

Frequently Asked Questions (FAQs)

Webinar 3: 3Rs of Water Conservation – Reduce, Reuse and Recycle

22 July, 2020

Q1. By using the SWAT Hydrological modeling approach, could we forecast the rise/fall of groundwater tables? What about water quality issues? Whether this model is applicable for cross boundary river basin?

Reply: The present Soil & Water Analysis Tool (SWAT) model has the capability of simulating and forecasting about the recharge quantity from the rainfall pattern as well as irrigation water consumptive use. To know about the absolute value of the water-table, groundwater model such as MODFLOW may be deployed. Using SWAT model, we can quantify the groundwater recharge, however, it would not be possible to know about the implications of water quality on groundwater table.

SWAT model is applicable for cross-boundary river basin. In the model simulation, natural hydrology has been considered for all the basins. It is a sophisticated model which simulates all-natural processes taking place in the system.

Q2. Is documentation of SWAT model available which refers to the modeling exercise and how the modeling framework has been setup?

Reply: Various documents are available online for SWAT modeling exercise. Please refer to the link <https://swat.tamu.edu/docs/>

Q3. What would be the financial savings to Asian paints after introduction of water saving techniques, keeping in mind the new investments involved in the trade off?

Reply: Application of water saving techniques leads to improvement of water use efficiency at industrial plants. These technologies are implemented to enhance the environmental sustainability of the industrial plants. Application of water saving technologies doesn't always imply for financial savings but the financial savings comes as by-product of environmental sustainability. If we do the cost-benefit analysis, it may not be positive as some of the applications of water saving technologies are quite expensive.

Q4. How is the adaptability of BAT and BPT under Indian scenario with respect of reuse of wastewater for 3R? Is it possible to integrate BAT and BPT to achieve resource efficiency under numerical grading? Can it dictate cleaner viabilities at conservative angle to reserve water in the feed cycle?

Reply: In India, an adaptability of Best Application Technology (BAT) and Best Practical Technology (BPT) together with respect to reuse of waste water for reduce, reuse and recycle is in vogue at various industries. It is certainly possible to integrate BAT & BPT to achieve resource efficiency under numerical grading. This leads to cleaner viabilities at conservative angle to reserve water in the feed cycle to reduce water usage ratio.

Q5. What preference and priorities industrial owner transform under sequenced material flow and energy flow, keeping "specified Treatment alternatives" under BAT as crucial, if BPT fails to meet the requirement at specified output?

Reply: All the proven BAT and BPT technologies which are available globally are being replicated here in India as well. It's being demonstrated at one plant and only after its successful implementation, it is replicated to other plants.

Q6. There may a need to add one more 'R' to 3Rs of Water Conservation which is Review- review of per capita requirement downwards to understand the value of water, review of putting price tags based on all India state or district level cost worked out rather than subsidizing to economize the use?

Reply: This is an important issue as water is not priced and value of water is not appreciated by people. In earlier system, water was provided free of cost to industrial systems. Now in some of the state's water pricing has been done for industrial systems.

Q7. In India 70 -80 % of the fresh water is used for agriculture. How efficiently it is utilized and what measures can be taken to increase water use efficiency in agriculture sector?

Reply: In order to promote water use efficiency measures in agriculture sector, there is a requirement for incentivizing farmers to grow less water efficient crops which will require assuaging the market risks of these crops by developing adequate markets for their procurements. Application of de-centralized treatment process for sewage treatment is one of the common ways to re-use treated waste water efficiently for irrigation purpose, thus replacing freshwater intake with treated water which ultimately increasing water use efficiency. There is a need to promote of on farm water

and soil conservation measures, such as construction of farm ponds, alternate dry and wetted irrigation, soil moisture monitoring, intercropping, soil health management and monitoring, permaculture, etc.

In this regard, National Water Mission has launched a campaign “Sahi-Fasal”. This is a step to nudge the Indian agriculture to promote crops which use less water but more efficiently; have high nutritional quality and are economically remunerative to farmers, and based on a holistic and integrated strategy. Creating awareness among farmers on appropriate crops, micro-irrigation, soil moisture conservation etc; weaning them away from water intensive crops like paddy, sugar cane, etc to crops like corn, maize etc which require less water; effective pricing of inputs (water and electricity); protection of environment and assisting policy makers to improve procurement policies, creating appropriate storage facilities and markets etc are the key elements of “Sahi-Fasal”.

Besides, bringing policymakers, programmers together in framing policy/ programs that promote water conservation in agriculture along with mainstream agricultural policies will aid the rapid uptake of the program among key stakeholders, improve procurement and market for these alternate crops; create appropriate storage for them, etc. ultimately leading to increase in the income of farmers. NWM has organized series of workshops on ‘Sahi Fasal’ in Amritsar (on 14.11.2019), Aurangabad (on 13.01.2020), New Delhi (on 26- 27.11.2019) and Kurukshetra (on 14.02.2020) where farmers participated enthusiastically. Punjab/Haryana has taken steps for crop diversification.

States have started recognizing the necessity of using less water intensive crops in water stressed areas and also the usage of micro irrigation methods such as drip and sprinkler systems to improve water use efficiency in irrigation.

Also, National Water Mission (NWM) has funded WALMIs, & WALAMTARIs for the projects based on agriculture water use efficiency in which system efficiency of irrigation is taken care of. Moreover, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) scheme and its component “More Crop, Per Drop” emphasize upon micro irrigation systems improvement to enhance water use efficiency.

Q8. What are the sustainability methods to be considered for the water intensive industries?

Reply: Following sustainability methods are used for adoption in water intensive industries:

- ❖ Industrial water requirements could be based on sustainable water extraction rates.
- ❖ To have sector specific guidelines that highlights baseline requirements for water usage across various processes.
- ❖ Develop and integrate water risks at the planning and management level in the industries to promote water sensitive policies and decisions.
- ❖ Water auditing for water intensive industries should be made mandatory by using calibrated water meters which helps to identify water use efficiency improvement opportunities and to identify leakages within various industrial processes.
- ❖ Adoption of integrated or separate BAT & BPT for improvement of water use efficiency in water and wastewater treatment process.
- ❖ Usage of water efficient appliances such as spray aerators, waterless urinals, etc.
- ❖ Active participation in international forums for accelerating adoption of technologies and management paradigms for promoting sustainable use of water in Indian context.
