PRADHAN MANTRI KRISHI SINCHAYEE YOJANA TOWARDS DOUBLING FARMERS' INCOME

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Prime Minister of India while talking about income of farmers in a Kisan Rally in Bareilly on 28th February 2016 stated that it is his dream to see farmers double their income by 2022 when the country completes 75 years of its independence. This will require an annual growth rate of 10.4 per cent for the next 7 years- a really daunting task. Important factors for achieving such a high growth shall include significant improvements in crop and livestock productivity, achieving higher resource use efficiency to lower the cost of production, increasing cropping intensity from the present level of 140 to 153 per cent and increasing area under high value crops from 16.75 to 26.4 Mha.

Most farmers are of the view that "Without water, nothing else matters!" Even as early as in 371 BC, Kautilya in *Arthashastra* advised "Agriculture cannot be made solely dependent on rains which amounts to gambling with nature". After about 2,400 years of civilisation since then and 70 years of planned development since independence, only about 45 per cent of cultivated lands of India are covered under assured irrigation. Importance of irrigation for higher and assured levels of production are well documented. District level data show that per ha productivity of all crops taken together was 1.6 times higher under largely irrigated conditions as compared to under largely rainfed conditions during biennium 2011-12. Though India is now self-sufficient in food production, Indian agriculture is using *"too much land and too much water rather inefficiently"*. Yield levels of most crops In India are lower than the world average due to lower level or poor adoption of improved technology. Enhancing access to irrigation and technological advancement are the most potent instruments to raise agricultural productivity. With availability of irrigation it is possible to enhance the cropping intensity known as 'vertical intensification'. Presently, 76 per cent of the agricultural land in the country remains unused for half of the productive period due to lack of access to meet the crop water requirement. Even in irrigated areas, adequate and affordable irrigation is not available throughout the year. Once assured irrigation is available, diversification to high value crops has the potential to raise the farmers' income. As per the data of NITI Aayog, shifting one hectare area from staple crops to high value crops like fruits, vegetables, floriculture, commercial crops etc. has the potential to increase gross returns upto Rs. 101,608/ha as compared to Rs. 41,169/ha for staple crops- an increase of 2.47 times.

Low and volatile growth in agricultural production is a serious concern and affects farmers' incomes. NSSO data for year 2011-12 reveals that more than one-fifth of rural households with employment in agriculture as their principal occupation were having income less than the poverty line and in some states like Jharkhand, 45.3 per cent of farm households were under poverty. The past green revolution technologies are input intensive and have not helped the entire agriscape of India. Additionally, average size of the operational holding is declining with 67 per cent as marginal farmers, there is a growing disparity between agricultural

and non-agricultural incomes, rural youth has rising aspirations, and there are inadequate institutional arrangements to mitigate risks and crop loss due to droughts, floods, heat/cold waves and other natural disasters. The government has noticed a persistent distress among agrarian society and is eager to devise an effective mitigation policy.

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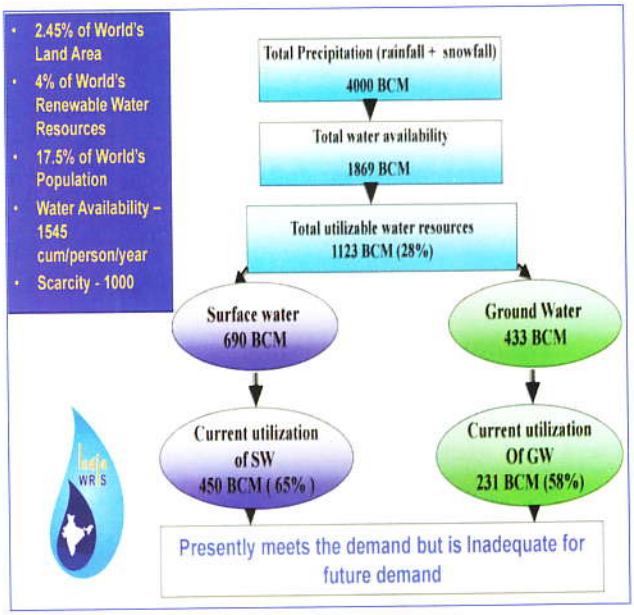


Fig. 1: Water Resources Scenario-India

of 140 to 153 per cent and increasing area under high value crops from 16.75 to 26.4 Mha. Coverage of agricultural farms under irrigation shall play a pivotal role to implement all these interventions and estimates show that gross irrigated area needs to be increased from the present level of 92.6 Mha to 110.4 Mha in 2022- an increase of 2.5 Mha per annum. For achieving such an unprecedented growth in irrigation coverage the 'business as usual' shall not suffice and some innovative schemes with good convergence and much larger allocation of funds need to be put in place.

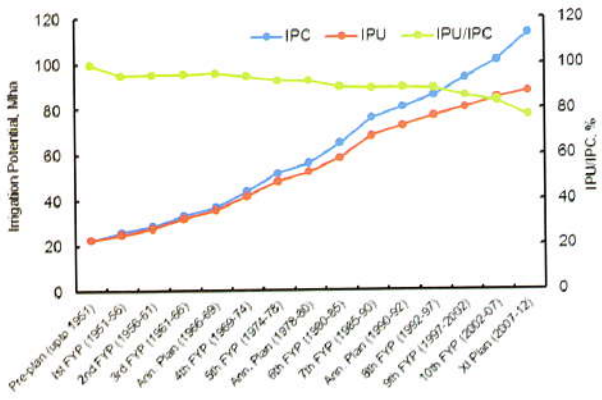
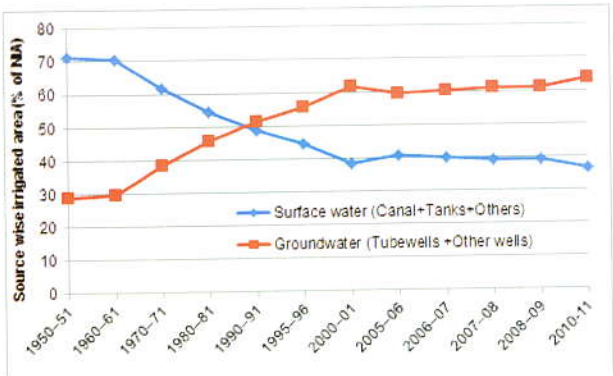


Fig. 2: Increasing gap between the irrigation potential created (IPC) and irrigation potential utilised (IPU) in India- present utilisation is only about 80%

Prime Minister Krishi Sinchayee Yojana (PMKSY):

In spite of India being blessed with ample water resources at the national level (Fig. 1), the present Indian irrigation is besieged with several problems including a widening gap between irrigation potential created (IPC) and irrigation potential utilised (Fig. 2), high dependence on groundwater irrigation (Fig. 3) leading to and over-exploitation of groundwater resources and declining water tables in large parts, poor development of water resources and rural electrification and seasonal flooding in the eastern region, low water-use efficiency/ water



Assessed units	6584
Over-Exploited	**1034 (16%)**
Critical	253 (4%)
Semi-Critical	681 (10%)
Safe	4520 (69%)
Saline	96 (1%)

Fig.3: Groundwater is now the major source of irrigation (> 60%) leading to over-exploitation of the resources especially in the intensive irrigated regions.

productivity in agriculture and all other sectors, weak regulation and half-hearted implementation of water policies and non-convergence of several water resources related schemes.

With the objective of addressing several of the above stated concerns in the farm irrigation sector and also to facilitate to double the farmers income by 2022, an ambitious scheme of '***Pradhan Mantri Krishi Sinchayee Yojana***' was developed with the twin objectives of "*Har Khet ko Pani*- providing irrigation to each farm" and "*Per drop more crop*-improving water productivity" and launched by the Government of India. Salient features of the schemes are illustrated below (Fig. 4).

Speedy execution of the river linking project, at least one new water conservation structure per village, speedy completion of the pending irrigation projects and massive expansion of micro-irrigation systems to achieve 'more crop per drop' were advanced as the instruments to achieve the vision. Profile and main components of PMKSY are given in Table 1.

Table 1: Components and Allocation for PMKSY (2016-17)

PMKSY Compo-nents	Ministry/ Depart-ment	Physical Target (lakh ha)		Indicative out-lay (Rs. crore)	
		2015-20	2015-16	2015-20	2015-16
Acceler-ated Irrigation Benefit Program	MoWR-RD&GR	7.5	1.2	11,060	1000
Har Khet ko Pani		21.0	2.8	9050	1000
Per Drop more Crop	DoA&C	100.0	5.0	16300	1800
Watershed develop-ment	DoLR	11.5	4.4	13590	1500
Total				**50,000**	**5300**

Approach of the PMKSY is:

- Faster completion of ongoing major and medium irrigation projects including National projects under *AIBP.*
- Effective management of runoff water and improved soil and water conservation activities based on *watershed basis.*

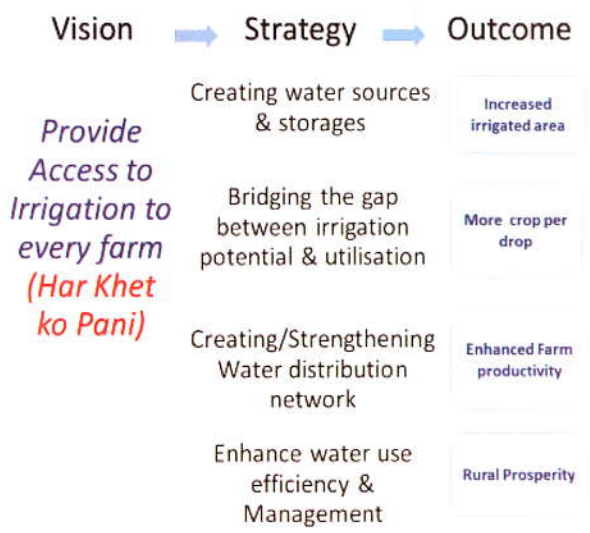


Fig. 4: An illustration of the vision, strategy and expected outcome of the PMKSY

- Creation of new water sources through minor irrigation schemes, repair, restoration and renovation of water bodies, and additional rain water harvesting structures under *Har Khet ko Pani.*
- Efficient water conveyance and precision water application devices like drips, sprinklers, pivots, rain-guns in the farm to achieve '*Per drop more crop*'.

Focus of the program is to provide end-to-end solution to irrigation supply chain through development of the water resources, creation of an efficient distribution network and improve farm level management and water-use efficiency. Implementation of the program has been quite ambitious where (i) sensitisation workshops were organised for IAS and IFS officers about the PMKSY and guidance on preparation of the "District Irrigation Plan", (ii) Knowledge partnerships were developed with ICAR, NIRD, CWC/NWDA and other NGOs for capacity building and experiential learning in different regions of India, (iii) Ministry of Agriculture developed and shared the format for developing the District Irrigation Plan (DIP)- which is the heart of the program. These DIPs shall be discussed at the state and central level coordination committee for review and clearance, (iv) A total of 99 ongoing AIBP projects have been identified for completion upto March 2020 phase, (v) Funding for the program shall be made available through NABARD, an additional fund of Rs. 500 crore has also been marked for micro irrigation.

The program is regularly reviewed by the PMO

and NITI Ayog about its progress and during the last review on March 30, 2017, Prime Minister called for synergy between various government departments, *Krishi Vigyan Kendras* and agricultural universities to work out efficient cropping patterns and water use mechanisms in the command areas of these projects. He exhorted the officials to work with a comprehensive and holistic vision for the PMKSY.He also called for using the latest available technology, including space applications, to monitor the progress of irrigation projects.

In spite of the good intentions and reasonable allocation of funds by the central government and its disbursement through NABARD, the program has made little headway due to a number of factors including (i) lukewarm interest at the district and state level, (ii) insufficient capacity at the district to develop an innovative and cost-effective District Irrigation Plan which really addresses the issues of the district (iii) lack of synergy and convergence between different line development departments, (iv) aspirations of the district/ state in fund allocation are much higher than the actual funds available under the scheme.

It is therefore, essential that the state and the districts select the most innovative and promising interventions which can deliver the expected outcomes in the in the next 5-7 years' time when Prime Minister has promised to Double the Farmer Income. Research by International Water Management Institute and several other stakeholders have identified the following promising interventions for inclusion in DIPs of the PMKSY:

Proposed Interventions for Successful Implementation of PMKSY and Doubling Farmers Income:

i. Support for development of groundwater and lift-irrigation schemes. Targeted support to irrigation deprived farm households to construct wells/ tubewells.

ii. Affordable assured power for peak season irrigation-emulate the policies from Madhya Pradesh, Gujarat and Andhra Pradesh.

iii. Support to Solar Power Irrigators Cooperatives especially in the non-grid areas with shallow water tables.

iv. Support to Micro-Irrigation to promote speedy installation of drips and sprinklers especially in the water stressed areas and areas underlain with poor quality groundwater.

v. Closing the gap between IPC-IPU in the existing major and medium irrigation schemes. Desilting of minors and water courses, allocation of irrigation through scientific roasters, and urgent completion of the deferred maintenance.

vi. Supporting conversion to underground piped conveyance network to reduce the water losses and delivering uniform supplies.

vii. Conjunctive management of tanks and groundwater systems through regular desilting of tanks, reducing encroachments, buried supply channels etc.- emulate Mission Kakatiya of Telangana.

viii. Encourage groundwater harvesting and recharge, recharge shafts, recharge tubewells, infiltration wells and percolation tanks, tame the seasonal floods for recharge through schemes like "Underground taming of Floods for Irrigation."

ix. Watershed treatment through inclusion of communities for asset development, ownership and long-term maintenance.

x. Encourage peri-urban wastewater irrigation for farm forestry, fodder, vegetable and floriculture cultivation.

xi. In hilly areas of Uttarakhand, Himachal Pradesh, Jammu and Kashmir, Sikkim and north-east states, special emphasis is given on the rejuvenation of the springs- emulate 'Dhara Vikas' program of the Sikkim government.

xii. Support revival of traditional hill water management systems and proven practices like Multiple water use systems (MUS) combining domestic and small agricultural/livestock water use, *Jalkunds* in high rainfall areas, bamboo drip system, Jabo system and other practices involving indigenous knowledge.

xiii. Ensure community participation and social inclusion in all programs with special emphasis on women and girl child who are traditionally responsible for domestic water provisioning.

xiv. Create synergies and convergence with the already on-going schemes like MGNREGA, National Food Security Mission, *Rashtriya Krishi Vikas Yojana*, Bringing Green Revolution to Eastern India, and National Mission on Micro Irrigation.

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