

The e-Kisan Portal and Impact of Climate Change on Food Security

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Abstract—*The needs and expenses are on a monthly basis and the income is biannual. This is the condition of the Indian farmers. The launching of e-kisan portal to bridge a gap between the wholesalers, traders and the farmers the present government has tried to provide a solution the product produced by farmers. The irony is that most of the farmers don't know how to operate through this system and the targeted area is focused more on the developed farmers. With the current problem of implementation of the scheme the major concern is the Climate change which is directly going to effect the farmers and food security. Availability of food grains in India depends on agriculture which is very much vulnerable as we have to be dependent upon the monsoon. The government will spend Rs 50,000 crore over the next five years under the Pradhan Mantri Krishi Sinchai Yojana (PMKSY). But Developing countries face a substantial decrease in cereal production potential. In India, rice production is slated to decrease by almost a tonne/hectare if the temperature goes up 20C. By 2050, about half of India's prime wheat production area could get heat stressed, with the cultivation window becoming smaller, affecting productivity. For each 10C rise in mean temperature, wheat yield losses in India are likely to be around 7 million tonnes per year, or around \$ 1.5 billion at current prices. With falling rupee value India is already facing a crisis situation and food security bill is an additive factor.*

This paper will deal with the realistic and futuristic scope of food security and its implementation in accordance with the policy framework establishment and laws for better execution of the guidelines. Following a doctrinal research it will enhance the pros and cons of methods, schemes and policies lacking in the society and agricultural area in order to cope with the climate change and have economic and sustainable growth.

Keywords: Climate Change, e-Kisan portal, Food Security, PMKSY, Techno-Education.

1. INTRODUCTION

India is a large developing country with nearly 55% of the population depending directly on the climate sensitive sectors such as agriculture, fisheries and forests (GOI). The projected climate change under various scenarios is likely to have implications on food production, water supply, biodiversity and livelihoods. The government invest lot of money in research and development of agriculture but still could not the desired objectives because there is always a huge difference

between the prepared plan and its implementation. The farmers in India have to spend their total income for livelihood survival works and sustenance which is on a daily or on a monthly basis. If we look at the income pattern of a farmer in India his earning is totally depends on the seasonal income which is biannually. The financial support given to the farmers is very less as it is compared to the money that is invested in farming research and development. In order to maintain an equilibrium between the both i.e. the farming and research and development the government must take some steps to search for alternatives which can support the income of farmers on a monthly or weekly basis so that the burden of expenditure on them apart from farming could be sustained.

A large part of the Indian agriculture depends on monsoon so that the market of agriculture, essential commodities shows fluctuation due to early/delayed arrived of monsoon. Any change in countries rainfall pattern impacts agriculture and hence the country's economy and food security. Yet global warming poses serious threats to the weather system, which can potentially effects millions of small, marginal and poor farmer and all those who depends on agriculture for their livelihood. A growing world population combined with the steady effects of climate change is forecast to create a global food shortage in the next 10 years. India is not exceptional, their 52% working populations depend on agriculture and nearly 70% population resided in rural areas where agriculture is largest support to livelihoods. (Economic Outlook 2013-14). As climate changes, a key driver for agriculture in 21st century, there will be increase in the demand for food in India to 276 million tons by 2021 as against current production of 230 million tons that may increase the competition for resources use such as land, water, capital, labour and other precious natural resources.

Climate change is any significant long-term change in the expected patterns of average weather of region (or the whole Earth) over a significant period of time. It is about non-normal variations to the climate, and the effects of these variations on other parts of the Earth. These changes may take tens, hundreds or perhaps millions of year. But increased in

anthropogenic activities such as industrialization, urbanization, deforestation, agriculture, change in land use pattern etc. leads to emission of greenhouse gases due to which the rate of climate change is much faster. Climate change scenarios include higher temperatures, changes in precipitation, and higher atmospheric CO₂ concentrations. There are three ways in which the Greenhouse Effect may be important for agriculture. First, increased atmospheric CO₂ concentrations can have a direct effect on the growth rate of crop plants and weeds. Secondly, CO₂-induced changes of climate may alter levels of temperature, rainfall and sunshine that can influence plant and animal productivity. Finally, rises in sea level may lead to loss of farmland by inundation and increasing salinity of groundwater in coastal areas.

2. THE SCOPE OF *E-KISAN* PORTAL AND FRAGMENTED TRADE

The The proposed *e-kisan* portal which is made with a view to finish the difference between the farmers and the traders is going to cover only specific areas only. In a country where the farmers cannot even afford internet facilities, the present plan seems to face the darker side of failure.

E-kisan, a portal that will go online on July 27, will allow them to showcase their farm produce on the Internet for wholesalers to bid remotely before the crop is harvested and sent to the buyer. The *e-kisan* mandi, an initiative of the agriculture ministry, will be a platform to trade fresh vegetables and fruits. The Small Farmers Agribusiness Consortium (SFAC), a body under the ministry, will facilitate transactions.

Apart from ensuring remunerative prices to farmers, the portal will be an attractive alternative for wholesale buyers as they will not have to pay any *mandi* tax. The portal will initially cover Delhi and benefit farmers who bring their produce all the way to the capital from across the country.

Farmer growing onion from Nashik, tomatoes from Ranjangaon, apple from Himachal Pradesh and garlic from Madhya Pradesh will no more have to get their produce to Delhi market to sell.

Unifying the markets both at state and the national level would provide better price to farmers, improve supply chain, reduce wastages and create a unified national market through provision of the common e-platform. Government has allocated Rs 200 crore for three years to set up an online national agriculture market by integrating 585 wholesale markets across India a move that would help farmers realise better prices. An amount of Rs 200 crore has been earmarked for the scheme from 2015-16 to 2017-18. Now there will be one license for entire state, there will be single point levy. There will be electronic auctions for price discovery. The impact will be that the entire state will become a market and the fragmented markets within the states would be abolished. The Department of Agriculture will set it up by creation of a

common electronic platform deployable in selected regulated markets across the country.

Under the scheme, 585 selected regulated markets would be covered. The plan is to cover 250 mandis in current fiscal, 200 mandis in 2016-17 and 135 mandis in 2017-18. The Rs 200 crore allocations includes provision for supplying software free of cost by agriculture department to the states and UTs and for cost of related hardware/ infrastructure to be subsidised by the Centre up to Rs 30 lakh *per Mandi (other than for private mandis)*. Seamless transfer of agriculture commodities within the state can take place. The market size for farmers would increase as he won't be limited to a captive market.

This portal aims at providing an electronic which is only for targeted farming practices and specific areas. The major concern is if one takes the examples of remote areas there are still many basic facilities required for this plan execution are lacking behind. The focus of the current government seems to be in the industrialised area where the agricultural output is created for selling and buying. The government thus has clearly neglected the small and rural farmers from this scheme. Without proper administration and inefficiency in lack of implementation this one sided scheme is hardly to make a difference in the present status of farmers rather it is going to create another hurdle for the illiterate and poor farmers.

3. EVOLVING A CMP

Crisis Management Plan (CMP) refers to the actionable programme, which is pressed into action in the event of a crisis situation to minimise damages to life, property and environment.

Being prepared to respond to a Crisis situation, helps in reducing the time taken to mobilize resources for an effective response. It also helps us to maintain cordial relations among stakeholders, enabling us to return to normal business operations more quickly. The goal of crisis management is to facilitate overall management of the crisis situation to minimize adverse impact on the community at large, maintaining individual and sovereign credibility and controlling and strengthening the Government's credibility with the public. CMP helps us to develop preventive measures in a time bound manner and provides for continuous improvement in managing crisis situation. CMP ensures factual and timely communication of what needs to be done under specific circumstances to all the stake holders to minimise the losses. The crisis recovery model based upon past experiences, on identified priorities and trigger-points with appropriate response matrix viz. contingency action plans of different agencies could be known as Crisis Management Plan (CMP). The identified priorities of CMP are to clarify the goals and define the roles and responsibilities of various responders (Ministries / Departments, Organisations and individuals) involved in crisis management, and putting

together a communication process for quickly notifying the Public in the event of acrisis.

4. PRADHAN MANTRI KRISHI SINCHAI YOJANA (PMKSY) AS A CMP

A National Executive Committee (NEC) is to be constituted under the Chairmanship of the Vice Chairman, NITI Aayog, to oversee *Pradhan Mantri Krishi Sinchai Yojana (PMKSY)*, programme implementation, allocation of resources, inter-ministerial coordination, monitoring and performance assessment, addressing administrative issues. With an eye on improving farm productivity, the government will spend Rs 50,000 crore over the next five years under the Pradhan Mantri Krishi Sinchai Yojana (PMKSY).

The spending this year is expected to bring an additional 6 lakh hectares under irrigation while 5 lakh hectares will benefit from drip irrigation. That apart, 1,300 watershed projects have been marked for completion. Currently, 142 million hectares are used for cultivation, of which only 45 per cent farm land is under irrigation.

The major objective of the PMKSY is to

- Achieve convergence of investments in irrigation at the field level, expand cultivable area under assured irrigation improve on farm water use efficiency to reduce wastage of water, enhance adoption of precision irrigation and other water saving technologies (more crop per drop).
- Enhancing recharge of aquifers and introducing sustainable water conservation practices by exploring feasibility of reusing treated municipal water for peri urban agriculture and attracting greater private investment in precision irrigation.
- Bringing ministries, departments, agencies, research and financial institutions engaged in creation/recycling/potential recycling of water under a common platform so that a comprehensive and holistic view of the entire "water cycle" is taken into account and proper water budgeting is done for all sectors.
- Decentralised state level planning and execution' structure in order to allow states to draw up a District Irrigation Plan (DIP) and a State Irrigation Plan (SIP).

A holistic geo-tagged developmental perspective of the district outlining medium to long term developmental plans integrating three components namely,

- Water sources
- Distribution network
- Water use application of the district to be prepared at two levels the block and the district

The overlook of the plan seems to be in the positive side of the farmers but due to lack of participation from the local government and the long time in its implementation it is a plan which now seems to be executed in government books only and its objectives are unable to be achieved.

5. FOOD SECURITY AND INDIA

Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life. - 1996 World Food Summit

This definition includes points to the following dimensions of food security:

- **Food availability:** The availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).
- **Food access:** Access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).
- **Utilization:** Utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.
- **Stability:** To be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

India is a signatory to the Universal Declaration of Human Rights (1948) and the International Covenant on Economic, Social, and Cultural Rights (1966), which recognise a right to adequate food. The Directive Principles of State Policy in the Constitution of India provide that it is the duty of the state to raise the level of nutrition and standard of living of its people, and improve public health.

In 1996, in *Chameli Singh v. State of Uttar Pradesh*, the Supreme Court declared that the "right to live guaranteed in any civilized society implies the *right to food*", among other rights. In 2001, the People's Union for Civil Liberties (PUCL) filed a writ petition contending that the "right to food" is part of the fundamental "right to life" provided in Article 21 of the Constitution. In the ongoing litigation in the case, the Court has issued several interim orders. In 2001, the Court ordered the implementation of eight centrally sponsored schemes as legal entitlements. These include the Public Distribution System (PDS), Antyodaya Anna Yojana (AAY), the Mid-Day Meal Scheme, and Integrated Child Development Services (ICDS), among others. In 2008, the Court ordered that Below

Poverty Line (BPL) families be entitled to 35 kg of foodgrains per month at subsidised prices.

6. NATIONAL FOOD SECURITY ACT

The National Food Security Act follows from the National Food Security Ordinance, 2013 that was promulgated by the government on July 5, 2013. The Act seeks to make the right to food and nutritional security a legal right by providing highly subsidised foodgrains to 67 per cent of the country's population. Salient features of the Act include

- All *Antyodaya Anna Yojana* (AAY) or the poorest of the poor group, a priority group to receive 7 kg of subsidised foodgrains per person per month i.e. 35 kg of food grain/family/month. General households will be entitled to at least 3 kg/person/month. Upto 75 percent of the rural and up to 50 percent of the urban population will be covered by the Act. Of these, at least 46 percent of the rural and 28 percent of the urban population will be designated as priority households. The rest will be designated as general households.
- Pregnant women and lactating mothers will be entitled to meals and maternity benefits of not less than Rs 6000. It is however restricted to two children only.
- The eldest woman of the household of age 18 years or above will be the head of the household for the purpose of issuing ration cards.
- All beneficiaries will have to pay Rs 3/kg for rice, Rs 2/kg for wheat, Re 1/kg for coarse grains. These prices can be revised after the first three years, up to the level of the minimum support price (assured price paid by the Centre to farmers at the time it buys grains from them).

6.1 Antyodaya Anna Yojana

AAY has been expanded to cover additional one crore households, representing a 67% increase in coverage. A National Sample Survey Exercise points towards the fact that about 5% of the total population in the country sleeps without two square meals a day. This section of the population can be called as "hungry". In order to make TPDS more focused and targeted towards this category of population, the "Antyodaya Anna Yojana" (AAY) was launched in December, 2000 for one crore poorest of the poor families. AAY contemplates identification of one crore poorest of the poor families from amongst the BPL families covered under TPDS within the States and providing them food grains at a highly subsidized rate of Rs.2/ per kg. for wheat and Rs. 3/ per kg for rice. The States/UTs are required to bear the distribution cost, including margin to dealers and retailers as well as the transportation cost. Thus the entire food subsidy is being passed on to the consumers under the scheme.

6.2 Mid-Day Meal Programme

Even The Mid-Day Meal is the world's largest school feeding programme reaching out to about 12 crore children in over

12.65 lakh schools/EGS centers across the country. Mid-day Meal scheme is serving primary and upper primary school children in entire country. The programme aims at enhancing enrolment, retention and attendance and simultaneously improving nutritional levels among children studying in Government, Local Body and Government aided primary and upper primary schools and the Centers run under Education Guarantee Scheme (EGS) / Alternative & Innovative Education (AIE) and National Children Labour Project (NCLP) schools of all areas across the country. MDM is also served in drought affected areas during summer vacation also. National Programme of Mid-Day Meal in Schools (MDMS) is a flagship programme of the Government of India aiming at enhancing enrolment, retention and attendance and simultaneously improving nutritional levels among children studying in Government, Local Body and Government aided primary and upper primary schools and the Centers run under

Education Guarantee Scheme (EGS)/Alternative & Innovative Education (AIE) and National Children Labour Project (NCLP) schools of all areas across the country. MDM is also served in drought affected areas during summer vacation also.

6.3 Food security allowance in case of no supply of entitled food grains

The National Food Security Act, 2013 inter alia provides for payment of food security allowance to entitled persons by State Government in case of no supply of entitled quantities of Food grains, within such time and manner as may be prescribed by the Central Government. Accordingly, the Government has notified the Food Security Allowance Rules, 2015 on 21 January, 2015 to prescribe the norms and manner of this allowance. The rules have come into force on the date of their publication in the Official Gazette, i.e., 21.01.2015. As per these rules, the amount of food security allowance admissible to entitled persons is determined by multiplying the difference between the 1.25 times the minimum support price of the relevant food grain for that marketing season and the prices specified in Schedule I to the Act, with the quantity of no supply. The allowance is payable by the end of the third week of the month following the month in which the no supply occurred. The notification has been circulated to all the States/Union Territories on 12.02.2015 for necessary action. Government has also universalised *Kishori Shakti Yojana* to improve the nutritional and health status of girls in the 11 to 18 years age group. The Government has also launched the National Food Security Mission for Rs. 4882 crore.

7. CONCLUSION

Which Climate change, the outcome of the "Global Warming" has now started showing its impacts worldwide. Climate is the primary determinant of agricultural productivity which directly impact on food production across the globe. Agriculture sector is the most sensitive sector to the climate changes because the climate of a region/country determines

the nature and characteristics of vegetation and crops. Increase in the mean seasonal temperature can reduce the duration of many crops and hence reduce final yield. Food production systems are extremely sensitive to climate changes like changes in temperature and precipitation, which may lead to outbreaks of pests and diseases thereby reducing harvest ultimately affecting the food security of the country. The net impact of food security will depend on the exposure to global environmental change and the capacity to cope with and recover from global environmental change.

Coping with the impact of climate change on agriculture will require careful management of resources like soil, water and biodiversity. To cope with the impact of climate change on agriculture and food production, India will need to act at the global, regional, national and local levels.

The government has focused all its resources towards the research and development of agriculture in India but apart from the government should focus on a plan to enhance the daily earning of farmers in India. The present approach of the government and framed policies are likely to be a failure in the long run and feeding people is never an effective method of ensuring development. It is important that with industrialised economic growth the private companies should take an initiative to adopt a nearby village for its infrastructural development.

However the following points may be taken into consideration:-

- Creation of daily earning plans for the farmers based on their potential without harming their agricultural activity.
- The creation of funds for this activities can be allocated with the help of industries by making a legal provision under the present Companies Act by means of CSR (corporate Social Responsibility).
- Developing the industries and maintaining the organic farming with establishing a equilibrium between the both by means of raw material supplied to industries by the nearby farmers can help them earn.
- Expand the insurance system for agricultural disasters.
- Expand the insurance system for damages by flood and storm.
- Operate the farm household income stabilization program.
- Establish the global warming adaptation committee.
- Introduce the system for calculating the crop damage.
- Formulate the long-term development plan for rural villages.
- Operate the special task force team for main areas of production.
- Train the agricultural people specialized in risk management.
- Train the consultants specialized in risk management.
- Expand the education of farm households in the insurance for crop disasters and the risk management.

With including the inclusion of provision for adoption and development of farming in nearby villages by mean of CSR through companies and government by adopting a PPP (Public Private Partnership) model will eventually lead to farmers sustenance and will help then earn in a daily or weekly basis by establishing a connection and making a platform between the industries and farmers. The food security is directly linked to the agriculture and thus more attention must be paid towards its sustainable development which will in response ensure food security for everyone, without this every plan made for this is likely to fail in long run.

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