

**Report  
of  
5-day Training Course on**

**“Water Conservation Practices through Adaptation of  
Appropriate Management and Technological Interventions:  
A Practitioners Approach”**

(held under National Water Mission, Govt. of India)

18-22 December, 2017 (Venue: IGFRI, Jhansi)



*Organized by*



**National Institute of Hydrology, Roorkee (Uttarakhand) - 247 667**

**National Institute of Hydrology, Central India Hydrology Regional Centre,  
Bhopal (MP) - 462016**

## **Report on training under National Water Mission**

A 5-day training course on “Water conservation practices through adaptation of appropriate management and technological interventions: a practitioners approach” was organized by the National Institute of Hydrology (NIH), Roorkee and Central India Hydrology Regional Centre, Bhopal (MP) at IGFRI, Jhansi during 18-22 December, 2017. The objectives of the training course were

- ✓ To demonstrate the best practices, innovations and case studies with particular reference to water conservation among the various user communities, including farmers, extension workers of the State departments/NGOs, etc., with a view to minimize the time lag between the technology development and its adoption at the grass-root level.
- ✓ To promote and propagate the concept of Practicing IWRM at Local Level’, which is an emerging, approach worldwide for water conservation and management in different socio-economic and geographic conditions.
- ✓ To get first-hand scientific feedback from the field and passing it to the research community in order to keep the scientist abreast with the performance of the various technological measures for water conservation And the real-life problems so that they may reorient and realign themselves during research, education and training programmes, accordingly.
- ✓ To provide the technical skills and communication support to the line departments and NGOs that are dealing with water conservation related issues.

The training course was organized under National Water Mission, a flagship programme of MoWR,RD&GR, GOI, at Indian Grassland and Fodder Research Institute (IGFRI), Jhansi (UP) who provided necessary logistic support for organization of the training program. The training program has received overwhelming response from the participants of various organizations, state departments, universities, research institutes and NGOs from Bundelkhand region of Uttar Pradesh and Madhya Pradesh. The participants for the training program were field officers, scientists, research scholars, practioners from Water Resources Department, Agricultural Department, Krishi Vigyan Kendra, BHU, Bundelkhand University, Rani Laxmibai University, IGFRI,

and NGOs from UP and MP working in the field of water conservation and water management. To deliver the lectures during the program, eminent scientists and experts were invited as resource persons from NIH Roorkee and Bhopal, WALMI Bhopal, CAFRI, IGFRI Jhansi, IISWC Datia, MAPCOST Bhopal, IPE Global Delhi, Natural Solutions Mumbai, Parmarth (NGO). The schedule of the training programme is given in **Annexure-I**. Total 39 participants were registered for the training programme, the details of registered participants are placed at **Annexure-II**. The day by day activities of training program are given below in detail.

### **Day 1: 18-22 December 2017**

The training program set in motion with the inaugural function organized in the Conference Hall of IGFRI, Jhansi. The Chief Guest of the inaugural function Dr. R V Kumar, Director, IGFRI and Dr. V C Goyal Scientist G & Training Coordinator, NIH, inaugurated the program. In the beginning Training Co-Coordinator, Sh. Ravi Galkate, Sc-E NIH, RC, Bhopal welcomed Chief Guest, resource persons, scientists of NIH, and participants and briefed the motive of organizing the training program. He explained how this training course will help the participants to learn practitioners approach in water conservation including waste water management, watershed development, groundwater recharge, rainwater harvesting etc. He also expressed the necessity of organizing more such training programs in future.

The Chief Guest of the inaugural function Dr R V Kumar, Director, IGFRI, In his speech expressed that the need of water conservation in India, especially in Bundelkhand region. He expressed his gratitude to NIH for organizing this training course for officers from state departments, NGOs, students, research scholars etc. Further, Dr. V C Goyal briefed about the training programme and it's usefulness for the participants. During his lectures he focused on Integrated Water Resources Management (IWRM) planning for water conservation and management. Moreover, he gave an overview of International Hydrological Programme (IHP) in India and outlined the various themes of IHP-VIII programme. IHP's secretariat is housed in National Institute of Hydrology (NIH), Roorkee.

The inaugural function concluded with the votes of thanks by Training Co-Coordinator Dr Jyoti P Patil, Scientist C, Delhi. She thanked the Director, IGFR for providing all the facilities, Dr V C Goyal, Training coordinator for giving opportunity to conduct this training programme at Jhansi. She also thanked to resource persons and participants of the training programme, who gave their consent. The name of resource persons and their topic of lectures delivered on first day are given below.

Lecture 1-2	Dr. Ajit Gokhale, Natural Solutions, Mumbai	Rainwater Harvesting for water conservation Wastewater recycling : Experiences
Lecture 3-4	Dr V C Goyal, Scientist G, NIH	IWRM planning for water conservation and management Indian National Committee (INC) on UNESCO's International Hydrological Programme (IHP)
Lecture 5	Mrs Monalisha Pramanik, IISWC, Datia	Watershed planning using open source softwares
Lecture 6	Dr Rajiv Ranjan, IISWC, Datia	Best irrigation practices for efficient water use productivity on farm

### **Day 2: 19<sup>th</sup> December 2017**

The name of resource persons and their topic of lectures delivered on second day of training program are given below.

Lecture 7	Dr T. R Nayak, NIH, Bhopal	Application of remote sensing and GIS for water conservation practices
Lecture 8	Sh. R. K. Jaiswal, NIH, Bhopal	Water conservation and water management under climate change
Lecture 9-10	Sri Sudhindra Mohan Sharma, Indore	Concept of water security and development of water security plan Hands-on exercises for preparation of water budget
Lecture 11	Er Omkar Singh, NIH, Roorkee	Water budgeting at GP level

### **Day 3: 20<sup>th</sup> December 2017**

The name of resource persons and their topic of lectures delivered on third day of training program are given below.

Lecture 12	Dr T Thomas, NIH, Bhopal	Artificial recharge concepts for water conservation
Lecture 13	Sh. Vivek Bhatt, WALMI, Bhopal	Watershed management approach and water conservation strategies

Lecture 14-15	Dr N G. Srivastava, NIH, Roorkee	Health and management of local water bodies DPR preparation for water conservation projects
Lecture 16	Sh Ravi Galkate, NIH, Bhopal	Drought and Water productivity

#### **Day 4: 21<sup>st</sup> December 2017**

The name of resource persons and their topic of lectures delivered on fourth day of training program are given below.

Lecture 17	Dr. Ramesh Singh, CAFRI, Jhansi	Natural resource management and enhancing livelihood through agroforestry based watershed approach
Lecture 18	Dr. Rajesh Saxena, MPCST, Bhopal	Livelihood linkages with water management
Lecture 19	Dr Sanjay Singh, Parmarth, NGO	Community participation for sustainability of water management
Lecture 20	Dr. Suchit Kr. Rai, IGFR, Jhansi	Climate variability and role of crop simulation in agriculture: special reference to climate change
Lecture 21	Sh Ravi Galkate, NIH, Bhopal	Govt. Schemes and private sector initiatives for water conservation

#### **Day 5: 22<sup>nd</sup> December 2017**

The name of resource persons and their topic of lectures delivered on fourth day of training program are given below.

Lecture 22	Dr Jyoti P Patil, NIH, Delhi	IWRM for economic and social development
Lecture 23	Dr Nihal Singh, NIH, Roorkee	Floating wetlands for rejuvenation of village ponds and lakes
Lecture 24	Dr S. N. Pandey, IPE-Global, Delhi	Bundelkhand-specific issues of water management

The Training Course covered diverse topics on themes including Water Conservation, Water Management, Water Security, Water Budgeting, Wastewater Management, Watershed Management, Groundwater Recharge, Crop Water Planning, Livelihood Linkages with Water Management, Community Participation, Agro-forestry. After number of thoughtful and meaningful interactive sessions during five days of training course, the concluding Valedictory Function was organized at Conference Hall of IGFR, Jhansi. Dr R V Kumar, Director, IGFR was the Chief Guest of the valedictory

function. Sh. Ravi Galkate, Scientist E and training Co-Coordinator, NIH, RC Bhopal highlighted the cooperation extended by NWM, MoWR, RD&GR, GOI in organizing the training course. He assured that, NIH will organize such more programs on specific water issues being faced by the country. There was a free exchange of views and ideas by all the participants who stressed the need for organizing such workshops on a regular basis so that they are able to be at par with the knowhow of the practitioners approach in field. Training Certificates to the participants were distributed by the hands of Dr R V Kumar, Director, IGFRI. Participants of the training course represented the following organizations:

1. Zilla Panchayat, Jhansi, UP
2. Department of Agriculture, Tikamgarh, MP
3. Department of Agriculture, Jhansi, Lalitpur, Orai, UP
4. Zilla Panchayat Tikamgarh, MP
5. Bundelkhand University, Jhansi, UP
6. KVK Tikamgarh, MP
7. IGFRI, Jhansi, UP
8. State Climate Change Centre, Uttarakhand
9. SPS Dewas, MP
10. BHU, Varanasi.
11. MANIT, Bhopal, MP
12. Rani Laxmi Bai College of Agril., Jhansi, UP
13. CSIR-CIMFR, Bilaspur, CG
14. Bipin Bihari College, Jhansi, UP
15. IEDS, Bundelkhand University, Jhansi, UP
16. Department of Environmental Science, Bundelkhand University, Jhansi, UP

A feedback about the training course was obtained from the participants for Course Evaluation. The Training Course Evaluation Summary is given in **Annexure-III**.

### Summary-sheet of the Training Course

Title of course	“Water conservation practices through adaptation of appropriate management and technological interventions: a practitioners approach”
Funding support	National Water Mission Ministry of Water Resources, RD & GR (Gol)
Training duration	5 days (18-22 Dec 2017)
Venue	IGFRI, Jhansi
Mode of training	Lectures, demonstrations/field visit
Number of lectures	23
Number of faculty members	17 Research & Training Institutions: 13 Industry, Consultant, NGO: 4
Number & type of organizations of the faculty members	Research & Training Institutions: 3 Industry/Consultant/NGO: 4
Number of participants	39
Number & type of organizations of the participants	Academic:10 Research:13 Line departments:14 NGO:02
Number of participants who submitted the feedback form	35
Overall grading of the feedback	8.77 out of 10.00
Team of organizers	Coordinator: Dr V C Goyal, Scientist ‘G’, NIH Roorkee Co-coordinator-1: Er Ravi Galkate, Scientist E, NIH Bhopal Co-coordinator-2: Dr Jyoti Patil, Scientist C, NIH-LCU Delhi

**Training Photographs**

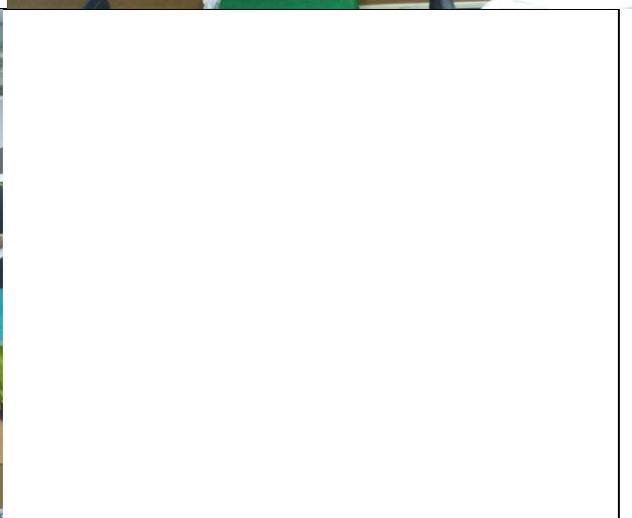
**Inauguration**



**Lectures, group task, discussion and valedictory**







Training Schedule

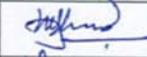
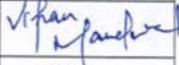
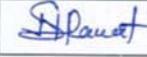
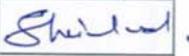
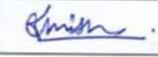
Day	Time	Topic	Faculty/Resource Person
<b>Day-1</b>			
December 18, 2017 Monday	0900 hrs – 1000 hrs	<b>Registration</b>	
	1000 hrs – 1030 hrs	<b>Inauguration of the training programme</b>	
	1030 hrs – 1200 hrs	Rainwater Harvesting for water conservation	Dr. Ajit Gokhale, Natural Solutions, Mumbai
		Wastewater recycling : Experiences	
	1200 hrs – 1230 hrs	<b>Inaugural Tea</b>	
	1230 hrs – 1330 hrs	IWRM planning for water conservation and management	Dr V C Goyal, NIH
		Indian National Committee (INC) on UNESCO's International Hydrological Programme (IHP)	
	<b>1330 hrs – 1430 hrs</b>	<b>Lunch</b>	
	1430 hrs – 1530 hrs	Watershed planning using open source softwares	Mrs Monalisha Pramanik, IISWC, Datia
	1530 hrs – 1600 hrs	<b>Tea</b>	
1600 hrs – 1700 hrs	Best irrigation practices for efficient water use productivity on farm	Dr Rajiv Ranjan, IISWC, Datia	
<b>Day-2</b>			
December 19, 2017 Tuesday	0930 hrs – 1030 hrs	Application of remote sensing and GIS for water conservation practices	Dr T. R Nayak, NIH, Bhopal
	1030 hrs – 1100 hrs	<b>Tea</b>	
	1100 hrs – 1200 hrs	Water conservation and water management under climate change	Sh. R. K. Jaiswal, NIH, Bhopal
	1200 hrs – 1300 hrs	Concept of water security and development of water security plan	Sri Sudhindra Mohan Sharma, Indore
	<b>1300 hrs – 1430 hrs</b>	<b>Lunch</b>	
	1430 hrs – 1530 hrs	Hands-on exercises for preparation of water budget	Sri Sudhindra Mohan Sharma, Indore
	1530 hrs – 1600 hrs	<b>Tea</b>	
	1600 hrs – 1700 hrs	Water budgeting at GP level	Er Omkar Singh, NIH, Roorkee
<b>Day-3</b>			
December 20, 2017 Wednesday	0930 hrs – 1030 hrs	Artificial recharge concepts for water conservation	Dr T Thomas, NIH, Bhopal
	1030 hrs – 1100 hrs	<b>Tea</b>	
	1100 hrs – 1200 hrs	Watershed management approach and water conservation strategies	Sh. Vivek Bhatt, WALMI, Bhopal
	1200 hrs – 1300 hrs	Health and management of local water bodies	Dr N G. Srivastava, NIH, Roorkee
	<b>1300 hrs – 1430 hrs</b>	<b>Lunch</b>	
	1430 hrs – 1530 hrs	DPR preparation for water conservation projects	Dr N G. Srivastava, NIH, Roorkee

	1530 hrs – 1600 hrs	<i>Tea</i>	
	1600 hrs – 1700 hrs	Drought and Water productivity	Sh Ravi Galkate, NIH, Bhopal
<b>Day-4</b>			
<b>December 21, 2017</b> Thursday	0930 hrs – 1030 hrs	Natural resource management and enhancing livelihood through agroforestry based watershed approach	Dr. Ramesh Singh, CAFRI, Jhansi
	1030 hrs – 1100 hrs	<i>Tea</i>	
	1100 hrs – 1200 hrs	Livelihood linkages with water management	Dr. Rajesh Saxena, MPCST, Bhopal
	1200 hrs – 1300 hrs	Community participation for sustainability of water management	Dr Sanjay Singh, Parmarth, NGO
	<b>1300 hrs – 1430 hrs</b>	<i>Lunch</i>	
	1430 hrs- 1530 hrs	Climate variability and role of crop simulation in agriculture: special reference to climate change	Dr. Suchit Kr. Rai, IGFRI, Jhansi
	1530 hrs- 1630 hrs	<i>Tea</i>	
	1600 hrs – 1700 hrs	Govt. Schemes and private sector initiatives for water conservation	Sh Ravi Galkate, NIH, Bhopal
<b>Day-5</b>			
<b>December 22, 2017</b> Friday	0930 hrs – 1030 hrs	IWRM for economic and social development	Dr Jyoti P Patil, NIH, Delhi
	1030 hrs – 1130 hrs	Floating wetlands for rejuvenation of village ponds and lakes	Dr Nihal Singh, NIH, Roorkee
	1130 hrs – 1200 hrs	<i>Tea</i>	
	1200 hrs – 1300 hrs	Bundelkhand-specific issues of water management	Dr S. N. Pandey, IPE-Global, Delhi
	1300 hrs -1430 hrs	Valedictory Function (Certificate distribution/ Feedback of participants)	
	<b>1430 hrs onwards</b>	Experience sharing session Samaj Pragati Sahyog (Melghat) <i>Lunch</i>	

Attendance Sheet 5-days training course on "Water conservation practices through adaptation of appropriate management and technological interventions: a practitioners approach" Under National Water Mission Programme: Venue: IGFR, Jhansi: 18-22 December, 2017

## REGISTRATION SHEET

	<b>National Institute of Hydrology, Roorkee</b> (Ministry of Water resources, River development & Ganga rejuvenation, GOI)	<b>ISO</b>  <b>9001:2005</b>
	5-days training course on "Water conservation practices through adaptation of appropriate management and technological interventions: a practitioners approach" Under National Water Mission Programme  IGFR, Jhansi: 18-22 December, 2017	

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Attendance Sheet 5-days training course on "Water conservation practices through adaptation of appropriate management and technological interventions: a practitioners approach" Under National Water Mission Programme: Venue: IGRI, Jhansi: 18-22 December, 2017

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13	Devendra Singh Niranjan	B.S.A. Lalitpur TI maltraum	Mirunjan devendra 2017@gmail.com	9235629776	
27	Rameshwar Singh Karmarth	ZP- Tikamgarh	rammcsaj@gmail.com	9589136561	
28	Taral Singh Hafit	ZP- Tikamgarh	TaralSinghHafit@gmail.com	7880444735	
42	Umesh Kumar Mishra	BBC- Jhansi	umsmishra10@gmail.com	9559059346	

**Training Course Evaluation Summary**

<b>S. No</b>	<b>Name of participant</b>	<b>To what degree did this course contain information and/or skills that were: (out of 5)</b>	<b>To what extent were the goals &amp; objectives of the course achieved? (out of 5)</b>	<b>Was there balance between theory/discussion/activities? (out of 5)</b>	<b>How well presented was the information? (out of 5)</b>	<b>Will you be able to use the information and /or skills in your current or future roles? (out of 5)</b>	<b>Your overall grading of the course on a scales of 10?</b>
1	Indu	5	5	5	5	5	10
2	Raj Laxmi	4	4	4	5	5	9.5
3	Umesh kumar Mishra	5	5	4	5	5	08
4	Niket Mishra	5	4	3	5	5	08
5	Vijiyata Singh Rathour	3	5	5	5	5	09
6	Shahab Uddin Siddiqui	4	4	4	5	5	08
7	Devendra Singh Niranjan	5	5	4	4	4	08
8	Aradhana Thakur	5	5	4	5	5	10
9	Liansangpuui	5	5	4	5	5	9.5
10	Dinesh Kumar	5	5	5	5	5	09
11	Ram kumar Tripathi	5	5	4	5	5	09
12	Wphat singh Dhrkad	4	5	5	5	4	09
13	Anil Jaiwal	4	4	5	5	4	09
14	Dr. Suresm Band Goswami	4	5	5	5	5	08
15	Bharat Ramvansi	5	5	4	5	5	09
16	Shri Govind	5	5	4	5	5	09
17	Priyanka Singh	5	5	5	5	5	09
18	Survchi Devi	5	5	5	5	4	09
19	Nidhi Kansoriya	5	5	4	5	5	09
20	*****	4	4	5	5	4	09

21	Dinesh Kumar	5	5	5	5	5	10
22	Raj Bahadur	5	5	5	5	5	10
23	Anshu Gangwar	4	5	5	4	5	09
24	Pushpendra Kumar	4	5	5	5	5	08
25	Vikash Singh	4	5	5	4	5	10
26	Rameshwar Singh Kamariya	5	4	5	4	4	09
27	*****	1	2	1	1	1	01
28	Shree Ganesh	5	5	5	5	5	10
29	Jamshed Zaidi	5	5	5	5	5	08
30	Dr. Amit Pal	5	4	4	5	5	09
31	Jaspal Singh Napit	5	5	5	4	4	09
32	Vipan Mandwal	4	4	5	4	5	09
33	Neeraj singh	4	4	5	4	5	08
34	Shuirendra Singh Rana	4	4	4	5	5	10
35	Aparajita Singh	5	4	4	5	5	09
	<b>Overall avg.</b>	<b>4.5</b>	<b>4.6</b>	<b>4.5</b>	<b>4.7</b>	<b>4.7</b>	<b>8.77</b>

\*\* \*\* : Name not indicated