NCAER Conference on

**"The Future of Indian Agriculture: Policy Options for Competitive, Inclusive and Sustainable Growth"**

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Transforming Agriculture in a Rapidly Modernizing Indian economy: Issues and Challenges

## Introduction

The importance of the agricultural and allied sectors to the Indian economy cannot be overstated. It has been and continues to be the main source of livelihood for a majority of Indians. More than half the workforce of our country still depends on this sector. Despite structural changes, the sector accounts for more than 18 percent of the gross value added. The sector contributes 14 percent to total exports. A major source of raw material for a large number of industries, it also serves as a large market for the manufacturing and service sectors of the economy. Accelerating agricultural growth is, therefore, a priority for the nation.

India is a vast nation with a very complex agricultural canvas. For the guests from overseas, I may mention that we have five major agro-ecological zones with more than 120 sub-zones. Each of these with their different terrains, soil types, rainfall, and temperature patterns and so on require specific approaches. Also, ours is a federal polity and, expectedly, the states enjoy differing levels of governance, different investment climates, varying ability to absorb and utilize central funding and differing levels of farmer outreach. What

happens, therefore, is that we experience wide variations in agricultural performance not just year to year but also from State to State and at the sub-State levels. To give you an example, wheat productivity ranges from 5017 kg per ha in Punjab to 500 kg per ha in Andhra Pradesh; Rice ranges from 3952 kg per ha in Punjab to a low of 1474 kg per ha in Madhya Pradesh. Imagine the transformation we could achieve if the State with the lowest productivity could raise it to match the highest – and this may be possible with the existing know-how, known agronomic practices and available technology applications. Then picture, if we could reach the productivity levels of best in the world- that is the challenge; and that is the opportunity. That is the transformation we need to attain. India has demonstrated its ability to touch world class productivity in other sectors such as Information Technology. We have to strive to reach those levels in Agriculture.

Indian agriculture has come a long way since independence. We saw a large wave of transformation during the green revolution and our policy regime was vindicated when we turned from a food deficit nation to a net exporter of agricultural products. Then again we have witnessed another round of transformation in terms of level of growth, increase in exports and reduction in regional disparity since 2004-05. There has also been some reversal in the trend of rising workforce in agriculture, reflecting increasing productivity. But given the limitation to area expansion, the key for transforming agriculture in a rapidly growing economy lies in enhancing productivity.

So how do we achieve this transformation? We are focusing on better inputs and more efficient use of resources, leveraging technology, diversification, developing integrated farming systems, better markets and movement up the value chain. However, in so doing we must not lose sight of the urgent need to

accelerate alternate job creation in industry and service sectors so that the dependence on agriculture and consequent pressure on land is addressed. With our government's focus on boosting manufacturing and productive services we expect that, in time, the expansion of these sectors will be high enough to quickly absorb the growing labour force. But, in the short- to medium-term, the scope for transfers of agricultural workers into other sectors is, at least initially, limited, as low-skilled rural based workers find it difficult to find occupations outside the farm. A large part of the additional employment opportunities have, therefore, to be generated within agriculture. Hence, productivity growth must be driven by growth within agriculture.

The integration of the agriculture sector with the global economy has also brought its own set of opportunity and challenges. The challenges are numerous and each comes with multiple ramifications I will briefly touch upon some of our major challenges, both traditional and emerging ones such as climate change and also on some of our initiatives.

**Challenges facing Agriculture Sector**

**Small holdings:**

One concern is the progressive fragmentation of land holdings. According to the latest Agricultural Census of 2010-11, 85 percent of the operational holdings in the country are small and marginal, that is holdings of less than 2 hectare each. These account for 44% of the total operational area and the average holding size is merely 1.14 ha. Our approach, therefore, has to necessarily keep in mind the sensitivities of the small farmer. Further fragmentation of land must be checked as the resulting un-economic holdings would impede productive land use and also create great vulnerability of the small

farmer houses. The challenge is to create alternative livelihood in non-farming activities, skill development and employment in the industries and service sectors. Simultaneously we are focusing on modernized integrated agriculture so that income from farming can be supplemented with that from livestock, fisheries and social forestry, all of which are less vulnerable to weather variations and degrading natural resource base. We are also promoting aggregation of small farmers into farmer producers' organizations to bolster their bargaining power with respect to purchase of inputs, marketing arrangements etc. Investment in the creation of support infrastructure and innovative marketing systems is being encouraged.

**Risk mitigation:**

Being largely rain fed, agriculture is a risky business and climate change has added to its vulnerability. We are concentrating on creating irrigation potential through micro irrigation, canal irrigation and watershed development. The use of sprinkler and drip irrigation systems is being propagated for optimal use of water. The aim is to achieve more crop per drop.

Climate change is a big and real risk. Our acreage and productivity in the kharif season of 2014-15 was adversely affected by late, poor and uneven rains. Then, even as we hoped that a good rabi crop would help in recovery of production, we were hit by unseasonal rains, high speed winds and hailstorm in March and again in early April. The cyclones Hud Hud and Phailin caused their own share of damages. Now there are also reports from some foreign agencies that there is a likelihood of an El Nino episode. The short point is that climate change is now a major concern and we are focusing on both adaptation and mitigation strategies. Towards this, Government is implementing the National Mission for Sustainable Agriculture. The ICAR, on its part, has focused research

on developing stress resistant varieties, short duration varieties, seed replacement, etc.

We are also encouraging mechanization to address both increase in productivity as well as shortage of labour issues and improved agronomic practices.

Another concern is land degradation and degrading soil health. As per estimates of the ICAR of the total geographical area of 328 million ha, 120 million ha is affected by various kind of land degradation. Non-judicious fertilizer use has led to soil degradation. We have launched a campaign to educate the farmers about the condition of their soil and to encourage them to avoid unbalanced use of fertilizers. The campaign includes issue of soil health cards, to be reissued every three years, recommending dosages of chemical fertilizers and micro nutrients. Technology is being leveraged in all these activities with extensive use of IT portals, mobile devices, real time messaging and GPS technology for better monitoring.

Government is also looking at introducing the national crop insurance programme which will cover risk to both production as well as income. We welcome a sharing of international experiences on this issue at this Conference.

Institutional credit is yet another area which we are promoting. At present, as per the latest Situation Survey of agricultural households 56 percent of the total outstanding loans of small and marginal farmers are from non-formal, non-institutional sources. Inclusion into the formal banking and credit system is being facilitated through larger targets for the banking system, interest subvention, kisan credit card and the Jandhan Yojana.

The lower income elasticity of expenditure for cereals has led to a gradual shift in consumption patterns to high value products. This is evident from the latest reports from consumption expenditure. To harness this shift and also with

a view to encouraging productivity and sustainability, Government is actively encouraging diversification towards horticulture and livestock. Given its highly perishable nature, this segment requires a different set of supporting infrastructure. It needs faster and better linkages between farms and markets, improved processing and organized retailing. For development of horticulture a number of these initiatives are being taken under the Mission for Integrated Development of Horticulture. This Mission is also taking up area expansion, rejuvenation, supply of quality planting material, establishment of nurseries and tissue culture units and technology promotion.

**Balanced regional development**:

As I have already mentioned agricultural production in different parts of the country varies widely. To promote balanced development of agriculture in various regions, the Government is focused on “Bringing Green Revolution to Eastern India”. The scheme addresses the constraints limiting the productivity of rice based cropping systems in 7 States of eastern India. The programme is being implemented in 125 identified districts. Simultaneously, Government is taking steps to encourage much needed Crop Diversification in the original ‘Green Revolution’ States of Punjab, Haryana and Western Uttar Pradesh , to prevent further decline in soil fertility and water table level in these States,

**Infrastructure:**

Infrastructure bottlenecks are a limiting factor in the transformation of the agriculture sector. Modern technology cannot deliver the desired results without infrastructure support in terms of irrigation, un-interrupted power supply, roads connectivity, modern telecommunication network, godowns and marketing infrastructure. We are aggressively addressing this by encouraging public

investment by the Central and State Government and also private investment. A High Level Committee of the Central Government has recommended that procurement infrastructure should be improved to provide price support to farmers for crops other than wheat and rice and also to the States in Eastern India. We are examining the possibilities. There are also suggestions for exploring the possibility of direct cash transfer for beneficiaries of the public distribution system as well as for income support to farmers.

**Marketing**

As I mentioned earlier, our's is a federal polity and agriculture is a State subject. At present, markets in agriculture products are regulated under the Agricultural Produce Market Committee Act enacted by State Governments. There are about 2477 principal regulated markets based on geography and farmers are bound to make their first sale in agricultural commodities at these regulated markets through licensed commission agents. Thus, effectively, as mentioned in Economic Survey, India has thousands of agricultural markets. These fragmented markets have created immense distortion. The Ministry of Agriculture developed a model APMC Act, 2003 and has aggressively pursued with the State Governments to modify their respective Acts in line with this.

One of our major challenges is to develop a Unified National Agricultural Market which would connect farmers with buyers from all over the country and permit better price discovery. It would also encourage private sector investment in market infrastructure and make agriculture more profitable. As a first step Government is establishing an Agri-Tech infrastructure fund for creating a common e-marketing platform for agri-commodities in the APMCs. A Committee is also looking into developing a roadmap for implementation of the Unified National Agricultural Market. We have a good model in the State of Karnataka where 51 of the 155 main market yards have been integrated into a single

licensing system. A joint venture created by the State Government and NCDEX Sport Exchange, offers automated auction and post auction facilities. It also offer assaying facilities in the markets, facilitates warehouse based sale of produce and price dissemination by leveraging technology. We are looking at this model and are also asking States to look at it for possible replication.

I congratulate the NCAER on taking this initiative to organize a discussion on the future of Indian Agriculture and the policy options for its competitive, inclusive and sustainable growth.

I look forward to the deliberations of the Conference and to the insights that will emerge in our quest for transforming Indian Agriculture.

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