

Rain water management in rural India

**The Institution of Engineers (India)
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Convener : K.P.Tripathi (Member UPSCC, Lucknow)

Panelist

1. Dr Bangali Baboo, Former National Director (ICAR-NAIP)
2. Dr R.C.Srivastava, Former Vice Chancellor, Dr RPCAU, PUSA, Samastipur, Bihar
3. K.P.Tripathi (moderator also), Former Principal Scientist, ICAR-IISWC, Dehradun, (Soil and water Conservation Engineering)
4. Er P.R.Chaurasia, Former HOD (Minor Irrigation, Govt. of Uttar Pradesh)
5. Er Jamal Nusrat, Professor (Water and Land Management Institute, Lucknow)
6. Er Devendra Kumar, HOD, Minor Irrigation, Govt of Uttar Pradesh
7. Er Sandeep Kumar, Engineer-in-Chief & Head of Department. Irrigation and Water Resources Department, Govt of Uttar Pradesh

**Water Harvesting,
Ground Water Recharge,
Water Conservation,
and**

Policy

interventions required to achieve above

Water of the field in the field, and

Water of the village in the village

***If agreed then how to achieve
the above?***

Water of the field in the field

Field Bunding

Water of the village in the village

In first phase

**Rejuvenation of existing pond
should have priority
or**

construction of new ponds?

Rejuvenation of existing ponds

Construction of new ponds

**The lessons learned
from the work done so far
in the construction of
new ponds**

Site selection

Depth,

Side slope,

Inlet and outlet

**What we should do with
abandoned/defunct well**

**Problems with
not picking up
the momentum of
adopting micro irrigation
in UP**

Case Study

Should we have a
case study of a
Block/Tahsil
based on above to
prepare a approach
naner ?

**Any other points
for discussion
and recommendations**

Thanks to you all

for your valuable

Contribution

Recommendation s

1. Out of about 144 Mha cultivable land of the country, about 16.6 Mha in UP is cultivable. About 81 percent of the cultivable land of UP is irrigated against 48 percent land of the country. In UP about 78 percent of the irrigation is done by tube wells. There is ample opportunity to detain the rainfall in the agricultural fields as agriculture lands generally constitute more than 60 percent of the village area. If the height of the field bunds of the agricultural lands is equal to about 30 cm, then the rainwater will be stored in the agricultural fields and a part of that will percolate to the ground water. The height of 30 cm of the field bunds is equal to one day maximum expected rainfall of 10 years return period of 250 mm (80 percent of the areas of the country receive 250 mm rain fall) plus 20 percent of 250 mm as every irrigated land has some grade of 0.40 to 0.60 percent thus making it 300 mm. It is therefore recommended that field bund height should be increased to 30 cm so as to store water of the field in the field. This will enhance ground water recharge from larger area. Action: MNREGA/PMKSY

2. The existing ponds/lakes need to be repaired/rejuvenated first as per their original size (as per revenue records) before new ponds are recommended in a Block/Tahsil because existing ponds/lakes were constructed in low lying areas and water comes freely to that location. The concerned authority of the area may give a certificate that all the existing ponds/lakes have been repaired/ rejuvenated, while recommending new ponds/lakes. These water bodies will be unlined, with side slope of 2.5:1 /2.0:1 depending on soil texture. The depth may not exceed 3.0 m. The inlet and outlet should be properly planned, designed and executed.

Action: MNREGA/PMKSY

3. Construction of new ponds may be taken up only when all the existing ponds/lakes of the area have been repaired/ rejuvenated. The site selection should be such that rainwater naturally flows towards the proposed new ponds/lakes. These water bodies will be unlined, with side slope of 2.5:1 /2.0:1 depending on soil texture. The depth may not exceed 3.0 m. The inlet and outlet should be properly planned, designed and executed. The ponds normally should have rectangular size, if site conditions permit, as harvesting of aqua based crops are then properly done.

Action: MNREGA/PMKSY

4. All the abandoned/defunct open wells in every Block/Tahsil needs to be declared as State's/Government assets and should be used for ground water recharge by diverting runoff from nearby areas with suitable water filter tanks.

Action:

5. The micro irrigation in orchards/ horticultural crops needs to be applied first before extending it to other suitable field crops. It should be made mandatory to all the government owned/funded farms to have micro irrigation so as to serve as demonstration farm. If these government owned/funded farms have micro irrigation then only we can authoritatively recommend it as the officials/ staff of that farm will have insight information of the system.

Action:

6. Though the farmers in the state are conveying the water from tube wells to field through folding canvass pipes, thus minimizing the conveying losses but the micro irrigation system cannot be linked to this as drip irrigation requires minimum of 3.0 m head to operate upon and sprinkler system requires minimum of 10 m head to operate upon. This head cannot be achieved by canvass pipes. It is therefore recommended that free electricity to the owner of the tube well may be provided only to those farmers who so ever uses underground pipe line for water conveyance .

Action:

7. Water polluted is more harmful than the advantages of harvesting of rainwater. It creates more problems. The Central Pollution Control Board and all other agencies responsible to oversee it must ensure that water is not polluted. Year wise certificate from concerned officials from every block/Tahsil should be ensured that water is not polluted in that area and sewerage treatment plants, if any in that area, are functioning properly.

8. It is recommended to have this rainwater based case study of a block/Tahsil to finally modify our existing policies. Action:

9. The above recommendations needs to be first applied to the entire government owned/funded farms, before extending it directory to farmers. The officials/ staff of those farms will have insight information of the system which will be useful while disseminating the technology to the end users *i.e.* farmers.

Action:

THANKS

