

Agricultural INPUTS Part III



AGRICULTURAL MECHANISATION AND CREDIT: GROWTH DRIVING CAPITAL INPUTS

INTRODUCTION

Agricultural growth and reform is as much about farmers as it is about agricultural produce. Questions like- 'do farmers have enough money to undertake their activities?' or 'what is the extent of physical effort they have to endure?' are addressed the by the analysis of agricultural inputs like agricultural credit and mechanization.

In Part I and Part II of the series, we have learnt how inputs like soil, water, seeds and pesticides directly enable the growth of the crops. In this part, we will try to understand the effect of indirect inputs such as agricultural mechanisation and credit on the crop production cycle.

AGRICULTURE MECHANISATION

Overview: Availability of farming labour power is declining, due to various factors, including diversion of labour into other employment generation programs of the government. Even when available, it may not be available when needed and at affordable price to the farmer. Machines in the agricultural sector are therefore an input that help in efficient utilisation of other inputs to increase the productivity of land and labour and mitigate costs in the agricultural sector.



SIGNIFICANCE

Effective use of agriculture machinery helps to **increase productivity & production of output**, undertake **timely farm operations, reduce the drudgery** and enable the farmers to **quickly rotate crops on the same land**. By raising a second crop or multi-crops from the same land, there is improvement in the cropping intensity, and making agricultural land in sequel commercially more viable therefore aid in enhancing farmers' income.

Estimates indicate that agricultural mechanisation can contribute a cut in cultivation cost by 25 per cent and rise in productivity by 20 per cent, thereby effecting an increase in farm income, to the extent of 25-30 per cent.

CHALLENGES/ISSUES

Small size of farms: About 84 per cent of the holdings are below 4 ha making individual ownership of agricultural machinery uneconomic and operationally unviable.

Hilly and rolling topography is not suitable for deployment of machines.

Practices like mixed cropping and integrated farming are inappropriate for mechanised cultivation.

Shortage of power in many rural and remote areas of India resulting in slow uptake of farm mechanization.

Poor servicing facilities for proper operation & maintenance of machinery.

Surplus agricultural workers.

Poor financial ability of the farmer to invest in farm machinery.

As a result of the above challenges, India still ranks last among Asia Pacific Countries in terms of the average farm power availability(kw/ha).

MEASURES TAKEN SO FAR

Sub Mission on Agricultural Mechanization (SMAM)

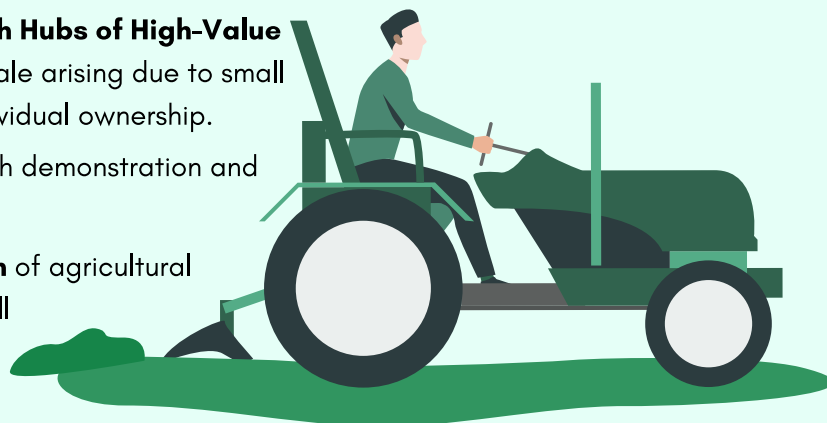


The major objectives include:

Promoting 'Custom Hiring Centres' and 'Hi-tech Hubs of High-Value Machines' to offset the adverse economies of scale arising due to small and fragmented landholding and high cost of individual ownership.

Creating awareness among stakeholders through demonstration and capacity building activities.

Ensuring performance testing and certification of agricultural machines at designated testing centres located all over the country.



Other initiatives



- Under **Rashtriya Krishi Vikas Yojana**, assistance is provided for, advanced and **women friendly equipment**.
- A number of professional service providers have emerged in the country catering to agricultural mechanisation on the principle of **'Pay Per Use' (PPU)**. These service providers offer a range of services on demand from the farmers.
- Land Conservation Department offers a 90% subsidy** to the women establishments for purchasing the machines.
- Under the **NABARD loan scheme**, a subsidy of up to 30% is provided on the purchase of tractors and up to **100% subsidy** is given for other agricultural machinery.



Sub-Mission on Agricultural Mechanization (SMAM): **SMAM Scheme**

Performance

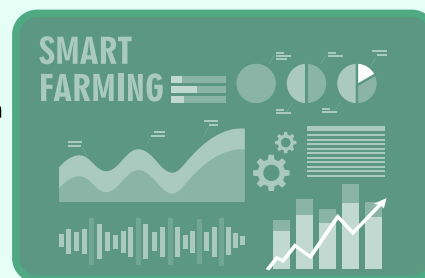
- Granting upto 100% of the cost of agriculture drone or Rs. 10 lakhs, whichever is less, as grant for purchase of drones.
- During 2014-15 to 2020-21, a sum of more than Rs.4500 crores of funds have been released under the scheme to the States and other implementing institutions.
- More than 13 lakh agricultural machines have been distributed and more than 27 thousand Custom Hiring Institutions have been established.
- Progressive increase in the availability of farm power per unit area (from 2.02 kw/ha in 2016-17 to 2.49 kw/ha in 2018-19).

Challenges

- Inadequate agricultural credit facilities at low interest rates.
- Inadequate Rural Infrastructure for machinery movement.
- Lack of versatile equipment that can be used in multiple crops.
- Large investment is necessary for skill building for correct usage of imported machinery.
- Integrating marginal farmers under the scheme.

POSSIBILITIES GOING FORWARD

- Greater engineering inputs and introduction** of high capacity, precision, reliable and energy efficient equipments. The agricultural machinery needs to be adequately supported by automation, GPS, remote sensing, data analysers and the like. **Semi-mechanized nursery raising technology** has been developed which needs to be popularized.
- Developing mechanisation in horticulture and important commercial crops:** Harvesting of fruits is still mostly manual. Packaging lines and equipment for on-farm processing and value addition of fruit and vegetables are needed.
- To set up 'Agriculture Machine Banks' (AMBs) at District level:** The Bank is expected to house cost intensive machines like combine harvesters etc as well as high level maintenance and repair facilities and 'Custom Hiring Centres' (CHCs) of agricultural machineries to allow small & marginal farmers access to powered machines, without the need to own the asset themselves.



🚜 **Indigenous Research and Development (R&D)** to roll out farmer-friendly, location-specific and easy-to-manage agricultural machinery. This requires local designs to suit varying Indian conditions.

🚜 **Leveraging technology:** The trisection of three important technologies, namely, satellite imagery, robotics and big data offer a new hope to Indian farming combined with soil chemistry, artificial intelligence, sensors and apps can help in transforming the way agriculture is practised for they contain the potential of imparting efficiency all along the agricultural value chain, besides enhancing risk negotiation capability.

Talking Point



This combine harvester seems very good. I should purchase this to increase my farm productivity and my profit as I do not have to pay to the additional labour during the harvesting. Also, then I can quickly switch to new crop for the season.

IS AGRICULTURE MECHANISATION SUSTAINABLE?

Since 2013, the farm power availability in India has increased by about 17 per cent to touch 2.49 kW/ha in 2019. However, **intensive use of machines, without appropriate guidance and controls can lead to major stresses on the agricultural sector** such as soil compaction, disruption of infiltration and aerobic activities, displacement of physical attendance and human application, diligence and innovation can suffer, loss of age old skills and traditions and acute distress in the basic bio-ecology on farms.

Such examples abound in and across the agricultural sector:

🚜 Free electricity and/or solar powered pumps allow for indiscriminate use of water, resulting in **ground water depletion**.

🚜 Marine fishing, globally, has witnessed a depletion of fish and trawling has **damaged sea beds**.

🚜 The ease in applying of chemicals can result in **over dosing** and leave harmful residue of pesticides and fungicides.



In India, the **example of rice stubble in farms of north-west India** is apt. In this case, mechanising the access to water and the resulting easy access to irrigation brought a change in the cropping pattern, bringing rice into a zone where the rice consumption was low. The residue on rice field was no longer usable or useful, which ultimately lead to stubble burning and corresponding air pollution.

In recent years, **wheat stubble burning is has also started taking place** which started with mechanised harvesting using combine harvesters.

AGRICULTURE CREDIT

Overview: Finance is an overriding input that makes available the material inputs discussed in previous sections and chapters. Credit is the mechanism that enables access to finance, which commences the initial cycle of input, production and marketing. Financial inputs are also made through the monetisation of the farmed produce. An efficient agricultural enterprise, should normally generate the necessary revenue for the next cycle of production and marketing.

SIGNIFICANCE

Empirical evidence suggests that output elasticity of farm credit is significant and positive; roughly every 1 per cent increase in agricultural credit produces 0.29 per cent increase in agricultural GDP and consequently aid in increased income.



CHALLENGES/ISSUES

High dependence on non-institutional channels: Nearly 40 per cent of loans came from informal sources and 26 per cent were advanced by moneylenders(NSSO).

Poor share of investment credit: The share of investment credit in total agriculture credit is only 35.3 per cent. Investment credit helps in generating the capacity to further expand agricultural production through capital formation in agriculture.

Institutional credit has two components, **Crop credit** – short term agricultural loan and **Investment credit** – long term agricultural loan.

Regional Imbalance in Credit Disbursement: The southern states together account for almost 43% of the amount disbursed and agriculture accounts because of better infrastructure facilities, better outreach and credit delivery outlets. On the other hand, the share in credit of the eastern and central region is quite low (between 8-13%) compared to its share in the gross cropped area.

Skewed credit distribution: Nearly 60 per cent of the agriculture accounts belong to small and marginal farmers (SMF) category; whereas, in terms of amount disbursed the share of SMF is only 40.46 per cent.

Anomalies in the Priority Sector Lending (PSL) in Agriculture: There has been a sharp increase in the share of large-sized loans (Rs. 10 crore and above) in agricultural credit. This trend is said to be taking away agriculture credit meant for farmers to non-farmer borrowers such as Input dealers, State Electricity Boards, Agri Clinics, Rural Electrification Corporations in agriculture PSL.

MEASURES TAKEN SO FAR

Policy of doubling the income of farmers by 2022



To facilitate crowding in private sector investments, through enhanced private sector participation in agriculture.

Dedicated Long Term Irrigation Fund (LTIF) with NABARD



A 20,000 crore fund for fast tracking of implementation of incomplete major and medium irrigation projects under Accelerated Irrigation Benefits Programme (AIBP).

Unified Agricultural Marketing e-Platform



To provide a common e-market platform for wholesale markets. This helps in generating private sector investments in various ways – storage, transportation, forwarding agencies, assaying labs etc.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN)



To supplement the financial needs of the Small and Marginal Farmers in procuring various inputs and to protect them from falling in the clutches of moneylenders.

Pradhan Mantri Fasal Bima Yojana (PMFBY)



It encourages farmers to adopt innovative and modern agricultural practices, and absorb greater flow of credit in the agriculture sector by covering the probable risks.

Other measures for hassle-free loan to small and marginal farmers



Interest subvention scheme for short-term crop loans upto Rs.3 lakh.

Kisan Credit Card (KCC) Scheme.

Joint Liability Groups (JLGs) to bring small, marginal, tenant farmers, oral lessees, etc. into the fold of institutional credit.

Agri loan waiver.

SVAMITVA scheme to provide rural people with the right to document their residential properties.



Kisan Credit Card

किसान कार्ड
KISAN CARD

Performance

- As part of the Atmanirbhar Bharat Package, the Government has announced to cover 2.5 crore farmers under the Kisan Credit Card (KCC) scheme with a credit boost of Rs. 2 lakh crores through a special saturation drive.
- More than 1.5 crore farmers (including Fishermen and Dairy farmers) under KCC, with sanctioned credit limit of Rs.1.35 lakh crore has been achieved.
- A flexible limit of Rs 10,000 to Rs 50,000 has been provided to marginal farmers (as Flexi KCC) based on the land holding and crops grown including post-harvest warehouse storage related credit needs and other farm expenses, consumption needs, etc., plus small term loan investments without relating it to the value of land.

Challenges

- Delay in credit delivery.
- Inadequate credit.
- Irrational credit limits on different crops.
- Lack of supervision at the branch level.
- Money intended for the poor farmer is misused in many cases.



POSSIBILITIES GOING FORWARD

- More efforts needed for **dispensation of long term credit** to boost capital formation.
- Share of loans to SMF in total loans to agriculture to be raised**, as per the revised PSL guidelines of RBI (8 per cent of Adjusted Net Bank Credit (ANBC) or credit equivalent amount of off balance sheet exposure, whichever is higher within the 18 per cent target outlined for agriculture).
- Special focus on eastern, central, hilly and north eastern states** is needed to tackle regional imbalances .
- Enhance Inclusion process:** Bringing new farmers and farmers who have not availed institutional credit under banking fold and issuance of KCC to them.
- Encourage aggregation / collectives of farmers/ FPOs:** Farmers' Producer Organisations (FPOs) help in overcoming the challenges of high transaction costs, security stipulations of loans and also support smallholders in gaining access to markets, public services, better price etc., through collective action.
- Promotion of Joint Liability Groups (JLGs) as an alternative channel** to enable tenants to get credit from Institutional sources.
- Investing in Infrastructure and common assets:** Access to common resources is crucial in reducing the cost of cultivation and accelerating private investment; thereby, provide better and stable net income.
- Training and skilling:** There is a need for massive scale reskilling of cooperative personnel for handling Long Term lending activity.



Talking Point



WHAT LIMITS THE INSTITUTIONAL CREDIT AVAILABILITY TO SMALL AND MARGINAL FARMERS IN INDIA?

Roughly 85 per cent of the total operational agriculture holdings in the country (about 43 per cent of the gross cropped area) are in the small and marginal farmers (SMF) category. Therefore providing timely and affordable credit to this resource constrained group is the key to attaining inclusive growth.

Declining size of land holding : Division and fragmentation of land ownership has limited the credit absorption capacity of SMF and slowed down Ground level credit (GLC) in agriculture. Banks are also reluctant to finance SMFs on account of high transaction and monitoring costs.

The share of small-sized and mid-sized accounts (loans up to Rs. 2 lakh) in direct financing to agriculture (outstanding), has declined from 47 per cent of total agricultural finance as at the end of March 2009 to almost 42 per cent by the end of March 2013.

Lack of proper Record of Right : In a security-oriented system of lending (especially in case of agriculture credit), followed in India, the inadequate availability of collateral was considered as the major reason for low penetration of institutional credit (particularly investment credit) amongst SMF and landless farmers. Often small holders are not able to use their holdings as collateral due to the absence of proper titles or Record of Rights (ROR).

Increased share of tenant farmers/share croppers: Ever-increasing urbanisation and migration from rural areas, along with fragmentation of land holdings, has accelerated the proliferation of tenant farming in the country. As per National Sample Survey reports, the leased-in area as percentage of operated area at the all India level was 10.88 per cent in 2012-13, an increase of 4.38 percentage points over a decade from 6.5 per cent recorded in 2002-03 (GoI, 2014).

Notion of high NPAs : Besides higher transaction costs, another reason often cited for the tepid response to agriculture loans, especially to small farms, is the high prevalence of non-performing assets (NPAs) in the sector.

CONCLUSION

The six critical inputs as discussed in Part I, II and III play a critical role in the agricultural cycle. The absence or deficiency of any one of them could act as a limiting factor for the production system.

In this context, it becomes important to move towards a balanced approach i.e., every aspect of the agricultural cycle need to be addressed and the consumption of every input is to be rationalized in accordance to needs and also other inputs. Empowering the farmers financially, technologically and informationally in enabling balance and holistic growth of the sector.

TOPIC AT A GLANCE

AGRICULTURAL INPUTS- PART III

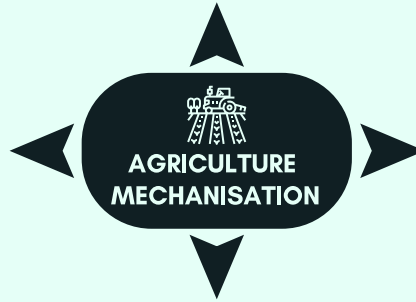
Agricultural Mechanisation and Credit: Growth driving capital inputs

Significance

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Challenges

- Small size of farms.
- Hilly and rolling topography.
- Mixed cropping and integrated farming.
- Shortage of power.
- Poor servicing facilities.
- Surplus agricultural workers.
- Poor financial ability of farmers to invest in machinery.



Measures taken

- Sub Mission on Agricultural Mechanization (SMAM):** Major objectives under it include:
 - Promoting 'Custom Hiring Centres and Hi-tech Hubs of High-Value Machines.
 - Creating awareness.
 - Ensuring performance testing and certification.
- Other benefits provided under various schemes such as
 - Assistance for advanced and **women friendly equipment under Rashtriya Krishi Vikas Yojana.**
 - Land Conservation Department** offers 90% subsidy to the women establishments for purchasing the machines.
 - Subsidies provided under NABARD loan scheme.

Possibilities going forward

- Greater engineering inputs and introduction of high capacity, precision, reliable and energy efficient equipments.
- Developing mechanisation in horticulture and important commercial crops.
- To set up 'Agriculture Machine Banks' (AMBs) at District level.
- Indigenous Research and Development (R&D)** to roll out farmer-friendly, location-specific and easy-to-manage agricultural machinery.
- Leveraging technology.**

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Every 1 per cent increase in agricultural credit produces 0.29 per cent increase in agricultural GDP and consequently aid increased income.

Challenges

- High dependence on non-institutional channels.
- Poor share of investment credit.
- Regional Imbalance in Credit Disbursement.
- Skewed credit distribution.
- Anomalies in the Priority Sector Lending (PSL) in Agriculture.



Measures taken

- Policy of doubling the income of farmers by 2022.
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- Unified Agricultural Marketing e-Platform.
- Pradhan Mantri Fasal Bima Yojana (PMFBY).
- Other measures such as interest subvention scheme and Kisan Credit Card scheme for hassle-free loan to small and marginal farmers.

Possibilities going forward

- Dispensation of long term credit** to boost capital formation.
- Share of loans to SMF in total loans to agriculture to be raised.**
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