ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ

"ಜ್ಞಾನ ಸಂಗಮ", ಬೆಳಗಾವಿ - 590 018, ಕರ್ನಾಟಕ

ರಾಷ್ಟ್ರೀಯ ಸೇವಾ ಯೋಜನೆ

ಪ್ರೊ. ಎ.ಎಸ್.ದೇಶಪಾಂಡೆ ಬಿ.ಇ., ಎಂ.ಟೆಕ್., ಪಿಹೆಚ್.ಡಿ
ಕುಲಸಚಿವರು

ದೂರವಾಣಿ ಸಂ : (0831) 2405468
ಫ್ಯಾಕ್ಸ್ ಸಂ : (0831) 2405467

ಸಂ. ವಿತಾವಿ/ಬಿ.ಜಿ.ಎಮ್/ರಾ.ಸೇ.ಯೋ/ಜ.ಆ/2019-20/64 ದಿನಾಂಕ: - 9 SEP 2019

:ಸುತ್ತೋಲೆ:

ವಿಷಯ: ಜಲ ಸಂರಕ್ಷಣೆಯ ಬಗ್ಗೆ ಜಲಶಕ್ತಿ ಅಭಿಯಾನ ನಡೆಸುವ ಕುರಿತು.

ಉಲ್ಲೇಖ:1.ದಿನಾಂಕ:02.07.2019ರಂದು ನಡೆದ ರಾಜ್ಯ ಮಟ್ಟದ ಸಲಹಾ ಸಮಿತಿ ಸಭೆ

2.ಉಪ ಕಾರ್ಯಕ್ರಮ ಸಲಹೆಗಾರರ ಪತ್ರ: ಪ.54-1/ಎನ್.ಎಸ್.ಎಸ್/ಡಿಟಿಸಿ/ 2019/1187-120, ದಿನಾಂಕ:04.07.2019

3. ಯುಸೇಣ/ರಾ.ಸೇ.ಯೋ/13/2019-20/244 ದಿನಾಂಕ: 03.08.2019

ಮೇಲಿನ ವಿಷಯ ಮತ್ತು ಉಲ್ಲೇಖಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಭಾರತ ಸರ್ಕಾರವು ಜಲಸರಂಕ್ಷಣೆಯ ದೃಷ್ಟಿಯಿಂದ ಜಲಶಕ್ತಿ ಅಭಿಯಾನವನ್ನು ಕೈಗೊಂಡಿದ್ದು, ರಾಷ್ಟ್ರೀಯ ಸೇವಾ ಯೋಜನೆಯು ಈ ಅಭಿಯಾನದಲ್ಲಿ ಅಭಿಯಾಂತ್ರಿಕ/ತಾಂತ್ರಿಕ ಮಹಾವಿದ್ಯಾಲಯಗಳ ರಾ.ಸೇ.ಯೋ. ಘಟಕಗಳು ಪಾಲ್ಗೊಳ್ಳುವುದು ಅತಿ ಅಗತ್ಯವಿದೆ. ಅಲ್ಲದೆ ಉಲ್ಲೇಖ (1) ರ ರಾಷ್ಟ್ರೀಯ ಸೇವಾ ಯೋಜನೆಯ ರಾಜ್ಯ ಮಟ್ಟದ ಸಲಹಾ ಸಮಿತಿ ಸಭೆಯಲ್ಲಿ ಜಲಸರಂಕ್ಷಣೆಯ ಬಗ್ಗೆ ಚರ್ಚೆ ನಡೆದು ಇದನ್ನು ರಾ.ಸೇ.ಯೋ.ಸ ಪ್ರಮುಖ ಕಾರ್ಯಕ್ರಮವಾಗಿ ರೂಪಿಸಲು ನಿರ್ಧಾರ ಕೈಗೊಳ್ಳಲಾಗಿದೆ. ಇದಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಎಲ್ಲಾ ವಿವರಗಳನ್ನು ಈ ಪತ್ರಕ್ಕೆ ಲಗತ್ತಿಸಲಾಗಿದೆ. ಮಹಾವಿದ್ಯಾಲಯಗಳ ರಾ.ಸೇ.ಯೋ. ಕಾರ್ಯಕ್ರಮಾಧಿಕಾರಿಗಳು ರಾಷ್ಟ್ರೀಯ ಸೇವಾ ಯೋಜನೆಯ 2019-20ನೇ ಸಾಲಿನಲ್ಲಿ ಇದೊಂದು ಪ್ರಮುಖ ಕಾರ್ಯವೆಂದು ಪರಿಗಣಿಸಿ ಇದಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಕಾರ್ಯಕ್ರಮಗಳನ್ನು ಕೈಗೊಳ್ಳುವಂತೆ ಸೂಚಿಸಲು ಕೋರಲಾಗಿದೆ.

ವಂದನೆಗಳೊಂದಿಗೆ,

09.9.19.
ಕುಲಸಚಿವರು

ಇವರಿಗೆ,

ಪ್ರಾಂಶುಪಾಲರು ಮತ್ತು ಸಂಯೋಜನಾಧಿಕಾರಿಗಳು,
ವಿ.ತಾ.ವಿ. ಆಧೀನಕ್ಕೊಳಪಡುವ ಎಲ್ಲಾ ಅಭಿಯಾಂತ್ರಿಕ/ತಾಂತ್ರಿಕ
ಮಹಾವಿದ್ಯಾಲಯಗಳು.

ಪ್ರತಿಯನ್ನು ಮಾಹಿತಿಗಾಗಿ:

1. ಮಾನ್ಯ ಕುಲಪತಿಗಳು, ವಿ.ತಾ.ವಿ., ಬೆಳಗಾವಿ ಇವರಿಗೆ ಕುಲಪತಿಗಳ ಕಾರ್ಯದರ್ಶಿಗಳ ಮುಖಾಂತರ.
2. ರಾಜ್ಯ ಎನ್.ಎಸ್.ಎಸ್.ಆಧಿಕಾರಿ ಹಾಗೂ ಪದನಿಮಿತ್ತ ಸರ್ಕಾರದ ಜಂಟಿ ಕಾರ್ಯದರ್ಶಿ, ರಾಷ್ಟ್ರೀಯ ಸೇವಾ ಯೋಜನಾ ಕೋಶ, ಯುವ ಸಬಲೀಕರಣ ಮತ್ತು ಕ್ರೀಡಾ ಇಲಾಖೆ, ಬೆಂಗಳೂರು
3. ವಿಶೇಷಾಧಿಕಾರಿಗಳು, ಸಿ.ಎಸ್.ಸಿ ವಿಭಾಗ, ವಿತಾವಿ., ಬೆಳಗಾವಿ, ಇವರಿಗೆ ಸದರಿ ಸುತ್ತೋಲೆಯನ್ನು ವಿ.ತಾ.ವಿ.ಯ ವೆಬ್‌ಸೈಟ್‌ನಲ್ಲಿ ಪ್ರಕಟಿಸಲು ಸೂಚಿಸಲಾಗಿದೆ.
4. ಕಛೇರಿ ಕಡತಕ್ಕೆ.

परमेश्वरन अय्यर
Parameswaran Iyer

सत्यमेव जयते

सचिव
भारत सरकार
पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
Secretary
Government of India
Department of Drinking Water & Sanitation
Ministry of Jal Shakti
4th Floor, Pt Dindayal Antodaya Bhawan, N D-110003
Tel: 24361011, 24362715,
e-Mail: param.iyer@gov.in

D.O. No. 2/2/S(DWS)/19
01st July 2019

सचिव (यु०का०)
एफ.टी.एस.नं. 88538
दिनाँक 2/7/19
(एस) 3/7/19

Dear Upma,

As you are aware, the Jal Shakti Abhiyan (JSA), focused on water conservation, is commencing countrywide with effect from 1st July 2019 to 30th November 2019 (in two phases) in order to address the water situation in the country. A concept note for the campaign is enclosed.

2. Senior officers from the Government from across the Ministries are being deputed as part of special teams to identified water stressed blocks and districts to work with local officials to redress the water scarcity situation in 5 specific intervention areas:

a. Water conservation and rainwater harvesting
b. Renovation of traditional and other water bodies/tanks
c. Reuse, borewell recharge structures
d. Watershed development
e. Intensive afforestation

3. The campaign also involves mobilizing the local people's participation to make the JSA a true jan andolan. In addition, it has been emphasised that this water conservation campaign all Ministries, Departments and other organisations should actively join to maximize participation.

4. In this regard, I will be grateful if you can kindly take comprehensive and necessary steps to make sure that members of NYKS, NSS and NCC take up water conservation activities, largely in terms of awareness creation and community education, and also appropriate demonstrative measures of water conservation on one identified date during the four months of JSA, as a contribution to the national efforts.

5. I suggest the date may be 29th July 2019. However, if you consider any alternative date based on organisational requirements, you may kindly intimate the same.

6. At the end of the exercise, I would be grateful if you could kindly intimate the total number of youth members who took part in this water conservation campaign.

7. In case you require any clarification or assistance, you officers may contact Shri Kapil Choudhary, Director, Department of Drinking Water and Sanitation (email: kapilc1973@gmail.com), the nodal officer in this department.

8. I also request that you may nominate a nodal officer from your side and share his details with us.

Regards,

Yours Sincerely

Parameswaran Iyer

already sent on 2/7/19

JS (YA)

Ms. Upma Chawdhry
Secretary
Department of Youth Affairs
Ministry of Youth Affairs & Sports
New Delhi

JSA Concept Note

Dated 1st July 2019

Name of campaign: **Jal Shakti Abhiyan**
Nodal Department: Department of Drinking Water & Sanitation, Jal Shakti Mantralaya
Duration: **Phase I** – 1st July to 15th Sep 2019 (All States)
Phase II – 1st October to 30th November 2019 (States receiving retreating. monsoon[1])

Theme: **Sanchay Jal, Behtar Kal** (A water conservation campaign)

Selection criteria for Water Stressed Blocks/Districts/States *(National mapping at Annexure I)*:

I. Water Stressed Blocks, for the purposes of this exercise, are those where groundwater levels are critical/over-exploited [as per Central Ground Water Board (CGWB) 2017]. These fall under 20 States/UTs.

II. For other States, Districts with least groundwater availability have been selected (as per CGWB 2017).

Critical Blocks	Over-exploited Blocks	Other Blocks with least groundwater availability	Total no. of Blocks	Total no. of Districts	Total States/UTs
312	1186	94	1592	256	36

Intervention Areas

At the Central level, the following key areas are broadly under the following Ministries: M/o Jal Shakti; M/o Rural Development; M/o Agriculture Cooperation and Farmers Welfare; and M/o Environment, Forests and Climate Change.

1. Water conservation and rainwater harvesting
2. Renovation of traditional and other water bodies/tanks
3. Reuse and recharge structures
4. Watershed development
5. Intensive afforestation

The following special interventions are proposed to be carried out:

1. Development of Block and District Water Conservation Plans (To be integrated with the District Irrigation Plans).
2. Krishi Vigyan Kendra Melas to promote efficient water use for irrigation (More Crop per Drop), and better choice of crops, for water conservation.
3. In urban areas, plans/approvals with timebound targets to be developed for waste water reuse for industrial and agricultural purposes. Plans to be developed for at least one urban water body for groundwater recharge in the block or city. Municipalities to pass by-laws for the separation of grey water and blackwater.
4. Scientists and IITs will be mobilised at the national level to support the teams.
5. 3D village contour maps may be created and made accessible for efficient planning of interventions.

Participating teams from GoI: All teams are to undertake minimum 3 trips of 3 days each covering all villages allocated.

Centre	- 257 Additional Secretaries/Joint Secretaries/JS level officers to be the Central Nodal Officer and will be mapped to one district each, covering all water stressed Blocks falling within it. In case of Aspirational Districts, the Prabhari Officer will be the Central Nodal Officer of the district. - Scientists/IITs for technical guidance. - National level NGOs for guidance on community mobilization
State	- Additional Chief Secretary/PrinSecy (PR & RD and/or WR) to be the State Nodal Officer.
District	- 2 officials will be nominated by the District Collector to join the teams from the Centre.
Blocks	- A team of officials would be formed for every 3-5 Blocks. Each of these teams will report to the Addl Secy/JS or JS level officer in-charge of their district. This team (447 in total) would comprise of a Deputy Secretary/Director, and a representative/Engineer from Central Ground Water Board or Central Water Commission. The State Government would also depute the concerned officers from State and District levels to join these teams.

[1] Andhra Pradesh (South), Karnataka (South), Puducherry and Tamil Nadu

JSA Concept Note Dated 1st July 2019

Communications Plan

- Various local groups to join the campaign for Community Communication.
- Krishi Vigyan Kendra Melas to promote efficient water use for irrigation (Per Drop More Crop), and better choice of crops, for water conservation.
- National media campaign to run alongside JSA 2019, with extensive use of social media and TV and radio spots
  - Print and social media mobilization.
  - Celebrities to be mobilized to generate awareness for the campaign.
  - Traditional modes of water conservation, rainwater harvesting and management to be documented and shared.
  - Crowdsourced short films of citizens documenting actions taken to conserve water will be shared widely.
- Best performing Blocks and Districts will be assessed and recognized.

Important Contacts:

1. Shri Parameswaran Iyer
   Secretary, Department of Drinking Water and Sanitation
   Ministry of Jal Shakti
   Email: param.iyer@gov.in

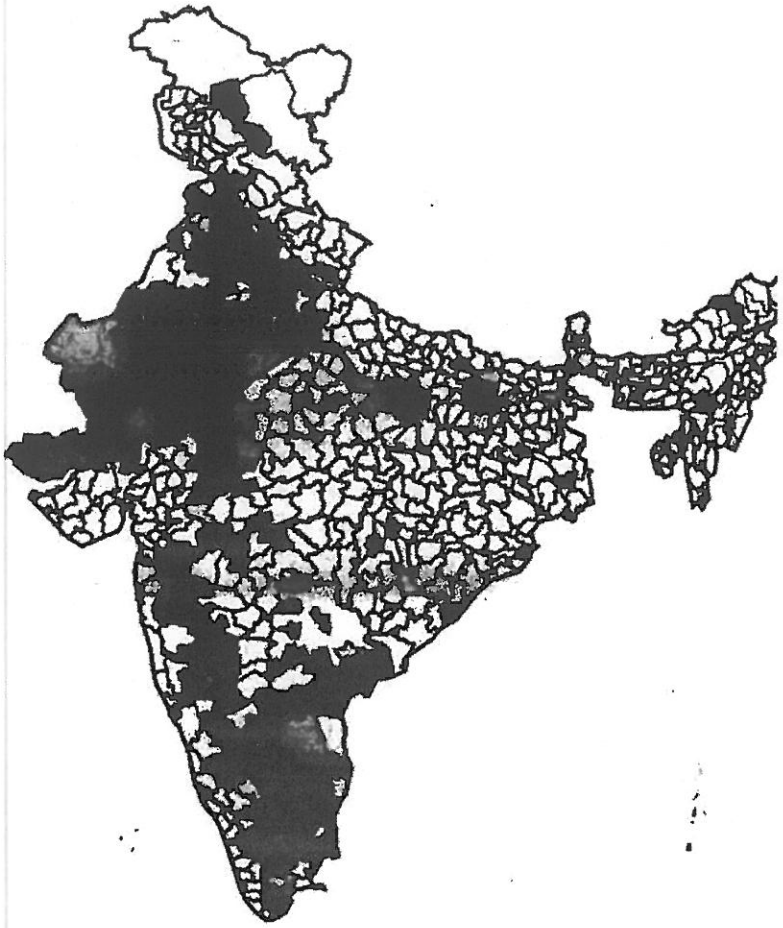
2. Shri Samir Kumar
   Joint Secretary, Department of Drinking Water and Sanitation
   Ministry of Jal Shakti
   Email: samirkumar@nic.in

3. Smt Renjitha MH
   Deputy Secretary, Department of Drinking Water and Sanitation
   Ministry of Jal Shakti
   Email: hr095@ifs.nic.in

ANNEXURE I

National Mapping of Water Stressed Blocks, Districts, and States

CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2017)			
S.No.	States / Union Territories	Blocks	Districts
1	Andhra Pradesh	68	9
2	Arunachal Pradesh	11	1
3	Assam	5	1
4	Bihar	30	12
5	Chhattisgarh	2	2
6	Delhi	24	10
7	Goa	7	1
8	Gujarat	30	6
9	Haryana	81	19
10	Himachal Pradesh	4	4
11	Jammu & Kashmir	15	1
12	Jharkhand	5	2
13	Karnataka	53	18
14	Kerala	3	2
15	Madhya Pradesh	29	11
16	Maharashtra	20	8
17	Manipur	3	1
18	Meghalaya	3	1
19	Mizoram	2	1
20	Nagaland	3	1
21	Odisha	9	1
22	Punjab	111	20
23	Rajasthan	218	29
24	Sikkim	8	1
25	Tamil Nadu	541	27
26	Telangana	137	24
27	Tripura	6	1
28	Uttar Pradesh	139	35
29	Uttarakhand	8	1
30	West Bengal	1	1
31	Andaman & Nicobar	3	1
32	Chandigarh	1	1
33	Dadra & Nagar Haveli	1	1
34	Daman & Diu	1	1
35	Lakshadweep	9	1
36	Puducherry	1	1
	Total	1592	256



INDEX

	Total districts with water stressed blocks	:	256
■	Districts with water stressed blocks (non-Aspirational districts)	:	233
□	Districts with water stressed blocks (Aspirational districts)	:	23

F.No.P.54-1/NSS/DTE/2019/1187-1203
Government of India
Ministry of Youth Affairs and Sports
Directorate of National Service Scheme
12/11, Jamnagar House, New Delhi – 110011

Dated: 04.07.2019

To

The Regional Directors
All Regional Directorates of NSS

Sub: Jal Shakti Abhiyan (JSA), focused on Water Conservation- reg.

Sir/Madam,

I am directed to forward herewith a copy of instructions from the JS (YA) Office enclosing a copy of D.O.No.2/2/S(DWS)/19 dated 01st July, 2019 received from the Department of Drinking Water & Sanitation, Ministry of Jal Shakti on the subject cited above for your kind information, guidance and necessary actions.

Enclosed: As Above

Your faithfully,

(R. Gokulakrishnan)
Assistant Programme Adviser

Copy for information to:

1. Director (YA & NSS)
2. Under Secretary (NSS)

MOST IMPORTANT

Department of Youth Affairs
Office of Joint Secretary, Youth Affairs

JS (YA)
FTS No. 2865
Date 3/07/19

Sub: Jal Shakti Abhiyan (JSA), focused on Water Conservation.

Jal Shakti Abhiyan (JSA), focused on Water Conservation has been launched countrywide w.e.f. 01st July, 2019 to 30th November, 2019. Secretary, Department of Drinking Water & Sanitation, Ministry of Jal Shakti has written a D.O. letter to Secretary (YA) on the subject, seeking her indulgence for maximum participation of NYKS and NSS volunteers in water conservation activities. The copies of the D.O letter as well as Concept Note on JSA are enclosed. I take this opportunity to request NYKS and NSS to take up this important activity in the right earnest. The daily update in this regard should be provided to my office. For any further clarification, you can contact Shri Kapil Chaudhary, Director, Department of Drinking Water & Sanitation (Phone 24368562, Mobile 09425163478 and E-Mail kapilc1973@gmail.com), who is the nodal officer for this Abhiyan.

Dir. (R) 8660 3/7 Min. Youth Affairs & Sports

(Asit Singh)
Joint Secretary
03.07.19

1) Dr. M. P. Gupta Director (Programmes), NYKS.

2) Shri N. Raja, Director, NSS

3) All State Directors, NYKS – for dedicated and focused action to achieve this target.

4) Regional Directors, NSS, for similar action.

Copy to Sr. PPS to Secretary (YA) – for information.

For necessary action as desired by NSS Dte. immediately
3/7

1110
3/7/19

For immediate action
Mr. Tanej
Mr. Kapil Yo.
3/7/19

LL APA, NSS Dte

Copy to UA(NSS) for n.a pl.

4/7/19
As instructed
YA(Sonal)

सत्यमेव जयते

DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI

जल शक्ति अभियान
संचय जल, बेहतर कल

JAL SHAKTI ABHIYAN

A Water Conservation Campaign

DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI

जल शक्ति अभियान
संचय जल, बेहतर कल

JAL SHAKTI ABHIYAN

A Water Conservation Campaign

CONTENTS

CONTEXT

India has 17 percent of the world's population and 4 percent of the world's freshwater resources ranking it among the top ten water rich countries. However, India the second most populated nation in the world is currently designated as water stressed by Intergovernmental Panel on Climate Change (IPCC) with current utilizable freshwater much lower than international standards. A 2017 study of Food and Agriculture Organisation of the United Nations (FAO) shows India's per capita **storage capacity** is significantly low where only 8% of annual rainfall is being stored. A major grain producer, India also uses 3–5 times more water for crops than China, US and Israel, which is considered **disproportionate use of water** per crop.

Heavy dependence on groundwater, years of deficient rains and disproportionate demand for water due to rapid population increase, urbanization and industrialization have put considerable stress on water management.

Inspired by the Hon'ble Prime Minister's impetus on Jal Sanchay, Government of India is launching the Jal Shakti Abhiyan (JSA) to revive India back to a sustained system of water conservation and efficient irrigation.

JAL SHAKTI ABHIYAN

Jal Shakti Abhiyan (JSA) is a time bound campaign with a mission mode approach intended to improve conditions in around 1500 Blocks that are drought affected, water stressed or over-exploited falling in 254 districts with water conservation related central programmes. 23 of these districts are aspirational districts. Designed in the lines of Gram Swaraj Abhiyan, JSA is planned to be carried out in two phases. Phase I will be carried out between July 1 and September 15, 2019 for all States. For States/UTs with retreating monsoon namely Andhra Pradesh, Tamilnadu, Karnataka, and Puducherry, the campaign shall be carried out between October 2 and November 30, 2019.

During the campaign, senior officers, groundwater experts and scientists from the Government of India will work together with State and District officials in India's most water-stressed districts. JSA aims at making water conservation and promotion of irrigation efficiency a Jan-Andolan through asset creation and communication campaigns.

AREAS OF INTERVENTIONS

Under this campaign, targeted activities shall be undertaken under 5 areas of intervention namely, (i) Water conservation and rainwater harvesting, (ii) Renovation of traditional water bodies/tanks, (iii) Reuse, borewell recharge structures, (iv) Watershed development, and (v) Intensive afforestation.

In addition, the following interventions will be carried out:

- Development of an integrated Block and district water conservation plans which will incorporate the district irrigation plans
- Promoting efficient water use for irrigation by shifting to micro irrigation systems for water intensive crops through intensive use of IEC; and motivating farmers to move to better choice of crops (More Crop per Drop) through initiatives like Krishi Vigyan Kendra (KVK) Melas
- Engagement of national level scientists and IITs to be mobilised

Targeted communication shall be designed to promote and achieve accelerated progress of the 5 identified interventions. Special focus will be given to mobilise farmers and communities and encourage them to participate in the campaign.

These areas of intervention broadly fall under the mandate of Ministry of Jal Shakti, Ministry of Rural Development, Ministry of Agriculture, Cooperation and Farmers Welfare, Ministry of Environment, Forests and Climate Change, and Ministry of Housing and Urban Affairs and will be the concerned Ministries for implementing the campaign. **The Department of Drinking Water and Sanitation, Ministry of Jal Shakti is the nodal department for the campaign.**

INTERVENTION 1

Water conservation and rainwater harvesting

1.1. Background

Water scarcity is a concern across parts of the country. Water availability per capita is reducing progressively due to increase in population. The average annual per capita water availability in the years 2001 and 2011 was assessed as 1820 cubic meters and 1545 cubic meters respectively which may reduce further to 1341 and 1140 in the years 2025 and 2050 respectively. Ground water levels have fallen in many parts of the country, which becomes acute in the summer months. Increasing water demand and over dependence on ground water for agriculture and other uses coupled with inter-alia lack of (i) conscious water conservation and (ii) rain water harvesting have decreased the availability of water. There is an urgent need to focus on water conservation measures including rainwater harvesting to augment water resources.

1.2. Problems and Issues in Water Conservation and Rainwater Harvesting

- Spatial and temporal variation of rainfall across the district
- Encroachment and disuse of existing water conservation structures
- Large-scale growth of aquatic weeds displacing natural species and chocking the water bodies leading to eutrophication and evaporation losses.
- Lack of enforcement of legal instruments relating to rain water harvesting.
- Lack of awareness about available technology options for community based harvesting of rain water
- Lack of people's participation to sustain conservation activities since these are seen more a Government intervention than people's participation.

1.3. Schemes having potential to finance Water Conservation and Rainwater Harvesting

- MGNREGA and various forestry schemes help in taking up water storage and conservation structures in rural areas.
- State Government schemes for water conservation under taken by Rural Development and Panchayati raj Departments.

1.4. Important notes about Water Conservation and Rainwater Harvesting

- Assessment of water availability and planning for type of conservation structure suiting local conditions.
- Mobilizing local NGOs, industries, college and school students and other volunteers for undertaking the conservation works.
- Geo-morphology based site identification for effective water harvesting and recharging (technical officers to provide guidance)
- Inventorising and restoring existing water conservation structures (like gully plugs, small check dams, staggered trenches, ponds etc) at village level and undertake renovation and maintenance activities to improve their efficiency and effectiveness.
- Development of additional water conservation structures.
- Cleaning of wells and allowing the filtered rain water to be collected in it.
- Contour bunding and trenching in slopes for water percolation to soil
- Construct rain water harvesting structures in panchayat buildings, public schools, public health centres, government buildings and
- Encourage construction of rain water harvesting at household levels through IEC.

Village pond

- Identification of suitable sites for construction of sub-surface Dykes to check the sub-base flow in rivers and streams.
- Improving the canal water distribution (warabandi) management and efficiency.
- Effective watershed management involving contour trenching and nala plugging in hills and other appropriate water conservation and rain water-harvesting structures.

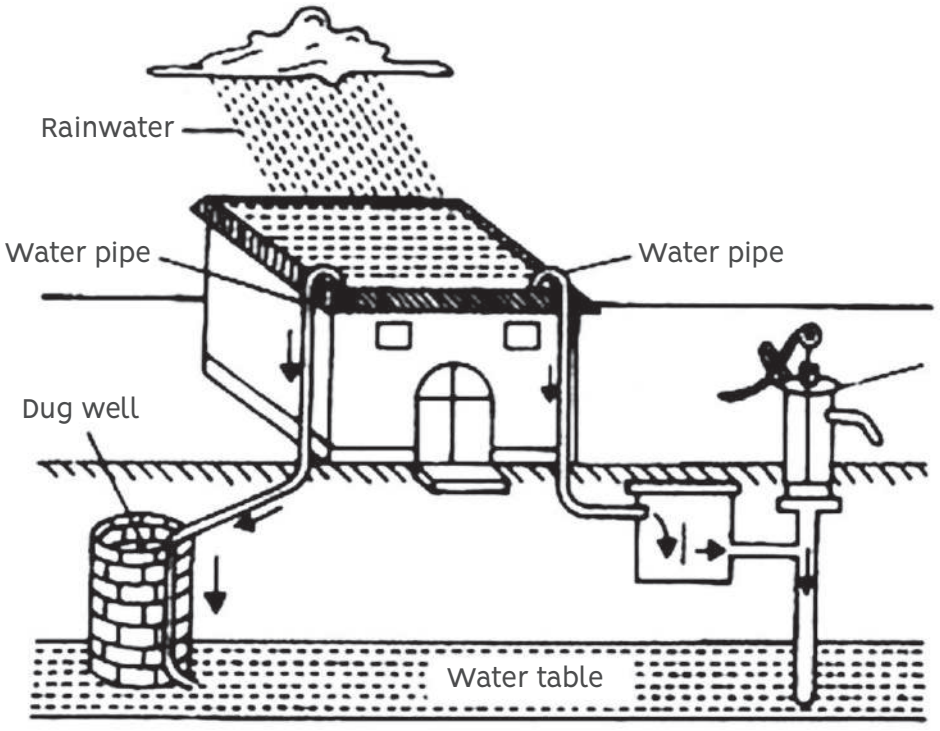
1.5. Activities that can be taken up under the intervention

1. Rooftop rainwater harvesting structures at Individual household level
2. Check dams
3. Trenches
4. Farm Ponds

1.6. Community led Water Conservation and Rainwater Harvesting Models

Best Practices of Ground Water Harvesting[1]

Schematic diagram of rain water harvesting



[1] *http://mowr.gov.in/sites/default/files/BP_NGO_0.pdf*

Checklist for officers to evaluate Water Conservation and Rainwater Harvesting

Parameter	Assessment
Inventorising the existing structures and their restoration	No. of existing structures that are restored/ cannot be restored
Scientific identification of locations for different water conservation structures	No. of sites identified and works taken up
Ground water table	Increase in groundwater level if any between baseline data and post Jal Shakti Abhiyan data based on reference well data
Different water conservation and rain water harvesting activities/structures developed	No. of Structures against an approved plan
Financial allocation and expenditure for different water conservation and rain water harvesting activities	Verification of payment receipts
Existing capacity of water bodies	Increased capacity to be measured in Cubic Meters
Use of the water bodies	(Irrigation/Drinking water/Household use/ Livestock use etc.)
No. of drinking water sources which goes dry during summer and potential water conservation interventions that can be taken around these on priority	No. of drinking water sources provided with water conservation measures
Awareness programme in the district around water conservation and rain water harvesting	No. of Programmes to be conducted

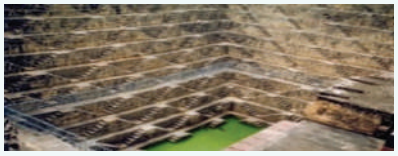
INTERVENTION 2

Renovation of traditional and other water bodies /tanks

2.1. BACKGROUND

Water conservation for reliable and equitable irrigation is one of the most powerful interventions, to double the farmer's income and rural prosperity. As per the 5th Minor Irrigation Census of Ministry of Jal Shakti (Department of Water Resources River Development and Ganga Rejuvenation), there are 5.92 lakh water bodies providing surface flow irrigation. The surface flow schemes typically consists of tanks, check-dams, structures and can serve as water conservation cum ground water recharge scheme. In addition to these, there are varied traditional water harvesting techniques that reflect the geographical peculiarities and cultural uniqueness of the regions. Many of these water bodies have gone into disuse because of the surge in ground water based irrigation systems, inadequate maintenance, encroachments, illegal diversion of land for construction purpose etc. Some of the key water harvesting bodies/structures and examples including tanks are as follows:

Type of structure	Location in India	Use	Pictures
Tanka	Rajasthan, Gujarat	Household level water harvesting	

Type of structure	Location in India	Use	Pictures
Jhalara /Vav	Rajasthan, Gujarat	Water conservation	
Johad	Karnataka, Odisha	Water conservation	
Bawdi	Rajasthan	Step well for water collection	
Panam Keni	Kerala	Storage of water at household level	
Zabo	Nagaland	Water conservation, agriculture, animal care	
Eri	Tamil Nadu	Irrigation, groundwater recharge and drinking water.	
Ahar Pynes	South Bihar	Artificial rivulets for collection of water	

Under the Jal Shakti Abhiyan, focused efforts at district and block levels would be made to inventorize, restore and rejuvenate traditional as well as other water bodies and tanks with people's participation.

2.2. Problems and Issues in Renovation of traditional and other water bodies / tanks

- At the national level, Ground water based schemes are increasing but Surface water schemes are declining.
- Heavy silting of the tank bed and choked up feeder channels largely due to lack of vegetation cover.
- Shift from community based tank system to individual beneficiary oriented ground water dependent system.
- Leaking bunds and sluices and dilapidated surplus weirs due to poor maintenance.
- Deforestation, denudation and encroachments in the catchments areas including tank bunds.
- Indiscriminate use of tank beds as dumping yards
- Lack of community ownership/people's participation to sustain conservation activities since these are seen more a Government intervention than people's participation.

2.3. Central Government Schemes having potential to finance Renovation of traditional and other water bodies /tanks

- Under the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), the Repair, Renovation and Restoration (RRR) of water bodies scheme of Department of Water Resources River Development and Ganga Rejuvenation is an important intervention in ensuring the utilisation of the full potential The scheme of RRR of water bodies has become a part of – Har Khet Ko Pani (HKKP) component of PMKSY. The scheme emphasizes development of catchment areas, de-siltation and command area development in respect of water bodies. The RRR scheme in rural areas is proposed to be implemented in convergence with the Integrated Watershed Management Programme (IWMP), so that the catchment areas of the water body selected are located either in treated micro/mini watersheds or those selected for treatment during the next year or two.[3]
- Repair, Restoration and Renovation (RRR) of water bodies, under Department of Water Resources River Development and Ganga Rejuvenation, Government of India.
- MGNREGA have provisions for construction and/or repairs/ renovation/ restoration and desilting of traditional water bodies/tanks.

2.4. Important notes about Renovation of traditional and other water bodies / tanks

- Identify the number of water bodies owned by different agencies (irrigation/ Panchayat raj etc)
- Identify traditional tanks with district support

[2] *http://pmksy-owr.nic.in/documents/RRR_PMKSY_Guidelines_2017.pdf*

[3] *Technical References: https://niti.gov.in/writereaddata/files/document_publication/BestPractices-in-Water-Management.pdf*

- Inventorize such traditional waterbodies and other water bodies capturing their geo-coordinates, sizes, water spread area, inlet channel details etc.
- Select water bodies in such a way that watershed activities are taken up/likely to be taken up in their catchment area.
- Removal of encroachment and marking of land boundaries.
- Repair of conveyance systems and feeder channels and Strengthening of bund(s)
- Repair of weirs and sluices (if applicable)
- De-silting to increase tank storage capacity and use the silt in farms. Farmers can be encouraged to volunteer for this activity using their tractors/carts etc.
- Improvement of catchment areas of tank by undertaking watershed works (planting trees to arrest the soil erosion leading to silting of water bodies,
- Promotion of conjunctive use of surface and groundwater (if groundwater is available)
- Community participation through Water User Associations for post rejuvenation sustainable management.
- Awareness generation and Capacity Building of communities, in better water management and development of tourism, cultural activities, etc.
- Regulations by local bodies to avoid encroachments and its strict implementation.

2.5. Activities to be taken up under the intervention

- Restoration of large water bodies.
- Inventory of all traditional water bodies/ tanks
- Restoration of traditional water bodies/ tanks
- Periodical renovation of small water bodies at Individual households level

2.6. Community led models on Renovation of traditional and other water bodies / tanks

Agriculture being the most important activity in rural areas, there have been a number of success stories in various states:

- Parthad Gole Gram Panchayat, District Yavatmal (Case by VSTF)[4]
- Gangadtalai, Rajasthan (Mukhyamantri Jal Swavlamban Abhiyan)[5]
- Water by the pondful (Sujalam Sufalam-Gujarat)[6]
- Mission Kakatiya[7]
- Adaptive Water Management in Mandli village Barmer District, Rajasthan.[8]

[4] *https://www.mvstf.org/cdn//2018/07/180706083709_82588aa5a2052242e8c047434f8cd4a1.pdf*
[5] *http://mjsa.water.rajasthan.gov.in/mjsa/photogallery0/success-mjsa-ii--banswara.html*
[6] *https://www.governancenow.com/news/regular-story/water-by-the-pondful*
[7] *https://missionkakatiya.cgg.gov.in/paperNews/MKpaperNews15166820018l7.JPG*
[8] *https://yourstory.com/2015/02/jbf-water-management/*

2.7. Checklist for officers to evaluate Renovation of traditional and other water bodies /tanks

Officials visiting field may use following broad checklist for gathering District/ Block/ Village level information:

Parameter	Assessment
Number of water bodies	Data from the Minor Irrigation census/District
Current irrigation capacity of the waterbody against the original design	Field verification of samples
Inventorising the existing structures and their restoration	No. of existing structures that are restored/cannot be restored (inventory at district level)
How many structures are defunct and unusable and reasons	Field verification
Whether RRR undertaken? Status of progress against DPR	Details of work (desilting area, quantity of silt in CuM, water storage created etc.)
Number of water bodies in which catchment area treatment works have started	Eg. IWMP MIS
Cost of developing the traditional structure	Unit cost per type of water body
Capacity building and awarenss generation activities undertaken or not	List of number of programmes
Number of Water User Associations formed as part of sustainable operation and Mainteance of structures (O&M)	Field verification.

2.8. Possible Models of Renovation of traditional and other water bodies /tanks

Any of the community led models mentioned in para 3.7 or indigenous models.

INTERVENTION 3

Watershed development

3.1. Background

Watershed is the area of land that drains water into a specific receiving water body, such as a lake or a river. Watershed is a hydrological and socio-ecological unit, which plays a crucial role in provisioning of environmental services to the rural people. Watershed management[9] is a participatory approach of integrated land use and water management to protect and improve quality and productivity of soil, water, forests, livestock and livelihoods. Watershed management follows a ridge to valley approach[10]. Watershed management involves in situ soil and water conservation, water resource development through drainage line treatments, productivity enhancement, livelihood strengthening and capacity building. Awareness generation and community based institution building by way of Watershed Development Committees is also an integral part of watershed management.

3.2. Problems and Issues in Watershed Development

Watershed development programmes in India face the following challenges:

- Lack of community participation, poor capacities and institution building
- Poor operation and maintenance of soil water conservation structures
- Changing climate and rainfall patterns and linked water scarcity
- Over extraction and depletion of surface and ground water sources
- Lack of protective irrigation amidst water intensive cropping pattern
- Depleting drinking water sources
- Soil erosion, land degradation and low productivity of crop land
- Lack of alternate livelihood opportunities and resultant migration
- Depletion and degradation of ridge area forest resources
- Lack of availability of fodder and fuel for livestock

[9] *Common guidelines for watershed development projects, GoI 2008-https://dolr.gov.in/sites/default/files/CommonGuidelines2008.pdf*

[10] *https://dolr.gov.in/sites/default/files/CommonGuidelines2008.pdf*

3.3. Central Government Schemes having potential to finance Watershed Development

Integrated Watershed Management Programme (IWMP[11]) under the Department of Land Resources, Ministry of Rural Development, Government of India– (This programme is currently subsumed under PMKSY)

3.4. Important facts about Watershed Development

- In situ soil and moisture conservation through land/area and drainageline treatment
- Land/area treatement through afforestation, percolation tanks, terracing, vegetative barriers, summer ploughing etc.
- Drainage line treatment through construction of check dams, earthen bunds. percolation tanks, sunken pits etc.
- Promote artificial ground water recharge structures and rain water harvesting
- Agriculture productivity enhancement activities through promoting water saving techniques, drought resilient crops etc.
- Develop Natural Resource Management based livelihood opportunities
- Implement Awareness campaign for water demand management, its optimal use, adopting water saving practices and technologies
- Capacity strengthening of community institutions and PRIs for better management and supkeep of the assets areated.

3.5. Activities that can be taken up under the intervention

- Staggered trenches
- Gully Plugs
- Percolation tanks

3.6. Community led models on Watershed Development

- Best Practices/Innovations/Case Studies uploaded by States[12]
- Hiware Bazar – A case study on village water management[13]
- Best Practices in IWPM[14]

[11] *http://iwmpmis.nic.in/reportWelcome.html*

[12] *http://iwmpmis.nic.in/mainPage.jsp?requestAction=UserUploadDetailsReportofSLNA*

[13] *http://www.indiawaterportal.org/sites/indiawaterportal.org/files/hiwarebazar_0.pdf*

[14] *http://watershed.cg.gov.in/success%20story/award_winning_story.pdf*

3.7. Checklist for officers to evaluate Watershed Development;

Officials visiting field may use following broad checklist for gathering District/ Block/ Village level information:

Parameter	Assessment
Number of Watersheds Implemented and stage of watershed implementation (Preparatory phase/work phase/ withdrawal phase)	Detailed Project Report of the Watershed/ District Plan
Area under the watershed Ha	Watershed map
Area treatment activities planned and activities undertaken.	Work and payment registers
Area treatment activities planned and activities undertaken.	Work and payment registers
Ground water improvement in watersheds at advanced stages of implementation	Based on reference well data
Livelihood activities planned and implemented for the landless poor	Work and payment registers
Level of Community Participation	Review of the minutes of meeting and frequency of meeting
Level of Community Capacities and Institution Building (Watershed committees)	No. of awareness programmes organized, No. of watershed development committees formed with operations and management (O&M) funds.

3.8. Possible Models of Watershed Development

» The most common watershed development model is the participatory watershed management model following a ridge to valley approach.

INTERVENTION 4

Reuse and borewell recharge structures

4.1 Background

Reuse of water is a very important intervention to mitigate effects of depleting water availability. Water used once can in many cases be reused for multiple purposes. Used water can also be used effectively to recharge ground water. An important concept is of Grey water. Grey water includes water that comes out from after bathing, kitchen use, laundry etc devoid of feco-urine contamination. In most villages of India, the average supply of water is between 40 litres per capita per day (lpcd) to 55 lpcd (Average say 50 lpcd). Of the total available water, only 30-35% is consumed while the remaining 65% to 70% of the total water is converted into grey water. Thus, on an average, one rural household of 5-6 members generates 150 litres of grey water daily. Thus, rural India on an average generates about 31,000 Million litres of grey water daily. In India, from each HH a huge quantum of grey water is generated, which if treated appropriately can be reused for several non-potable (non-drinking) activities. Additionally, untreated grey water is otherwise a wasted resource that if treated and managed effectively, can be used to provide relief from acute water stress as well as reduce water borne diseases in many parts of India.

4.2 Problems and Issues in Reuse and Borewell recharge structures

There has been several issues and problems identified to the management of grey water at the HH and community level. In general, there is a belief that once water is used and flows out it cannot be reused. Some of the specific issues are:

- Lack of awareness at household and community level about potential of used water towards ground water recharging and technologies therein.
- Reluctance in the use of grey water due to socio-cultural norms, beliefs and practices.

- Currently emphasis is given on construction of drainage systems to carry grey water out of habitations without providing a specific discharge point or treatment facility
- Discharge of black water of septic tanks directly into the open drains contaminating the grey water and making it unsuitable of easy reuse
- Lack of institutional support at the Gram Panchayat level to support and popularise grey water management technologies, awareness generation and implementation.
- Lack of operation and maintenance of HH and community level grey water management systems

4.3 Central Government Schemes having potential to finance Reuse and Borewell recharge structures

- Swachh Bharat Mission (Gramin): Depending on the size of the Gram panchayat, between Rs 8 lakh and Rs 20 lakh is available for solid liquid and waste management (SLWM) activities including grey water management
- MGNREGS: Construction of community level grey water treatment and ground water recharge structures can be funded from this scheme. This can be included as part of the Gram Panchayat development plan (GPDP)
- NRDWP and SWAJAL: The National Rural Drinking Water Programme and the Swajal programmes ensures water safety and promotes improved environment around drinking water sources. This can be used in managing grey water and handpump/borewell excess flow for water recharge while also keeping the environment clean
- Schemes under watershed, forestry, irrigation and agriculture programmes include interventions that promote point recharge

4.4 Important facts about Reuse and Borewell recharge structures

Grey water management and fresh water augmentation is based on the 4Rs concept: Reduce, Recycle, Recuperate and Recover. The community along with planners and implementers need to initiate simple water conservation methods to protect water sources from drying up and also build structures at household (HH) level and community levels for reuse of grey water and its use for point recharging.

A three-pronged strategy can be adopted:

- Promote grey water management at HH level and community level through construction of simple structures, in and around homes and public places specifically around water sources
- Awareness and capacity building at community level to address behavioural barriers regarding water reuse and on importance of grey water and its effective management
- Renovate and protect all existing traditional surface water sources to improve recharge, thus supplementing use of groundwater for irrigation purpose.

4.5 Activities to be undertaken under the Intervention

- Construction of bore well recharge structures
- Construction of individual and community soak pits
- Construction of Greywater treatment ponds

4.6. Community led models on Reuse and Borewell recharge structures

- Manual on Artifical Recharge of Ground Water–by Central Ground Water Board[15];
- Construction of 2168 Soak Pits in Sitamarhi district of Bihar for Grey Water Management and Water recharge across institutions: Recorded in Limca Book of Records, 2016[16].

4.7 Checklist for officers to evaluate Reuse and Borewell recharge structures

Officials visiting field may use following broad checklist for gathering District/ Block/ Village level information:

Parameter	Assessment
Water Demand–Supply gap per capita	Volumes in lpcd
Grey water generation potential	District level grey water volumes
Effectiveness of technology for grey water treatment for reuse	Technology adoption rate and cost effectiveness
Major point recharge structures found	Number of structures
Ground water recharge potential	Water saving in terms of reduced use of ground water
Awareness programme in the district around reuse and point recharge	No. of Programmes conducted
Potential use of treated grey water	Agriculture, Irrigation, Household etc.
Major bottle necks in the grey water reuse	Community consultation/discussion

[15] *http://cgwb.gov.in/documents/Manual%20on%20Artificial%20Recharge%20of%20Ground%20Water.pdf*

[16] *https://www.thebetterindia.com/55898/water-conservation-bihar-soak-pits-sitamarhi/*

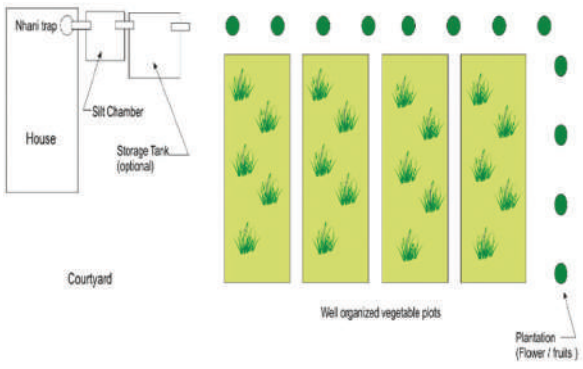
4.8 Possible Models of Reuse and Borewell recharge structures

There are many options to manage this grey water at the HH and community level. The most common of them are;

At HH level	At Community Level
1. Use in Kitchen Garden 2. Ground water recharge through soak pits	1. Recharge structures near the bore wells. 2. Construction of soak pits/magic pits at community level for grey water management. 3. Construction of grey water treatment ponds.

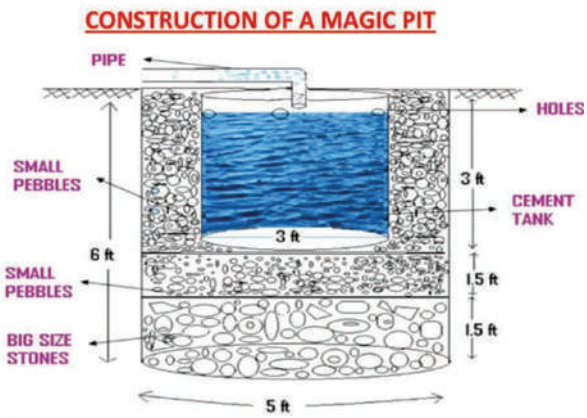
1. Kitchen gardens

Grey water can be used in kitchen gardens with a little bit of precaution and can easily be constructed in all HHs. An Nhani trap, silt chamber and storage tank is required to use the grey water in kitchen garden for agricultural purposes.



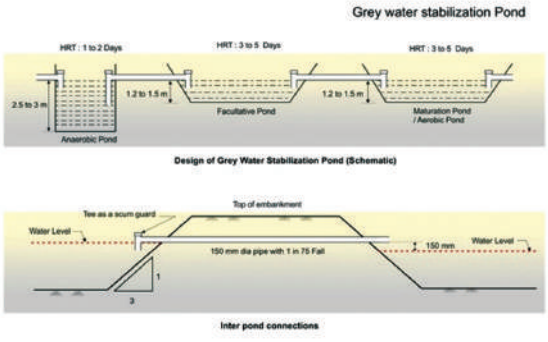
2. Soak pit/Magic pit

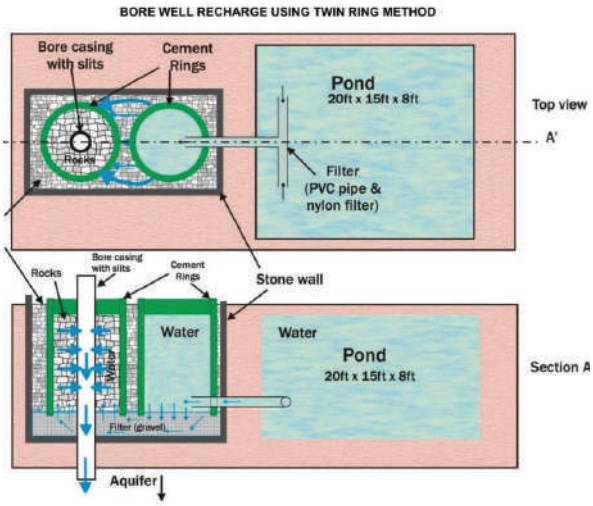
The soak pit/magic pit is one of the cost-effective options that can be adopted in each HH and at community water sources for easy management of grey water. The magic pit is a pit technology option where pre-settled effluent from a Collection & Storage/ Treatment or (Semi-) Centralized Treatment technology is discharged to the underground chamber from which it infiltrates into the surrounding soil. The soak pit/magic pit initiative not only helps to support recharging of ground water table but also keeps the environment clean and hygienic.



3. Bore Well Recharge Structure

The bore well recharge structure is constructed through the twin ring method.





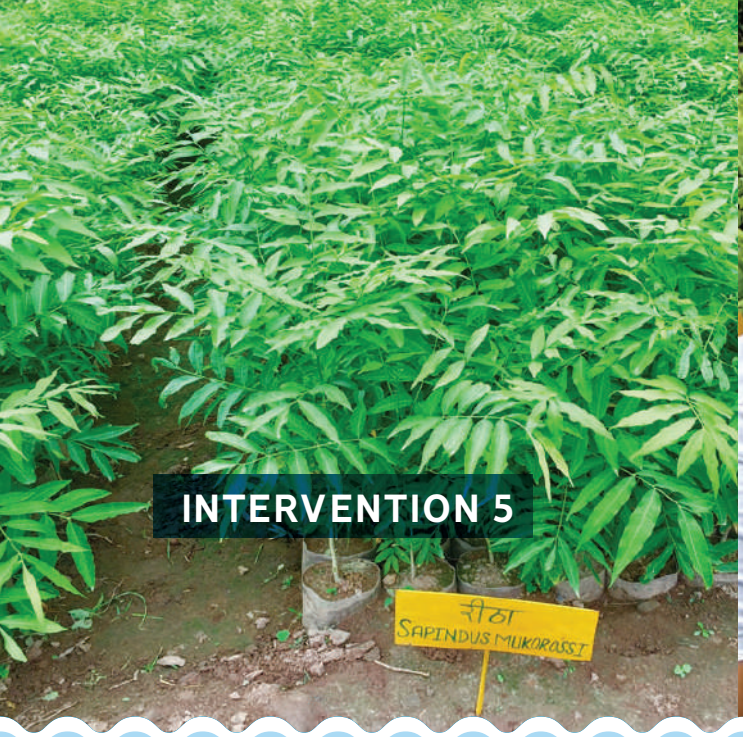
The method is simple, efficient and cost effective. In this method a pond is made near to the bore well site and a pit is dug around the actual bore well casing. The bottom of this pit is lined with filtration material and a second pit is dug near to the first well. The dug well is connected to the pond through a pipe. During rainy season the water flows from the pond into the first empty well where it percolates down through the filtration material and subsequently up into the second well. It then enters through the pores and filters down into the underlying aquifer where it is stored for the following dry season.

4. Greywater Treatment Ponds

This is a series of basins or ponds located at a suitable site away from the human habitation, where grey water is treated. The grey water is brought to these ponds through covered drains. The treatment is natural and involves: 1) Sedimentation or settling of solids in the waste water, and 2) Degradation process involving bacteria, algae, sunlight and oxygen which degrades the organics and utilizes the nutrients in grey water and increases its usability. The system has three basic units called ponds, placed in series and characterized by their function such as:

- Anaerobic pond – one number
- Facultative pond – one number (function both as anaerobic and aerobic)
- Aerobic pond or maturation pond – one or more in number depending upon the impurities in the grey water

The treated water from the grey water stabilization pond can be used for agriculture or pisciculture (Fish rearing) depending upon the purity of water.



Intensive afforestation

5.1 Background

Forests are a crucial natural resource that plays a vital role in water conservation and water retention in the soil. Forest Survey of India report indicated that water bodies inside forests have increased by 2,647 square km during last decade (2005 to 2015).

Trees play an important role in intercepting precipitation in the foliage, absorbing and filtering water that infiltrates into the soil. Trees also improve water quality by reducing soil erosion and preventing sediments chocking water bodies.

5.2 Problems and Issues in Afforestation

- Deforestation and illicit felling of trees with reducing area under new plantations is a concern and needs to be tackled
- High preference to water intensive non-indigenous species and inadequate soil and moisture conservation (SMC) activities is an area of concern.
- Participatory and community led plantation and their protection and maintenance is often inadequate to meet the prevailing gaps.

5.3 Existing Central Govt Schemes that can be potential funding source for Afforestation

i. National Afforestation Programme (NAP)

The National Afforestation and Eco-Development Board (NAEB)[17], under the Ministry of Environment and Forests, is responsible for the flagship scheme, the National Afforestation Programme (NAP). The scheme promotes afforestation, tree planting, ecological restoration

[17] *http://naeb.nic.in/NAP_revised%20Guidelines%20English.pdf*

and eco-development activities in the country. NAEB supports the district level Forest Development Agencies (FDAs) to institutionalise Joint Forest Management and promote afforestation.

ii. MGNREGS

Funds are available for various forestry schemes at the state and district level, under MNREGS and from other local funding sources for forestry activities, which include

- Pitting and planting of saplings
- Soil and Moisture Conservation activities

iii. Green Highways Policy

The Green Highways (Plantation, Transplantation, Beautification & Maintenance) Policy 2015, aims to plant trees along all the highways in the country.

5.4 Important facts about Afforestation

- Prioritise planting of low water demanding indigenous tree species. A suggestive list is given below (Table 1).
- Plantations to incorporate Soil and Moisture Conservation (SMC) structures like contour trenches, check dams, gully plugs, etc. to increase survival in hilly areas.
- Involvement of Village Forest Management Committees (VFMC) in protecting and managing forests
- Promote planting of trees in forest and non-forest (degraded lands in common and GP lands) areas and in farms and homesteads
- Promote planting of a minimum number of trees by every household and local institutions like GPs, schools, colleges etc.
- Activate Schools and Youth groups like Boy Scouts, Girls Guides, NYK, NSS, NCC in tree planting and protection management in communities with special focus on drinking water sources and water bodies.
- Involve Self Help Groups (SHGs) to take up greening of villages and SMC works
- Institute District, Block and Gram Panchayat (GP) level awards for best HHs, best student/group, SHG, etc. for tree planting.
- Districts to develop indigenous species nurseries to grow and provide saplings at low cost to GPs, communities, institutions and HHs for planting. Resources to be mobilized by convergence for this on priority.
- Live fencing of homesteads and farmlands by planting trees may be promoted under the Social Forestry wings of government in conjunction with District panchayats
- Interventions that discourage use of tree wood as fuel and convergence with other government schemes that promote alternative fuel sources

Planting stock in nursery

Plantation with water harvesting structures in hilly areas

5.5 Activities that could be taken up under the intervention

» Plantation of trees consuming less water in public and forests lands

Community led Afforestation Models

a. Sukhomajri, Haryana– http://punenvis.nic.in/water/case1.htm

b. Hiware bazaar, Maharashtra–https://kalpavriksh.org/hiware-bazar/

5.6 Checklist for officers to evaluate plantation

Parameter	Assessment
1. Area under Plantation and corresponding number of saplings	▶ In Ha and In Numbers
2. Quality of saplings (at least 3 feet)	▶ Size of the sapling (greater than 3 feet)
3. Indigenous/Local species or not	▶ Yes/No
4. Rate of Survival	▶ Percentage
5. Water Availability	▶ Frequency and Signs of Irrigation
6. Whether replacement done against the mortality	▶ No. of blank pits
7. Protection mechanism adopted from grazing and browsing	▶ Fencing of individual plants or entire patch done or not
8. General Condition of the Plantation	▶ Overall assessment as good, bad average
9. Soil and Moisture Conservation Measures adopted (relevant in hilly tracts)	▶ Number of structures /treatment to arrest water flow (trenches, gully plugs, Continuous Contour Trenches (CCT)
10. Community involvement in maintaining and protecting plantation	▶ Involvement of NGOs, Youth agencies/others

5.7 Possible Models of Afforestation

Plantations can be taken up in:

- Degraded Forests
- Blanks in forest area
- Roadside plantations
- Plantation in common village lands
- Plantation around boundaries of the farm lands
- Individual household plantation with fruit species.

Table 1 A suggestive list of trees that can be taken up in various zones for intensive afforestation interaction

Zone	Species	Common Name
Central Highlands	Azadirachta indica	Neem
	Albizia procera	White Siris or Saras
	Cassia fistula	Amaltas
	Moringa pterygosperma	Drum stick tree, suhanjana
	Tamarindus indica	Imli
	Albizia lebbeck	Black Siris or Saras or Womans tongue tree
	Erythrina indica	Coral tree
	Leucaena leucocephala	Su Babool
	Mangifera indica	Mango
	Pongamia glabra	Indian Beech tree, Papdi
	Dalbergia sissoo	Shisham, Tali
Deccan Plateau	Acacia auriculiformis	Ear leaf Acacia or Ear pod wattle
	Bauhinia variegate	Kachnar
	Syzygium cumini	Jamun
	Erythrina indica	Coral tree
	Emblica officinalis	Aonla or Amla
	Azadirachta indica	Neem
	Moringa oleifera	Horseradish or Benzoil tree

Zone	Species	Common Name
Deccan Plateau	Dichrostachys cinerea	Sicklebush, Bell mimosa, Chinese lantern tree
	Crataeva religiosa	Sacred garlic pear or temple plant
	Aegle marmelos	Bel Tree
	Tamarindus indica	Imli
	Bauhinia variegata	Kachnar
Chandigarh	Bombax ceiba	Semul cotton tree
	Tecomella undulata	Rohida or Rohera
	Zizyphus jujuba	Ber
	Tamarix orientalis	tamarisk, salt cedar
	Jacaranda mimosifolia	Blue Gulmohor
	Grevillea robusta	Silver Oak
	Tamarindus indica	Imli or Tamarind
Eastern Plains	Michelia oblonga	
	Alnus nepalensis	Napalese Alder
	Butea monosperma	Dhak, Flame of Forest
	Albizzia lebbeck	Black Siris or Saras or Womans tongue tree
	Grewia subinaequalis	Falsa
	Bauhinia variegate	Kachnar
	Sterculia urens	Gum Karaya, Ghost tree
	Boswellia serrate	Guggul
Northern Region	Pithecellobium dulce	Jungle Jalebi
	Cordia gharaf	Saucer berry
	Syzygium cumini	Jamun
	Pongamia pinnata	Papdi
	Zizyphus jujuba	Ber
	Bauhinia variegate	Kachnar
	Salvadora oleoides	Peelu
	Sterculia urens	Gum Karaya, Ghost tree
	Boswelli aserrata	Guggul

Zone	Species	Common Name
Western India	Cordia dichotoma	Lasooda
	Prosopis cineraria	Khejri or Khejdi
	Tecomella undulata	Rohida or Rohera
	Murraya exotica	Orange Jasmine
	Grewia subinaequalis	Falsa
	Capparis divaricata	Pachunda, Turatti
	Lagerstroemia flosreginae	Pride of India, Jarul
	Bauhinia purpurea	Kachnar
	Artocarpus heterophyllus	Kathal, Jack fruit
	Dipterocarpus turbinatus	Garjan
Eastern Plateau	Moringa oleifera	Drum stick tree, suhanjana
	Crataeva religiosa	Sacred garlic pear
	Aegle marmelos	Bel Patther
	Grewia disperma	Falsa
	Tamarindus indica	Imli, Tamarind
	Bauhinia variegata	Kachnar
	Hiptagemadablota	Madhavi, Helicopter flower
	Anthocephalus cadamba	Kadamb
	Grewia disperma	Falsa
	Cochlospermum gossypium	Butter cup tree

District water conservation plan

One of the major outputs of Jal Shakti Abhiyan is to develop district water conservation plan. This is essentially a strategy to conserve, recharge and improve water use efficiency.The District Water Conservation Plan is developed by compilation of block level conservation plans, which is essentially the compilation of water conservation plans of respective Gram Panchayats (GPs) within the block. Thus the template given below can be used to generate the plan for GP or block or district as the case may be. The formation of District Water Conservation Plan will involve following steps:

Identify all the concerned departments and engage them in water conservation e.g. Panchayati Raj (PR), drinking water, agriculture, irrigation, endowment boards etc.

Create an inventory of GP/block-wise water harvesting and recharge structures with geo-tagging and other details of the location along with the photographs.

Determine the functionality status of each of these structures. Conduct a functionality assessment on how many structures are functional and non-functional

Determine the feasibility of restoring the non -functional structures with the cost assessment; this should be followed by identification of schemes/programmes under which the restoration can be taken up. This should be followed by fixing annual targets, so that every structure which is non-functional and where a possibility of restoration exists, will be made functional in a time bound manner.

All government owned buildings should have rainwater-harvesting structures. An inventory of all the government buildings yet to have rainwater harvesting structures need to be developed.

Efforts must be intensified to motivate owners of privately owned buildings to have water-harvesting structures.

Local self-governing institutions like Gram Panchayats may come up with policy interventions like tax sops to incentivize the owners of the buildings having water-harvesting structures.

Ensure community involvement in the planning implementation and management of structures

Pre-monsoon inspection of all the identified structures by the concerned department and maintenance to be made mandatory.

The water conservation plan will be complete only by shifting to water use efficient systems in every sector like treatment and re-use of waste water , water saving irrigation practices("per drop more crop"), drinking water supply system meeting design standards (NRW leakages)etc.

Suggestive Template
Water Conservation Plan

Water Harvesting

Sl No	Type of Structures	No. of Functional Structures	Volume of Water Stored in CuM	No. of Non Functional that can be restored	Volume of Water Stored in CuM	Funds required to restore/ rejuvenate/ build in Lakh INR
1	Natural water bodies, (ponds, lakes)					
2	Traditional water harvesting structures (Stepwell, Jhalaras, talabs, Tanka, Bawari, Aharpyne, bhandaraphad, Johad, Khadin, kund, Zabo etc)					
3	Large water bodies (5 hectare area and above)					
4	Check Dams					
5	Farm Ponds					
6	Rooftop water harvesting structures with storage(community and privately owned)					

7	Restoration of main/ branch/distributory/ minor canals of canal systems					
Recharge structures						
8	No. of percolation tank					
9	No. of individual soak pits					
10	No. of community soak pits					
11	No. of borewell recharge structures					
12	No. of waste stabilization ponds					
13	No. of HH rooftop rainwater harvesting structures with recharge(community and privately owned)					

Improving Water-Use efficiency			
Sl No	**Measures**	**Area in Ha**	**Funds Required**
14	Area that can be brought under micro-irrigation:		
15	during year 2019-20		
16	during year 2020-21		
17	during year 2021-22		

ROLL-OUT PLAN

All the above interventions shall be implemented in 254 districts. To facilitate this, about 254 Additional Secretaries/Joint Secretaries/JS level officers, 400 Deputy Secretaries/Directors, 400 Technical Officers from Government of India are made responsible to oversee the implementation, review progress and provide feedback.

Each district is allotted to an Additional Secretary/ Joint Secretary/Joint Secretary level officer also referred to as Central Nodal Officer (CNO).

Scientists/Technical Officers from the participating Ministries/Departments would be linked to the Joint Secretaries and their teams for technical guidance and will be given regional allocation.

At the State level, Additional Chief Secretary/Principal Secretary (Panchayati Raj& Rural Development and/or Water Resources) will be the State Nodal Officer (SNO). The SNO will coordinate between the CNO and the District Collectors of their State for implementation of JSA.

A team of officials would be formed for every Block. The team shall have 4 officers, headed by a Director/Dy. Secretary level officer from the Central Ministries, along with one technical officer from Central Ground Water Board/Central Water Commission two district officers nominated by the District Collector. Each of these teams will report to their CNO.

About 400 such teams will take a minimum of three trips (three days each) covering all villages allocated to them.

Other groups to be involved in the campaign are:

- 180 Assistant Secretaries who will be oriented and given targets to undertake necessary work as part of their field visits
- Engineering students from local colleges, as nominated by District Collectors can be opted to be part of the campaign, where applicable
- Local NGOs, nominated by the District Collector can be involved in community mobilization, IEC, etc if necessary
- Reputed NGOs with national presence in the water sector can also be engaged by the States.
- Nehru Yuva Kendra Sangathan (NYKS)/ National Service Scheme (NSS)/ National Cadet Corps/ school eco-clubs and school students can also be mobilised to join Block level teams.

Detailed instructions for field work are available under Instructions.

Best performing districts will be assessed and recognized by Ministry of Jal Shakti.

MONITORING AND SUPPORT

A portal has been developed by DDWS and NIC through which Districts will be provided a separate login (https://indiawater.gov.in/jsa) to report progress under all 5 JSA intervention areas and IEC activities. District Collectors and/or nominated officials by District Collector in each district will be provided access to JSA portal.

A national level dashboard has been developed that shows progress of the States against key JSA interventions and IEC activities. Based on progress reported under dashboard, ranking of districts will be generated for rewarding best performers.

A separate mobile application is developed to report feedback and key observations from assigned Central Nodal Officer and District/Block level officers. All officers are to submit their feedback and geo-tag photographs of assets created through this mobile app. The app is available on Android and iOS platforms.

All officers should upload their contact details and tour plan (3 days prior to travel) on the JSA portal. The feedback should be submitted within one week of tour completed.

COMMUNICATION PLAN

- All SHGs, PRIs and Swachhagrahis are to be engaged to join the campaign for community communication. Concerned Ministries are to mobilize their grassroots components.
- Promoting efficient water use for irrigation through through initiatives like Krishi Vigyan Kendra (KVK) Melas and motivating farmers to move to better choice of crops (More Crop per Drop)
- Each district will develop an IEC plan and a media plan which can include Public Service Announcements, print and social media mobilisation at local level
- Well known personalities can be mobilized to generate awareness for the campaign

Annexures

ANNEXURE I

Special interventions for select water related schemes[18]

Definitions and specifications of outputs and targets are provided as Annexure II

S. No.	Indicator	Existing scheme	Ministry/Dept	Activity
1.	Water conservation and rainwater harvesting	Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA)	Ministry of Rural Development	**No. of:** ▶ **Rooftop rainwater harvesting structures** Individual households should be convinced to take up roof-top rainwater harvesting structures for their houses. ▶ **Check dams** ▶ **Trenches** ▶ **Farm Ponds**
2.	Renovation of traditional and other water bodies/tanks	Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA)	Ministry of Rural Development	▶ **Inventory of all traditional water bodies/tanks** ▶ **No. of traditional water bodies/tanks restored**

[18]*In case of rains, focus may be placed on non-construction works and construction of assets may continue during the winter season as Phase II*

S. No.	Indicator	Existing scheme	Ministry/Dept	Activity
		Repair, Renovation and Restoration of Water Bodies	Department of Water Resources, River Development and River Rejuvenation, Ministry of Jal Shakti	Individual households owning small water bodies also should be convinced for renovating them periodically. ▶ **No. of large water bodies restored**
3.	Reuse and borewell recharge structures	Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA)	Ministry of Rural Development	▶ **No. of bore well recharge structures constructed** ▶ **No. of soak pits** › Individual › community ▶ **Greywater treatment ponds**
4.	Watershed development	Integrated Watershed Management Programme (IWMP) – Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)	Department of Land Resources, Ministry of Rural Development	▶ **Area under watershed development (in ha).** **Activities involved are:** › Staggered trenches › Gully Plugs › Percolation tanks
5.	Intensive afforestation	National Afforestation and Eco-Development Board (NAEB) and MGNREGA	Ministry of Environment, Forests and Climate Change; and Ministry of Rural Development	▶ **Plantation of trees consuming less water** ▶ **Area under plantation on public and forests lands**

ANNEXURE II

List of Definitions

1. Water conservation and rainwater harvesting

(i) **Roof top rain water harvesting system:** A technique through which rain water is captured from the roof catchments and stored in reservoirs. Harvested rain water can be stored in sub-surface ground water aquifers by adopting artificial recharge techniques or meet the household needs through storage in tanks. These works have to be compulsorily taken up for public/community buildings namely Panchayat Bhawans, schools, Anaganwadis, Public Health Centers and Community halls (if available). Also, households should be convinced to take up roof-top rainwater harvesting structures for their houses.

(ii) **Check dams:** Small engineering structures constructed across a stream/ water course with cement to store water.

(iii) **Trenches:** Constructed depressions of about 6 feet length, 2 feet width and 1 foot deep (sizes may vary across states) to impound the expected runoff.

(iv) **Farm ponds:** Constructed depressions in a farm land occupying 6 to 8% of land with 2 to 3 metre depth. Ponds can retain water for long duration (up to 10 months), they provide excellent opportunity to promote composite fish farming besides providing irrigation.

2. Renovation of traditional water bodies/tanks

These are traditional water storage structures called by different names across States. Some examples from various States are J&K, Ladakh – Zing, Uttarakhand – Naula/ Gul/Dhara/Dhan/Simar/Khal, (terrace ponds especially in Himalayan/ hilly regions), Himachal Pradesh – Kul/ Khatri, Rajasthan – Johad, Bawaris, Taanka, Nagaland – Zabo, Uttar Pradesh – Kund, Bihar – Ahar Pynes, Maharashtra – Bhandara Phad/ Ramtek, Madhya Pradesh and Odisha – Katas/Mundas/Bandhas, Tamilnadu – Eri/ Ooranis, Assam – Dongs, Delhi – Baolis/ Dighis, Meghalaya – Bamboo Drip irrigation, Arunachal Pradesh – Apatani, Gujarat – Virdas, Kerala – Surangam/Korambus, West Bengal – Dungs/Jampols, Andhra Pradesh – Cheruvu, etc.

Water bodies with minimum water spread area of five hectares (ha) and above, are generally owned by Water Resources Departments or at times local bodies. These are either standalone water bodies with individual catchments (called as non-system tanks in south India) or system of cascading water bodies with a common source, say a river (called as system tanks in south India).

3. Reuse and point recharge structures

(i) **Borewell recharge structure:** Groundwater recharge structures constructed near an individual borewell/ tubewell used as a drinking water sources. A typical structure has a 3m x 3m x 3m pit with a borehole pipe having perforations installed at the centre of the pit and packed with filtering media (different sizes of stones). It has a lead drain to the pit and a masonry structure around the pit to protect the structure.

(ii) **Soak pits:** A soak pit is a pit technology option where pre-settled effluent from a collection and storage/treatment or (semi-) centralized treatment technology is discharged to the underground chamber from which it infiltrates into the surrounding soil. It can be for an individual household or for a community.

(iii) **Greywater treatment ponds:** Man-made ponds in which different types of wastewaters are treated by naturally occurring processes.

4. Watershed development

This is a major theme for development of rain fed areas with a view to conserve natural resources of water, soil and vegetation by mobilizing social capital. Its development involves three phases, (i) preparatory (ii) works and (iii) consolidation and withdrawal phases.

Staggered trenches: These are similar to trenches mentioned above, but constructed in hilly areas staggered across the slopes for gradual percolation of water to soil mass.

Gully Plugs: Gully plugs are small check dams made up of loose rocks in a series across the gully. A gully plug is one of the erosion control measures in non-agricultural land. A gully plug is constructed in series along a gully to change a sloping bed to a series of flat beds. The vertical interval between two such structures is equal to its height. The height of the structure is generally kept less than 1 m.

Percolation tank: An artificially created surface water body made of earth, submerging in its reservoir, a highly permeable land so that surface runoff is made to percolate and recharge the groundwater storage.

5. Intensive afforestation

Only trees which require less water to be planted and grown. Some examples are Babul, Amaltas, Banyan, Neem, Tamarind, Jackfruit etc.

ANNEXURE III

INSTRUCTIONS

Instructions for Central Nodal Officers (Additional/ Joint Secretary level officer)

1. Central Nodal officers (CNO) are responsible for time-bound implementation and monitoring of JSA in their allotted district.
2. Should hold the first meeting with concerned Block Nodal Officers (BNO) & Technical Officer (TO) of GoI mapped to the district within 3 days of launch of campaign.
3. 1st field trip within one week of launching JSA involving all BNOs & TOs.
4. District level meeting for firming up
    i. District Level Plan for JSA implementation by setting fortnightly targets and identifying sources of fund against every intervention identified for water conservation duly concurred by CNO should be uploaded on the Portal by the DC / DM within 10 days of launch of campaign
    ii. District Water conservation plan
    iii. Media plan for JSA
    iv. Involving District Collector (DC)/ District Magistrate (DM), Block Nodal Officers (BNO), one TO for 4 Blocks and all concerned district level officers in charge of the intervention
5. A WhatsApp group to be formed involving all Central- District team for seamless interaction
6. CNO to ensure that two officials familiar with the local conditions to be nominated by District Collector, to assist the BNO and TO. One of the two officers can be a resource person from the local engineering college if applicable.
7. Each block to be earmarked to the above team
8. CNO will make at least 3 visits of minimum 3 days duration to the allotted district
9. CNO will ensure that tour programmes of all team members of GoI officials are uploaded on the portal 3 days ahead of the visit
10. Fortnightly reviews may be taken by the CNO to suggest corrective steps, if required.
11. CNO should upload the feedback in the JSA portal after every fortnightly review and after every field visit
12. A list of govt. owned buildings where rooftop rainwater harvesting can be taken up should be collected from DC/ DM within 10 days of launch of campaign
13. CNO should review the components of District Irrigation Plan (DIP) which inter alia covers water conservation measures and upload the progress report on the portal
14. CNO should report progress of implementation to Cab Sec / Secy. (DDWS, Min. of Jal Shakti) on a fortnightly basis.

15. CNO to ensure engagement of Nehru Yuva Kendra (NYK), and earmark a day to undertake Shramdaan in the intervention blocks.
16. CNO can engage students from local universities and engineering colleges, and earmark a day to undertake Shramdaan in the intervention blocks.
17. CNO to ensure engagement of school children and eco-clubs of schools in the campaign and earmark a day to undertake Shramdaan in every block.
18. CNO to ensure active engage all the grassroots players – Panchayat Raj Institutions, Self-Help Groups, Swachhagrahis, etc. for IEC activities

Instructions for Block Nodal Officer (Deputy Secretary/Director level officer)

1. The Block Nodal officer (BNO) will be responsible for the implementation of JSA at the block level.
2. BNO will report to and assist the CNO.
3. BNO should closely monitor block level implementation and review progress of implementation every fortnight.
4. BNO should make at least 3 visits of minimum 3 days duration during the campaign. The first visit should be undertaken in the first week within the launch of the campaign, along with CNO.
5. BNO will submit/upload tour programmes in the portal 3 days in advance
6. BNO should submit the feedback on the portal after every fortnightly review and also after every visit
7. All instructions issued in case of CNO are applicable for BNOs for Block level

Instructions for Technical Officer

1. Technical Officer (TO) will provide technical inputs/solutions wherever required and guide the implementation agencies at block level
2. TO should accompany the assigned BNO in their allotted block.
3 All instructions issued in case of BNO should be applicable for TOs also.

Instructions for State-level Nodal Officer (ACS/PS/Secy Dept assigned by the State)

1. State-level Nodal officers (SNO) are responsible for overall coordination with Districts, CNO and BNO and implementation of JSA in their respective States.
2. SNO to hold VC/meetings with all the DCs/DMs and brief them about JSA
3 SNO should tie-up and ensure release of funds for activities to be implemented under JSA
4. SNO to set time-lines/targets for their respective States. This is to be done after consulting the DCs/DMs from their states. The targets for districts are to be compiled to form the state level targets.
5. SNO to hold fortnightly review of JSA and upload progress on the portal.
6. SNO should make at least 3 field visits to districts where JSA is being implemented, preferably with assigned CNO and upload feedback after every visit in the portal.

Instructions for District Collector/ District Magistrate

1. DC/DM is the nodal person responsible for the implementation of JSA in their district.
2. The DC/DM will be reporting to CNO and SNO
3. DC to make arrangements for facilitating the visit of officers from GoI
4. They will hold an initial meeting with the district and block level officials in charge of interventions under JSA, to assess the situation and prepare the following plans:
    i. District Level Plan for JSA implementation by setting fortnightly targets and identifying source of funds against every intervention identified for water conservation
    ii. District Water Conservation plan
    iii. IEC Plan on water conservation focusing farmers
    iv. Media plan for JSA
5. DC/DMs to identify NGOs in the water sector in their district and upload their details on the portal
6. Special IEC campaign to be undertaken in the district by holding block wise Kisan Mela planned with Krishi Vigyan Kendras (KVK) and Agriculture department focusing on motivating farmers to shift from water intensive crops to less water consuming crops as well as need to shift to water efficient micro-irrigation system like drip and sprinkler methods in water demanding crops. Further, in coastal districts an IEC campaign is to be undertaken campaign for preventing saline water ingression into mainland by reviving or creating necessary infrastructures.
7. DC to prepare an inventory of traditional water bodies in their district, along with a plan to revive them.
8. They will subsequently get the plans concurred by CNO and SNO and upload the same within 10 days of launch of campaign
9. DC will ensure that a team of 2 State officials who are well versed with local conditions are mapped to every team of GoI led by BNO.
10. Progress of implementation should be closely monitored by DC/DM by making at least 3 visits per block during the campaign and provide feedback on the portal.
11. A list of government-owned buildings where rooftop rainwaterharvesting can be taken up should be identified by the district administration and uploaded online.
12. Ensure that the progress of implementation JSA is monitored and reviewed weekly and the feedback uploaded on the portal.
13. In coastal districts, special focus should be given for creation of infrastructure to prevent saline water ingression into the mainland in the implementation plan.
14. DC / DM to nominate the nodal officers who will liaison with the JSA Secretariat and will be in-charge of uploading data. The contact details (name, mobile number and email) of self and

the officials in-charge will need to be provided to the JSA Secretariat.

15. Special IEC focus should be given on promoting water efficient irrigation methods like drip irrigation/ sprinkler irrigation in water demanding crops like sugar cane.
16. DM/DCs to document the progress of the program and document success stories digitally.
17. Students from local universities and engineering colleges are to be engaged mandatorily, earmarking a special day to undertake Shramdaan in every block.
18. Nehru Yuva Kendra (NYK) should be actively involved and earmark a day to extend Shramdaan in every block.
19. School children and eco-clubs of schools are to be actively involved in the campaign and earmark a day to extend Shramdaan in every block.
20. Local NGOs at district levels should be actively involved and earmark a day to extend Shramdaan in every block.
21. The campaign should actively all the grassroots players – Panchayat Raj Institutions, Self-Help Groups, Swachhagrahis, etc.

Instructions for Program Implementation Officers (PIO)- District Level officer/ Line Department

1. PIO is responsible for the implementation of respective interventions identified under JSA in their districts and report to District administration
2. PIO will assist in planning, setting target and monitoring related to their department in district and blocks.
3. PIO to hold an initial meeting with block level subordinate officers of their department to assess the situation and develop a fortnightly plan
4. PIO is responsible for updating daily progress in the portal with authorization of DM/DC.
5. PIO should accompany CNO/SNO/BNO/ TO during their visits.

Priority things for CNO, SNO and DC/DM

1. Forming a team
2. Creation of Whatsapp group
3. Setting targets for every intervention
4. Identify source of funds and timely release of funds
5. Upload tour plans on portal
6. Authorizing nodal officers for uploading data on the portal and sharing details with JSA secretariat
7. Finalizing media plan
8. Finalizing IEC plan
9. Mobilizing all the grassroots players – Panchayat Raj Institutions, Self-Help Groups, Swachhagrahis,etc

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