in the Union Budget of FY20 is a welcome step. But to convert this into reality, and deliver the gains that milk value chains have given, one needs to tweak laws governing long-term agricultural credit that often require land as collateral. FPOs also need to be linked to markets/processors/exporters, etc.--the crucial link to realise better prices for farmers. Aggregation must start with the assaying of produce, standardisation, packaging, dispute settlement mechanisms, traceability, etc. So, there is lot of spade work that needs to be done before their produce can be put on e-NAM for wider market access and better prices.
- (III) Access to essential inputs like water, quality seeds, fertilisers—This study identified that the main drivers of growth in agriculture in the past have been access to irrigation, access to better seeds, fertiliser consumption, etc. There

is a clear, strong, positive correlation between timely access to quality inputs in sufficient quantities and production growth.

- (IV) Infrastructural deficits like roads, power for irrigation and markets—This is just another challenge that needs to be overcome for higher agricultural growth and increased farm incomes. Even if a farmer is able to produce sufficient quantities for sale, non-existent roads and markets inflict losses and create wastages in the system. Similarly, with insufficient or no power, the farmer has restricted access to water. Today, only 49% of India's gross cropped area is under assured irrigation, which means that more than half the area depends on rains, mainly monsoon rains, to meet their irrigation needs. With high variability in rainfall patterns and the uncertainty due to fast climatic changes, insufficient access to irrigation constrains a farmer's ability to reach his full-potential.
- (V) Timely access to efficient markets—Most farmers sell their produce at the farm-gate or in small local markets located in rural and interior areas. These market points are not modern and lack scientific weighing and grading equipment with the result that transactions are not very transparent and often lead to lower value realisation by the farmer. Besides, as noted more recently, farmers have been suffering due to bumper crops, as these create a glut in the market that is not equipped to handle large surpluses, again leading to lower value realisation by the farmer. Missing value chains in the agricultural sector, particularly for perishable commodities like fruits, vegetables and dairy, have heightened farmers' distress.
- (VI) Over-reliance on MSP-based procurement regime to alleviate market crisis—Driven by farmers' demands and socio-economic objectives, successive governments have relied on the MSP-based procurement regime to assure markets to farmers. But, this regime itself has suffered on accounts of inefficiencies in the implementation machinery. While the system suffers on accounts of inefficiencies in grain handling and management, farmers in only about nine or 10 states, who are large enough to bring surpluses to the markets, have been able to benefit from the schemes. Farmers in most other states have been excluded from benefits under the procurement schemes.
- (VII) Over-reliance on wheat and rice—When India attained independence, one of its primary objectives was to achieve food security for all. By producing large surpluses of food grains at the national level, India has achieved food security at least at the macro-level. But this has had some interesting side effects. These include an over-reliance on the policy environment, government agricultural machinery and overdependence on rice and wheat. Changing consumption patterns and the desire to increase farmers' incomes have both necessitated a shift in this pattern towards high-value agriculture that includes production of fruits and vegetables, pulses, etc. However, there has been inertia in the system with farmers continuing to produce rice and wheat even though these crops are not warranted in terms of environmental sustainability.

- (VIII) *Problems of water efficiency and management*—As water becomes scarce and rainfall patterns become erratic, water management takes centre stage in India's drive to make its agriculture sustainable. This book found that in states like Punjab, the state government's supply of free electricity has led to unscrupulous drilling of underground water and that has led to massive depletion of water resources. Besides, the skewed cropping pattern where water-guzzling crops like rice and sugar cane are cropped in water-deficient areas has also been highlighted in this book.
- (IX) Issues with Policy and Governance—This issue was identified as a major constraint across all six state studies. Even the analysis of Modi 1.0 programmes and schemes and the doubling farmers' income chapter identified issues with policy design and implementation that put unnecessary constraints on the agricultural sector. Among other things, this book identified two types of problems with policies: (i) some policies and programmes were found to be *archaic* like the Essential Commodities Act, 1955, land leasing laws, etc., and their implementation has been found inefficient and (ii) some policies resulted in inefficiencies in the system like the input support regime where government support has resulted in the inefficient and unsustainable use of scarce natural and fiscal resources.

These challenges, however, will need to be dealt with given the need to ensure continued food security and the implications of high agricultural growth rates on other sectors of the economy. And the way to address these challenges is to undertake structural, operational and policy reforms.

#### **12.2 Centrality of Reforms**

In October 2016, NITI Aayog launched its Agricultural Markets and Farmer Friendly Reforms Index (AMFFRI). This index evaluated Indian states on the extent to which each of them undertook required agricultural reforms. The reforms were categorised under three heads—agricultural market reforms, land lease reforms and reforms related to forestry on private land.

Each parameter had sub-parameters. States were given scores based on their performance on these sub-parameters. For example, if a state removed fruits and vegetables (F&V) from APMC's purview and did not levy any cess or market fee, it got a full score. On the other hand, if a state removed F&V from APMC but still levied fees or other charges, then the state got half the score. Based on the total score received by a state, ranks were assigned to all states. The lower the rank the more market friendly that state is.

As per 2016 October AMFFRI, Maharashtra topped the index and Puducherry came last. This means that Maharashtra has been the best performing state among all to have undertaken most required reforms.

If we plotted states as per their AMFFRI ranks together with the agricultural growth rates achieved by them historically, an interesting picture emerges (Fig. 12.1).

This simple exercise reveals that those states that undertook reforms (and thus were ranked low on the AMFFRI) registered relatively faster agricultural GDP growth rates (blue box) while those that did not initiate reform measures had relatively lower agricultural GDP growth rates.

There were some exceptions like Karnataka, Haryana and Maharashtra. These states undertook reforms (and thus had low AMFFRI ranks), but they also had a low agricultural GDP growth rate. This is likely to be attributed to the delayed effect of reforms on agricultural performance.

But overall, it may not be wrong to infer that states which undertook reforms grew faster. This establishes the importance and urgency of undertaking reforms.

So, what are these reforms? We present below policy recommendations that emanate from the analysis presented in this book.



State AGDP growth rates (x-axis) and NITI AMFFRI Rank (y-axis)

**Fig. 12.1** Comparing State AGDP growth rates with AMFFRI Rank. *Source* Adapted from Saini (2019) based on data from MOSPI and NITI Aayog. Data for AGDP is for 2000–01 to 2015–16, and NITI ranking is as on October 2016. *Note* (i) A low AMFFRI rank imply that the state is undertaking desired reforms; the lower the rank, the better it is. (ii) Because both Kerala and Bihar did not have APMC acts, they do not have AMFFRI ranks

## 12.3 Recommendations

#### 12.3.1 Irrigation

Improving and ensuring timely access to sufficient irrigation is integral to agricultural development and based on the analysis in the chapters, the following recommendations emerge:

- 1. Bridge the gap between irrigation potential created (IPC) and ultimate irrigation potential (UIP).
- 2. For expansion of groundwater and surface water irrigation:
  - (a) Assured power is important. The government needs to effectively and expeditiously implement plans to increase investment to bolster the power transmission and distribution infrastructure.
    - (i) In order to ensure assured supply of electricity for agriculture, high priority needs to be given to feeder separation. Besides, power needs to be properly priced to recover the cost of supply. If farmers need to be supported that support should come directly as income support (like PM-KISAN).
    - (ii) States should take advantage of the funds under the Government of India's *Deen Dayal Upadhaya Gram Jyoti Yojana*.
  - (b) With improved access to quality and timely power, areas with underutilised sub-soil water resources will gain enormously.
  - (c) The use of solar pumping sets also needs to be popularised as an alternative to electric pump sets that depend on power supply from the grid, especially in areas with high water tables and shallow tube wells.
- 3. The coverage of micro-irrigation needs to be improved particularly for horticulture as it reduces water and energy consumption and increases productivity. Currently, the National Mission on Micro Irrigation is in position to promote sprinkler and drip irrigation. There is a need to increase the adoption of micro-irrigation works through demonstration via extension agents.

# 12.3.2 Markets

A well-functioning market plays a very important role in the growth of agriculture. The following recommendations are made based on the study:

- (i) Adopt an electronic trading system (e-NAM) wherever possible.
  - (1) This will lead to an improvement in the competitiveness and efficiency of agricultural markets and eliminate traders' cartels and price manipulation.

- (2) It will offer increased selling choices for farmers. e-NAM is a public initiative and could bring benefits to a much larger number of farmers across a larger area if patronised by the state.
- (ii) Encourage private sector participation particularly in high-value agriculture to create value chains, new markets for agricultural products and related infrastructure. The government has encouraged the private sector through subsidies, incentives and legislative support. State governments have also taken initiatives like *Krushi Mahotsav* which linked farmers with private players. These successes should be replicated and scaled up.
- (iii) The procurement of rice should be capped at a quantity lower than the current level to disincentivise paddy cultivation in water-scarce states like Punjab. The amount of subsidy saved can be used to procure crops like maize.
- (iv) Repeal and reform the restrictive APMC and the ECA. MP was among the first of the major states to remove horticulture produce from the ambit of the APMC. However, a few things need to be kept in mind:
  - (1) Repealing APMC is the first step, and it needs to be followed up with policy incentives to attract private market yards offering electronic and sample based trading. This will bring bulk buyers, processors, exporters, etc., to states for sourcing fresh produce and provide greater marketing choices to its farmers.
- (v) Encourage state governments and the private sector to increase storage capacity in states.
- (vi) Encourage FPOs-
  - (1) Government should put in place a set of incentives to strengthen these farmer owned organisations through financial support, infrastructure building and relaxation of the provisions of the APMC Act.
  - (2) Provide ready access to affordable working capital.
  - (3) Given that equity concerns are well addressed by such bodies, there is a justifiable case to enhance the level of public support to registered FPOs. Among the most effective measures would be a state-level credit guarantee fund, which could provide comfort to all institutional lenders licensed by RBI for loans advanced to FPOs up to a limit (say Rs. 200 lakhs).

### 12.3.3 Diversification

With increasing income, the demand pattern is changing and that should drive changes in the agricultural production basket. A need to expand livestock and the F&V sector was particularly identified in the chapters. Commensurately, the following measures are recommended:

- (i) Promote dairy farming:
  - (1) The Gujarat dairy model can be replicated in other states to promote the dairy sector. There is considerable scope for expansion of dairy cooperative societies to increase collection, processing and marketing of milk produced in a state.
  - (2) The dairy sector should be more organised and liquid milk should be channelised to processing units for further processing.
  - (3) Milk productivity has to increase in the states of UP, Bihar and Odisha. Health and reproduction management is crucial for increasing productivity.
    - (i) There is a requirement to increase the proportion of cross-bred bovines and to use germ plasm from superior breeds for crossbreeding.
    - (ii) There is a need to make use of recent developments in technology and reduce the number of births of male calves to increase the number of milch animals in the herd
- (ii) of milch animals in the herd.
  (iii) Government should facilitate diversification away from rice towards maize and horticulture by creating infrastructure for value chain development. Maize production can be incentivised by developing maize value chains, thereby connecting farmers to feed producers, processed food industries making cornflakes, popcorn or food marts selling horticulture products like baby corn and sweet corn, starch and the ethanol industry.
- (iii) With the increasing importance of the horticulture sector, there is need to expand and strengthen infrastructure such as cold storage, warehouses and processing units for value chain development. Incentives for farm-level, lowcost storages would significantly enhance the capacity of a state's farmers to benefit from price differentials in the lean supply months.
- (iv) The use of solar pumps, particularly micro-solar pumps, also needs to be popularised as its use has great potential in states in which farmers grow vegetables on small plots of land. Innovations like creating a market for mobile solar pumps can also help, as would the *Uberisation* of other farm machinery for small holders to get access to their services at low cost.
- (v) A large part of Odisha is mono-cropped with rice and remains fallow during the *rabi* season after the summer harvest. It is imperative to reduce the dependence of farmers on a single crop as recurring climatic anomalies make agriculture in the state doubly risky. A second crop of oilseeds, pulses, vegetables and fodder crops can be raised through greater use of ground water resources including through the deployment of solar pumps.
- (vi) The government needs to increase R&D expenditure and investments in marketing, storage and processing facilities.
- (vii) **Sugarcane** is an important crop for UP. The following are the recommendations for its development.

- (a) Adopting the Rangarajan Committee (2012) recommendations on cane pricing based on fair and remunerative price and revenue sharing formula.
- (b) Creating a price stabilisation fund for sugarcane.
- (c) Changing the molasses policy to stop subsidising the liquor sector through the sugar industry and sugarcane farmers.
- (d) Introducing a flexible ethanol blending programme to deal with the problem of sugar surpluses.
- (e) Avoiding bailing out inefficient co-operative sugar mills while discriminating against profitable private mills.
- (f) Privatising existing co-operative sugar factories through a transparent process.

#### 12.3.4 Techniques and Technology

- (1) Rice is India's staple crop and existing techniques of production including flood irrigation (which requires puddling of the field before tillage, fine grinding of top soil with water and creating an overlying water layer during transplanting) are found to be inefficient. The government should encourage agricultural scientists to identify new and efficient methods to replace this method and the extension system should be geared up to encourage their widespread adoption.
- (2) Improving extension services for soil sampling, good quality seeds, agricultural implements, etc., to provide quality inputs to farmers to improve production, productivity and returns to farmers.

#### 12.3.5 Other Recommendations from the Studies

- (i) Investment in all-weather surfaced roads will ensure efficient movement of products to the market in the minimum possible time and minimise waste.
- (ii) To improve power and water use efficiency, power supply should be metered and charged beyond a fixed level of free supply.
- (iii) Land laws need to be reformed and legal leasing of land should be permitted. Implemented fairly, the land leasing law could help increase investment in better technology and irrigation as stable tenures and fair rents will encourage tenants to invest in productivity-enhancing measures.

### 12.3.6 Shift to DBT

1. *Power Subsidy*: In order to ensure timely access to sufficient water for cultivation, water charges have been kept at a low level and have not been changed for a long time. Although this has helped increase production manifold, the combination of

free water, power and procurement has led to rapid ground water depletion and inefficiency in the consumption of power. With limited resources, this increasing subsidy burden is not sustainable and there is an urgent need to rationalise the power sector. Power supply should be metered and charged beyond a certain level of free supply and the subsidy should be transferred to a farmer's account. Transferring a fixed amount will incentivise farmers to reduce consumption of both electricity and groundwater.

- 2. Fertiliser Subsidy: Fertiliser subsidy has helped achieve self-sufficiency in food grain production, but it has led to inefficient use of fertilisers. The extremely low price of urea has resulted in imbalanced fertiliser use. This affects the fertility of land and increases the subsidy burden. To rationalise the fertiliser subsidy, our main suggestion would be to switch to direct cash transfers to farmers on a per hectare basis, liberalise the fertiliser sector (especially urea sector) step by step and let domestic prices be determined by demand and supply forces in the open market. The government should seriously pursue the soil healthcare programme, and if possible, make cash transfers conditional upon regular soil health checks and recommended optimum fertiliser usage.
- 3. *PM-KISAN*: The government's direct income transfer scheme, PM-*Kisan*, provides a unique platform that can be used to subsume existing in-kind subsidies and support Indian farmers in a non-distortionary and efficient way.

Overall, we believe that moving from a production-centric approach to a value chain approach with FPOs at the centre of these chains is critical. It has to be supplemented by investments in basic infrastructure, like roads, markets, power supplies and agricultural R&D. And finally, converting input and output subsidies to direct income transfers to beneficiaries' accounts will empower them, and give the right signals to farmers to efficiently use these resources (fertilisers, power, water); it will also give consumers (food subsidy) better choices for a more diversified and nutritious diet. This will help put agriculture on a higher growth trajectory, augment farmers' incomes, promote sustainable development of agriculture, especially with respect to water and soil, and have a beneficial impact on consumers of food, feed and fibre.

#### References

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