

Government of India
Ministry of Jal Shakti
Department of Water Resources, River Development & Ganga Rejuvenation
(National Water Mission)

National Water Mission (NWM) has been organizing workshops in over-exploited areas of the country. NWM has organised a workshop on 'Increasing water use efficiency in Agriculture' in Amritsar - one of Punjab's over-exploited districts- on 14th November 2019 wherein NWM launched a campaign namely 'Sahi Fasal' for the purpose of educating the farmers to grow crops which are less water intensive. The workshop saw enthusiastic participation by over 850 farmers.

2. The workshop on "Increasing water use efficiency in Agriculture" was organised with the intent of creating awareness among farmers on the depleting ground water in various blocks of Punjab due to over-exploitation and encouraging farmers to take up sustainable crops, micro-irrigation, soil moisture conservation etc; weaning them away from water intensive crops like paddy, sugar cane, etc. to crops like corn, maize, soyabean that use less water.

3. The chief guest for the event was Shri Ratan Lal Kataria, Minister of State, Ministry of Jal Shakti. The workshop was attended by Shri U.P Singh, Secretary (DowR, RD & GR); Shri G. Asok Kumar, Additional Secretary and Mission Director, NWM; Shri Sarvjit Singh, Principal Secretary, Department of Agriculture, Govt. of Punjab; Shri Shivdular Singh Dhillon, Deputy Commissioner, Amritsar and senior officials of State Government & agri-research institutions.

4. Shri G. Asok Kumar, Additional Secretary & Mission Director, National Water Mission, DoWR, RD & GR, Ministry of Jal Shakti welcomed all dignitaries and participants . He thanked the farmers of Punjab for making India a food secure country, from a country which was awaiting for shipments of food grains from US etc in early 1960s. Noting some of the concerns that India is facing, he also briefly explained the current water crisis in the country. The gradual shift from use of surface water to ground water has caused a major fall in water tables in 109 blocks in Punjab which fall under the over-exploited category. If the current trend of over use of ground water continues, a time will come when no water will be left for further extraction, he explained. He stated that the workshop has been organized to the address consequences of ground water depletion and ways to reverse the phenomenon. He also urged the farming community to not practice crop burning as it causes air pollution in neighboring states like Delhi.

5. Following the welcome address by Shri G. Asok Kumar, Shri Ratan Lal Kataria, Minister of State, Ministry of Jal Shakti and senior officials performed the 'Kalash Pujan' to launch the "Sahi Fasal" campaign.

6. Shri U.P Singh, Secretary (DowR, RD & GR) explained how the overuse of ground water has caused an alarming drop in the water levels of Punjab. 70% of water used in Punjab

is sourced from ground water and the water extracted is more than what is being recharged, making the cycle unsustainable. Calling for a more judicious approach in water resource management, he stressed on the need to switch from supply side management to demand side management. He suggested measures like puddling, direct seeding, weed control, drip sprinkler irrigation to be incorporated to minimize the problem. He also cited examples of districts using sustainable measures to inspire the participants. Stating China's example, Shri Singh stated that the neighbour country generates twice the amount of output in just 60% of water used by India. Stressing on the importance of water efficiency and use, he urged the farmers to switch over to the crops like corn that use less water instead of water intensive crops like rice and wheat. He urged for the support of farmers in battling of the crisis of ground water depletion.

7. Shri Sarvjit Singh, Prinicipal Secretary, Department of Agriculture, Govt. of Punjab began his speech on a motivational note and boosted the morale of farmers. Shri Singh noted that the problem of water scarcity began with the construction of dams in the state. With the introduction of Green Revolution in 1960s, more and more dams were constructed to meet the needs of agriculture and food security. However, if current data is to be believed, Punjab will soon become one of the states that will face groundwater depletion in the next 15-20 years. To battle the impending water crisis, all farmers should join the movement and work towards preserving water, he said. Till the time a formal financial system working towards saving water is formed, farmers need to make individual efforts to conserve water. Shri Sarvjit Singh suggested that farmers who own land should use more water conserving strategies. However, he also felt that the farmers would need some financial aid from the government to be able to switch from water intensive crops to crops that use less water. Shri Sarvjit Singh was confident that's Punjab's farmers will step in and take appropriate steps to conserve water.

8. The chief guest of the event, Shri Ratan Lal Kataria, Minister of State, Ministry of Jal Shakti delivered his speech in which he emphasised the importance of water in our daily lives. He argued that though there is an increase in the volume of water, there has been a decline in the availability of clean water for consumption. He further stated that it is collective responsibility of citizens of India to save water and to ensure that it is used in a sustainable manner for agricultural and domestic purposes. However, he also felt that it will be impossible to promote diversification of crops unless farmers are benefited through incentives. He stated that the Haryana Govt has started a scheme where they are supporting the production of corn and offering Rs 2000 per hectare as incentives to farmers. It is important for everyone to get together and work towards the efficient use of water collectively to avoid crises in the future, he said. He hoped that all participants would join the "Sahi Fasal Abhiyaan" campaign and inspire others to do so.

9. The first speaker of the technical session was Shri Rakesh Rana, Scientist D, CGWB who made a presentation on Ground Water issues in Punjab. According to him, though saline water was flowing into the south western parts of Punjab, there was fresh water available in the districts of Amritsar and Patiala. He explained that the depletion of ground water is the main issue in Punjab. According to studies conducted by CGWB, freshwater is found in Pathankot, Amritsar, Barnala and Taran Taran at the depth of 20-40 m whereas saline water is found in Sangrur, Faridkot, Abhor and Muktsar found at a depth of 2-4 m, indicating there is

no groundwater depletion in areas of saline water. He elucidated that the phenomenon of ground water depletion began in Punjab with Paddy cultivation in 1980s. As paddy cultivation increased, the water levels started depleting. Throwing further light on the ground water recharge pattern in Punjab, he explained that Punjab receives 20.65 BCM water annually and withdraws 35.41 BCM every year. The data shows that an excess of 14BCM water is being withdrawn each year, making the cycle extremely unsustainable. There is more than 100% extraction rate in almost all 109 blocks. The exploitation rate of Patiala and Amritsar is at 200-250% and 150-200% respectively.

10. Dr. Dinesh Kumar, Principal Scientist, Indian Agricultural Research Institute asserted that water scarcity is a universal problem. Many countries have been fighting over water for decades and India has also been in conflict with Pakistan, China and Bangladesh over water sharing. There have been instances where China has released excess water from Bhramaputra river, resulting in damage of our crops. On the other hand, the neighbour has refused to release water in times of water shortage in the country. A number of inter-state conflict have emerged over a period of time on sharing of water. Moving to the subject of agriculture, he noted that the primary requirements of crops are good soil, seed, air and sufficient sunlight and water. He insisted that no amount of humus and fertilizer can save the crop if no water is available. Excessive water-logging also suffocates the roots and kills the significant micro-organisms present in the soil. In Punjab, the water levels are going down, wells are drying up and the depth of water is increasing. To solve this problem, the focus needs to be on recharging ground water, switching crops and adopting more water sustainable farming techniques. Dr. Kumar pushed famers to grow cotton, soyabean and corn instead of paddy. He also suggested farmers to replicate sustainable farming techniques like paddy transplanting done in China.

11. The next speaker Dr. Sukhpal Singh, Professor, IIM Ahmedabad began his session by establishing that there is a real water crisis in Punjab and necessary steps need to be taken to resolve the problem. He stated that there are misconceptions that the area under agriculture is decreasing in Punjab. He asserted that Punjab has the most fertile land with almost 100% of its land irrigated whereas, in other states, 60% of land is dry and 40% is irrigated. He felt that there is not much awareness among farmers about the water crisis in Punjab. According to a survey conducted in Punjab, 93% farmers claimed that no government organization or NGO had given any advice on water conservation or techniques of rainwater harvesting. Only 11% farmers practice rainwater harvesting and only 22% have attempted rainwater harvesting. Another study suggested that only 7 out of 300 farmers undertake organic farming. He pointed out that only few farmers were aware that the water levels of Punjab have gone down and there is a water crisis in the state. He suggested that farmers should adopt techniques like micro-irrigation, drip-irrigation and sprinkler irrigation. He felt that the government should think for the benefit of farmers rather than focusing on the yield produced. Dr. Singh concluded that the water crisis in Punjab will not end unless farmers quit growing paddy crop. Wheat and paddy are land intensive crops with a low profit margin. Focusing on the welfare of farmers, Dr. Singh stressed on the importance of practice of crop diversification which would bridge the gap between crops and profit. With the massive availability of land and water in the state, Punjab farmers should grow at least 4-5 crops in a year. Instead of focusing on increasing the yield, they should think on terms of decreasing input cost and increasing profit margin. Dr. Singh

asked government to implement the SRI system (System of Rice Intensification) in Punjab which would not only save water but also decrease input cost and increase profit margins. The system has showed positive results in states like Odisha in the past and changed the system of growing paddy.

12. The next speaker Shri Rakesh Sharda, Senior Extension Specialist, Punjab Agricultural University, spoke on “Micro-irrigation and use of non-conventional energy resources for enhancing water use efficiency in Agriculture”. During his speech, he stated that even though a number of government subsidy schemes have been introduced for the benefit of farmers, the latter has not fully utilized its benefits. He observed that the reason behind this was farmers’ unwillingness to open their arms to technology. The future lies in technological farming, he said. Water wastage harms the community by increasing input cost and decreasing profit margin of farmers. He noticed that farmers have been stressing on pakka drains even though scientists have time and again advised them to construct underground piping system as it saves 15-20% of water. Water wastage in drains occurs as a result of evaporation. The Government is providing 50% subsidy on providing pipes for underground piping system. Optimal utilization of resource will reduce the input cost and increase profit margins. The increase in use of tube wells has caused a massive drop in water levels. He stated micro-irrigation and efficient water use technology is the need of the hour. He asked farmers to avoid exploiting resources and supply fertilizers & water to saplings as and when required.

13. Shri Daljit Singh Kohli, SDO, Water Resources Department, Govt of Punjab highlighted the need to conserve water and develop appropriate systems for the same. He also reiterated the importance of preserving rainwater and use it to the optimum.

14. In the Voices from the Field session, Shri Harjit Singh spoke about one of the water conserving technologies used by him. He apprised that he has made a tractor that digs upto 90 cm which helps in minimizing water-logging, flooding, water wastage This also helps in preserving the soil moisture.

15. The sessions were followed by a skit and dance performance by school students. The event was concluded by Shri Suneel Kumar Arora, Advisor(C&M), National Water Mission, who briefly described the learning from the sessions and thanked the audience for their participation.
