FIRST NATIONAL TRAINING WORKSHOP FOR SPEARHEAD TEAMS OF THE GANGA RIVER STATES ON "BIODIVERSITY CONSERVATION AND MONITORING OF AQUATIC SPECIES OF GANGA RIVER" FROM 6TH TO 12TH NOVEMBER 2017

DETAILED REPORT

Introduction

The Wildlife Institute of India (WII), DehraDun under the project "Biodiversity Conservation and Ganga Rejuvenation" conducted its first National Training workshop for spearhead teams for forest department of the Ganga River states on "Biodiversity Conservation and monitoring of aquatic species of Ganga River", from 6th to 12th November 2017. The workshop was attended by 36 forest officials from Chief Conservator of Forests to forest guards, of the four Ganga River states, namely Uttar Pradesh, Bihar, Jharkhand and West Bengal. The main focus of this workshop was to train the officers and frontline staff with the skills and capacities required for the biodiversity monitoring, conservation and management of the riverine species along the Ganga River. The objective of the workshop was to form spearhead teams for each of the Ganga River state and train them in the areas of aquatic biodiversity monitoring for practical and action-oriented implementation of science-based research carried out by the WII. These trained spearhead teams will train other frontline staff for successful biodiversity monitoring and restoration of the Ganga River.

Date and Venue

The training workshop was held from 6th to 9th November, 2017 at Wildlife Institute of India, Dehradun, Uttarakhand. Subsequently, a field visit was organized from 10th to 12th November, 2017 at the National Chambal Sanctuary, Morena (MP). The workshop was divided into five sessions (Annexure I).

Team members

Resource persons and WII team comprised of following persons: Dr. Ruchi Badola, Scientist G; Dr. S. A. Hussain, Scientist G; Dr. Bitapi C. Sinha, Scientist G; Shri Qamar Qureshi, Scientist G; Dr. V. P. Uniyal, Scientist F; Dr. Bivash Pandav, Scientist F; Dr. B. S. Adhikari, Scientist F;

Dr. Gopi G. V., Scientist E; Dr. S. K. Gupta, Scientist E; Dr. J. A. Johnson, Scientist E, Dr. Anju Baroth; Dr. B. K. Mishra, Former scientist WII, Dr. Abhijit Das, Scientist C; Dr. Sangeeta Angom, Training Coordinator; Dr. Pariva Dobriyal, Project Scientist; Dr. Niladri Dasgupta, Project Scientist; Dr. Shivani Barthwal, Project Associate; Dr. Deepika Dogra, Project Associate; Dr. Ajit Singh, Project Associate; Ms. Monika Sharma, Project Fellow; Ms. Aditi Dev, Project Fellow; Ms. Amanat K. Gill, Project Fellow; Ms. Anita Devi, Project Fellow; Ms. Ekta Sharma, Project Fellow; Ms. Michelle Irengbam, Project Fellow; Mr. Ravindra N Tripathi, Project Fellow; Ms. Dimpi Patel, Project Fellow; Ms. Shatakshi Sharma, Project Assistant; Ms. Sunita Rawat, Resource Person; Ms. Shashi Joshi, Resource Person; Mr. Sartaj Ahmad, Resource Person; Ms. Monika Mehralu, Project Intern; Mr. Ajay P Rawat, Field Assistant.

Participants

The training workshop was attended by 36 forest officials from four Ganga State. The training workshop was attended by 6 officials from Uttar Pradesh; 13 officials from Bihar; 7 officials from Jharkhand and 10 officials from West Bengal Forest Department. Detail list of participants is provided in the annexure II.

Day 1

Day 1 emphasis was on theoretical understating of the biology, ecology, monitoring methods for various taxa *viz.* Waterbirds, Dolphins, Crocodiles, Turtles and Otters. The session started at 9:00 am with the registration of the participants. Dr. G.S. Rawat, Dean, WII inaugurated the workshop with an opening remark on the importance of biodiversity conservation and monitoring techniques of indicator species of Ganga River. Dr. Ruchi Badola, welcomed the participants and introduced the WII-NMCG Ganga team followed by a round of introduction of the participants. Dr. Badola gave a brief overview about the project objectives and its goals, threats and mitigation practices of the Ganga River. She also gave a concise overview of the different activities carried under the WII-NMCG project.

Dr. Sangeeta Angom, Training Coordinator briefed the objectives of the workshop, role of spearhead teams of the five Ganga States. She focused on the importance of capacity building programs through the trained spearhead team of fellow frontline staff of respective forest department, for ecological monitoring and restoration of the Ganga River. She also gave a brief outline about the lectures and activities to be conducted during the different sessions of the training programme. Simultaneously, the participants were asked to fill a form about their expectation from the workshop.

Shri Qamar Qureshi, Scientist G gave a talk on the topic “Monitoring of Gangetic River Dolphin”. He started his talk by citing a shloka from the Mahabharata, “If Tiger is present in the forest then the forest is healthy” because the tiger helps in maintaining the ecological balance of the forest. He also explained why monitoring is needed, what methodology to be

adopted for dolphin census and what is the best time of monitoring? When dolphin monitoring is done, three types of biases arise such as observer, availability and coverage bias. The double observer method, with the well-trained observers is best method for monitoring of dolphin to minimize the error. An instrument, Hydrophone, is used for recording the Dolphins voice, it records the Dolphin's voice within a radius of 400 metres (Pinpoints location). He informed that there are only 1800 individuals of Dolphin left in the Ganga and Brahmaputra rivers. He also discussed about the major threats causing the decline in population like the extraction of water, reduced water flow and 97% of water being diverted for irrigation and industrial purpose. He also explained that the major threat causing the declining dolphin population is physical barrier. Other threats such as excessive fishing, fragmentation of river habitat, use of fishing net, poaching for oil, water pollution (bio-accumulation), loss of habitat availability, dredging, mining are also responsible for decline in Gangetic river dolphin's population. He also discussed the morphology, physiology, present status and trend of the Gangetic River Dolphin. He gave a demo as to how a datasheet should be filled during Dolphin census, and the variables and parameters to be considered. During session the participants also interacted and cleared their doubts about the behaviour pattern and counting techniques of the Gangetic River Dolphin.

Dr. Gopi G. V., Scientist E, gave a talk on "Monitoring techniques of Waterbirds" and brief introduction on the different species of skimmers present in the world i.e., Indian skimmer, African skimmer and Black skimmer. Then he went on to explain the significance of Ganga River, how local communities are dependent on the Ganga River for religious activities, commercial and industrial activities. He also talked about the biodiversity of the Ganga River, which is a home to 197 species (144 water birds and 53 waters associated birds) and aquatic birds belonging to 33 families. He talked about the importance of water birds; state wise distribution of bird species along the stretches of the Ganga River; threatened species, their significance, status, habitat and threats. He also emphasised on the priority species of the Ganga River and discussed the issues regarding the extinction of birds from India. He taught as to what a Ramsar site is and the criteria to be met to declare a Ramsar site. It was learned that if any area or point supports 20,000 or more bird diversities then that area is declared as a Ramsar Site. A detailed account of the methodology used in monitoring process, breeding season of different species was also given. It was mentioned that during the winter season migratory birds are seen and at this time population estimation can be done. The total count method was also explained, which is a best method for counting the water fowls since they roost at one place. Other methods such as line transect and point counts are also used along the stretches of the Ganga River for both water birds and terrestrial birds.

Post lunch, the session started with a talk by Dr. Bivash Pandav, Scientist F, on "Monitoring of turtles". He stated the difference between turtle and tortoise, and went on to discuss the taxonomy, morphology, biology, distribution, mating behaviour and population studies of turtles. It was informed that Turtles are found everywhere except Arctic and Antarctic. In

India a total of 23 species of turtles are recorded, of which 13 are found in the Ganga River and 4 species of tortoises are present in India but not in the Ganga River. It was also taught that most of the turtles, especially hard shell show sexual dimorphism. In case of hard shell turtles, the male has concave plastron while in female the plastron is flat. In turtles, gender is determined by incubation temperature. High incubation temperature produces female, while low temperature produces male, which is totally opposite in larger reptiles like crocodiles. A precise overview regarding the importance of turtle in the Ganga River and methodology of population estimation e.g., the mark capture-recapture technique was also given. Dr. Pandav concluded his talk by discussing the threats such as illegal trade of turtles for meat and pet. It was stated that West Bengal is the main centre of trade and supply of turtles into Bangladesh and north-eastern countries.

Dr. Gopi G. V., gave a presentation on the "Monitoring of crocodiles". He discussed about the biology, habitats, distributional range, identification characters and the difference between male and female crocodilian species. He explained the morphological difference between an alligator and crocodile; alligator has a very broad U-shaped snout, lower jaw is smaller than the upper jaw, only teeth from upper jaw are seen while in crocodile its narrow V-shaped, interlocking of both teeth is visible. He emphasised on sand mining being one of the major threats to Gharials and Crocodiles since these species nests on fine sand. He talked about the feeding habits of crocodilian species, stating that Gharial is piscivorous (fish eater) and crocodiles are omnivores. The reproductive strategy for crocodilian species was explained, in case of Mugger and Gharial nesting is done in sand, while salt water crocodile do mound nesting and they show very strong parental care. The methodology used for counting the individuals was taught. It was informed that winter season is best for monitoring of crocodilian species since they come out from water for basking. During the winter season, direct count and spot light surveys are suitable method for counting and in breeding season nest count method is used. He also discussed about the other major threats like fish nets, water abstraction, agriculture, industrialization, pollution due to which the population of crocodile is declining.

The last lecture of the technical session was given by Dr. Niladri Dasgupta, Project Scientist, WII, on the "Measuring and Monitoring of River Variables". During his lecture, he discussed different aspects of rivers such as definition of a river; types of river; lateral, longitudinal and vertical connectivity of river; its source, headwaters, tributary, delta and estuary. He explained the classification of rivers in India based on its physical and biological characteristics, importance of the Ganga River and its biodiversity; factors affecting the biodiversity of the Ganga River. He stated that the Ganga River is divided into three stretches, the upper stretch is from Gaumukh to Haridwar, middle stretch is from Haridwar to Varanasi and lower stretch is from Varanasi to Ganga Sagar. Dr. Dasgupta also defined the characteristic features of river such as water depth, river width, river flow-surface flow, velocity and volumetric flow. The different variables and parameters to measure the river; identification of potential sites for intervention; different parameters to defined the physio-

chemical characteristics, these are physical, chemical and microbiological parameters were also informed. He defined the terms of Bio-magnification and bio-accumulation, Bio-monitoring which includes anthropogenic pressures or impacts and other threats to be identified and at the end of his lecture he described the Acts, Rules and Policies related to river.

PROGRAMME SCHEDULE

National Training workshop for Spearhead Teams on "Biodiversity Conservation and monitoring of aquatic species of Ganga River"		
6th Nov. 2017	**Technical session I: Ecological Monitoring**	**Resource persons**
0900-0930	Registration	**Ms. Monika Sharma /Ms. Anita Devi, Ms. Shatakshi Sharma**
0930-0940	Inaugural Address	**Dr. G.S. Rawat, Dean, WII**
0940-1020	Project Biodiversity Conservation and Ganga Rejuvenation: An overview	**Dr. Ruchi Badola**
	Workshop Objectives, Role of Spearhead Team and Expectations	**Dr. Sangeeta Angom**
1020-1050	**Tea**	
1050-1130	Monitoring of Waterbirds	**Dr. Gopi G.V.**
1130 -1215	Monitoring of Gangetic River Dolphin	**Dr. Qamar Qureshi**
1215 -1300	Monitoring of Otters	**Dr. Niladri Dasgupta**
1300 - 1400	**Lunch**	
1400 - 1445	Monitoring of Turtles	**Dr. Bivash Pandav**
1445 -1530	**Tea**	
1530 -1600	Monitoring of Crocodiles	**Dr. Gopi G.V.**
1600 -1630	Measuring and Monitoring of River Variables	**Dr. Niladri Dasgupta**
1630-1700	Interactive Session	
7th Nov.	**Technical session II: Ecological Monitoring (contd.)**	

2017		
0700 - 0830	WII Nature Trails - Monitoring of Aquatic and Riparian Vegetation	**Dr. B. S. Adhikari and Dr. Amit Kumar/ Mr. Saklani**
0900 - 1000	**Tea**	
1000-1040	Monitoring of Amphibians and Snakes	**Dr. Abhijit Das**
1040-1120	Monitoring of Fish Population	**Dr. J. A. Johnson**
1120 - 1200	Monitoring of Aquatic Invertebrates	**Dr. V.P. Uniyal**
1200 -1240	Monitoring of Water Quality and Ecotoxicology	**Dr. Anju Baroth**
1240 - 1330	**Lunch**	
1330 - 1530	Forensic Lab: Biological Sample Collection and Genetic Monitoring	**Dr. Sandeep Gupta**
1530-1600	**Tea**	
1600 -1630	Group Discussion	
8th Nov. 2017	**Participatory Management**	
0930-1020	Community Participation in Conservation of Ganga River	**Dr. B.K. Mishra**
1020-1050	**Tea**	
1050-1130	Sustainable Livelihood Opportunities: Site Specific Livelihood Strategies for People Dependent on Ganga River	**Dr. Ruchi Badola**
1130 -1210	Team Building of "Biodiversity Conservation and Ganga Rejuvenation"	**Dr. B.K. Mishra**
1210-1300	Group activity Part 1: Community Linkages with Ganga River	**Ms. Monika Sharma & Ms. Michelle Irengbam**
1300 – 1400	**Lunch**	
1400 - 1500	Group activity Part 2: Stakeholder Analysis	**Dr. Shivani Barthwal & Dr. Sangeeta Angom**

1500 -1530	Wrap-up Session	
1530 Onwards	Local Field Visit	**Dr. Niladri Dasgupta, Dr. Deepika Dogra, Ms. Anita Devi, Ms. Ekta Sharma, Mr. Ajay Rawat**
9th Nov. 2017	**Conservation Education**	
0930-1030	Conservation Education: A tool for Eliciting Public Support	**Dr. Bitapi Sinha**
1030-1100	**Tea**	
1100-1130	Identifying Stakeholders for Conservation Education	**Dr. Bitapi Sinha**
1130 -1200	Group Activity on Designing Education Materials	**Dr. Bitapi Sinha**
1200 - 1300	**Valedictory function**	
1300-1400	**Course Lunch**	
10th to 12th Nov. 2017	**Field Training Session**	
	National Chambal Sanctuary, Morena (MP) (10th to 12th November, 2017)	**Dr. S.A Hussain, Dr. Gopi G. V. Dr. Sandeep Gupta and Dr. Niladri Dasgupta** **Ms. Aditi Dev and Ms. Monika Sharma**

PHOTO GALLERY


Workshop Objectives
Develop capacity of Forest Officials for Ganga River States in :
Monitoring of aquatic species of conservation Significance.
Participatory management : Community involvement in Co nservation.
Conservation education.

Day 2

On the 2nd day, the session started with a field visit at the Nature trail of Wildlife Institute of India campus at 7:00 am. Nature trail was led by the Drs. B. S. Adhikari, Scientist F, and Amit Kumar. During the visit, the participants were explained about the major tree species of the nature trail; ecological importance of the plants species like *Ficus* spp which helps in maintaining the bird diversity. Dr. Amit Kumar explained the different species of Ficus and its identification characters, he also informed about the new species of spider recorded by WII. They were also given a overview about the sampling techniques used for the monitoring of aquatic vegetation; riparian vegetation along the banks of the Ganga River and its significations were also discussed. Other than vegetation, the participants were also told about the migratory and resident birds, history of lake and origin of Asan River.

After the visit, Dr. Sangeeta Angom began the session by addressing the concerns of the participants about poaching and decline of species in the Ganga River. Dr. Abhijit Das, Scientist C, gave a talk on the "Monitoring of Herpetofauna" and talked about the biology of herpetofauna, their importance and monitoring protocol. He also explained the importance of amphibians, which act as an indicator of pollution. Other than this, he also informed about the different techniques used for Snake handling. After this, Dr. J.A. Johnson, Scientist E, gave a talk on the topic "Monitoring River Ecosystem using Fish community". During his session, he covered topics related to river ecosystem, river continuum concept, food chain, role of the organism in keeping the river ecosystem healthy, the basis on which a river is considered healthy, foundation for river monitoring and framework, biological monitoring of fish species that can serve as an indicator species along the stretch of the Ganga River.

Dr. V.P. Uniyal, Scientist F, explained about the monitoring techniques of aquatic invertebrate. Dr. Uniyal explained the importance of invertebrates and their role in an ecosystem. He also mentioned about the presence of tiger beetle which is an indicator of the health of forest. He explained the factors determining the selection of indicator species and the datasheet used for monitoring of insects.

Dr. Anju Baroth, Scientist C, talked about the water quality monitoring and eco-toxicology. She explained about the water cycle, usage of water, relevance of water monitoring and regulations to control pollution with specific focus on Water (Prevention & Control of

Pollution) Act, 1974 - wholesomeness of water. She also talked about the factors responsible for the water quality degradation, concept of eco-toxicology, by citing an example of decline in vulture population due to Diclofenac and also explained about the concept of bio-magnification and bio-accumulation.

After the technical session the Spearhead Teams along with WII Project personnel visited Forest Research Institue (FRI), as a part of the Training Course. Dr. Ombir Singh, Scientist 'E', FRI Dehra Dun welcomed the participants in the FRI Campus. He briefed about the functions of FRI and presented the achievements of FRI since the time of its establishment. He also talked about the DPR that has been prepared by FRI as Forestry Intervention for rejuvenation of Ganga River and interacted with the participants about how the Forest Departments of the Ganga States and FRI can work together to restore the Ganga River catchment. They interacted about the different plants and tree species that can be planted along the river according to different geo-climatic conditions of the 4 States. The Spearhead teams visited the Silviculture Museum and took a tour of the FRI campus.


Insects :
Role in Ecosystem
V.P. Uniyal
Professor & Scientist -F

Day 3

The module of the day was participatory and community based conservation. Dr. B.K. Mishra was the resource person of the day. The session started with a brief introductory session by Dr. B.K. Mishra followed by the first group activity of the day.

Group activity 1: Five sheets of papers with different colours were placed on the walls of the Porta cabin and the participants were asked to stand in front of the colour they liked the most resulting in the formation of five groups: white, yellow, blue, green and red. The groups were then asked to discuss and write down the importance of their colour and why they liked it. This was followed by a group presentation from each group. The purpose of the activity was to point out the equal importance of the role of each stakeholder group, which is similar to the presence and importance of each colour in our life.

Group activity 2: For the second activity, the participants were divided into three groups. A closed box containing miscellaneous items was shown to each group. The first group had to guess the contents of the box only by listening to the sounds. The second group was allowed to briefly touch the objects in the box, without looking into the items and guess the contents. The third group was allowed to see the contents of the box. After this activity, the groups were asked to write down the items they think or remember to be inside the box. Group 1 could guess only 5 items and many of them were wrong guesses. The second group fared a little better than the first group, while the third group could write down most of the items. The task of jotting down the contents of the box was based on mutual consensus within a group. Drs. Mishra and Badola, asked the group members how they felt while performing their tasks. Group one was similar to the top officials who guessed the contents of the box through their past experiences and also through information by sub-ordinates. The second group was akin to the middle level managers, and the third group represented the ground level staff, who dealt with issues first hand. The purpose of the activity was to point out the role played by different levels of employees within an organization or a department, and the importance of participation of all levels. The activity also pointed to the kind of participation levels.

Thereafter, Dr. B.K. Mishra gave a brief presentation on the various approaches towards participatory conservation. This was followed by the team building activity, which was the third activity of the day.

Group activity 3: For the team building activity, the team was again divided into three groups. The team members were then assigned different roles. Five members from each group had to make squares from the three pieces of the paper provided to them. They were allowed to exchange the pieces of paper clockwise among their groups, without any conversation until five squares of equal size were made. The group which completed the five squares first, informed the other participants that they kept in mind that all five squares have to be made for the exercise to be completed, so everyone's focus was on making all

five squares, rather than just an individual's square. The last group to complete the exercise had members who were not willing to let-go with the pieces of paper that they had and their focus was on completing only their square, rather than group's. The purpose of the activity was to point out the importance of team work to the participants.

After the technical sessions, the Spearhead Teams along with training personnel proceeded for Haridwar to attend the "Ganga Aarti". On the way the team took a brief halt at the Rajaji Corridor Dehradun–Haridwar route. WII researchers Mr. Deepan Chakravarthy and Mr. Aisho Sharma briefly described the Rajaji National Park and its biodiversity. They explained how the road and the railway line is a barrier to the movement of the mega-fauna like elephants and tiger. They also pointed out that the vehicular traffic upping the air pollution and noise scaring the animals away. The participant's shared similar management issues in their respective areas of jurisdiction. They suggested that there should be a common platform where different stakeholders/departments could interact before the commencement of such projects to bridge the gap between planning and implementation of wildlife acts and laws. Thereafter the team visited Haridwar for 'Ganga Aarti'.








Day 4

The technical session of the day 4 was mainly based on “Conservation education”, and was conducted by Dr. Bitapi Sinha, Scientist G. During the session, she talked about the role of interpretation in raising the awareness amongst the people, she also informed that during the historical time in India people used different forms of interpretation like Katha, Nukkad

Natak. By giving an example of role of mobile phone in everyone's life, she explained about creating connections to make the awareness programme more interesting. During the session a group activity was conducted, in which one of the participant was asked to explain about a picture to other participants. Based on the explanation the other participants made a sketch of that picture. In the second step of the activity, the participants were asked to draw a sketch and they were informed to ask questions among the participant about the picture, which resulted in creating awareness among the masses in the society. With the help of this activity the participants were explained about the importance of proper communication and dissemination of accurate information. Later on, she spoke on the tangible, intangible resources and universal concepts of interpretation. To clarify more appropriately she played a video on puppet show conducted by the team previously. She highlighted that the efficiency of interpretation with the help of emotions and accurate information makes a campaign successful. At the end of the session she explained the two techniques used for interpretation.

After the completion of the technical session, the valedictory function of the workshop was organised at the auditorium of Wildlife Institute of India, Dehradun. Dr. Raghav Langer, Director and Additional Secretary, State Project Management Group, Namami Gange, Uttarakhand was the chief guest for the event. Dr. Ruchi Badola welcomed the august gathering to the event. Dr. Sangeeta Angom, Training Co-ordinator presented the course report, which was followed by the address by the Director Wildlife Institute of India, Dr. V.B. Mathur. In his address Dr. Mathur said that the actions in the field are to be spearheaded by the trained spearhead team. He emphasized on the role and importance of having a hierarchically vertical team, where the frontline staff are crucial for getting the work done in field. More such training workshops are to be planned in the near future, since for rejuvenation of Ganga River a large number of human forces are required. Dr. Raghav Langer, in his address to the gathering stated, that the Ganga River in the state of Uttarakhand is facing major challenge in terms of water abstraction, while in other four states pollution is the major challenge for the Ganga River. Dr. Langer, informed the gathering that this was his third visit to the WII and during his previous visits he had been sensitized on the need and importance of biodiversity conservation, with special reference to Ganga River. Dr. Langer also emphasized on the need for carrying out sensitization workshops for the partners of SPMG in all the Ganga river states. The valedictory function culminated with certificate distribution to the participants.

Day 5

On the 5th day, the Spearhead Teams along with Training team of WII-NMCG left WII campus, Dehra Dun at 7:30 am and reached Morena, Madhya Pradesh at 9:30 pm.

Day 6

The 6th day started with field training with a trip to Eco-centre, Morena, a Gharial and turtle rearing centre of Madhya Pradesh Forest Department (MPFD), at National Chambal Sanctuary. The Spearhead teams were welcomed by Dr. S.A. Hussain at Eco-Centre, where

he shared the objective of the field visit to National Chambal Sanctuary. He gave a brief description of the Chambal River and the National Chambal Sanctuary. Emphasising the significance and importance of the Sanctuary along with its biological diversity, he pointed the threats and management issues of the Sanctuary. After de-briefing, the participants visited the Museum inside the Eco-centre where participants were taught about the identifying characteristics of different aquatic fauna of the River, especially gharial, mugger and freshwater turtles. Afterwards the participants visited the gharial and turtle rearing ponds where ex-situ conservation of endangered turtles like Red-crowned roofed turtle (*Batagur kachuga*), Three-striped roofed turtle (*Batagur dhongoka*), Indian Narrow-headed soft shell turtle (*Chitra indica*) and gharial were being carried out. Dr. Hussain and Dr. Gopi G.V. explained the ex-situ rearing techniques and importance of such centres in conservation of endangered species. The participants interacted with staffs of MPFD and, Dr. Hussain and Dr. Gopi responded to their queries.

After the interactive session at Eco-centre, the participants visited the Chambal river at Rajghat (Morena), where they were given data sheets for assessing river morphometry and survey techniques for riverine fauna. The WII training team consisted of Dr. Gopi G.V., Dr. Niladri Dasgupta and Mr. Suyash Katdare. The participants were taught to assess river morphology and identification of some important aquatic species along with knowledge on their life history stages for e.g. identification of adult, sub-adult and juvenile size classes of each group. They were taught about the different monitoring techniques of water birds and their habitats with their key identification features. The Team then took a trip from Jaitpur to downstream of Rajghat, about 10 km stretch of the River. The team observed a number of key aquatic fauna like gharial, mugger, turtles and river dolphin. With the help of WII training team, the participants learned to identify those species and their age groups. Showing different anthropogenic activities like water extraction, agriculture and mining activities, Dr. Niladri explained the management issues of a river sanctuary and interacted with the participants about preventive and mitigation measures. The participants shared their ideas and views about their own experience in handling such aspects within their own respective field of work. The participants came back to Morena and the day ended with dinner with WII training team.


ECO-CENTRE


NATIONAL CHAMBAL SANCTUARY, MORENA FLAMINGO

Day 7

On the 7th day, the Team gathered at Eco-centre at 10 am. Dr. A.A. Ansari, DFO, Morena, welcomed the Team at the conference hall of the Centre. After a brief account about the National Chambal Sanctuary, a documentary was shown to the participants about the biodiversity of the Chambal River. He interacted with the participants and shared his experience in conservation issues and challenges faced by forest department. He also talked about the functions of the Eco-centre in conservation of gharial and turtles. Dr. Hussain talked about environmental flows (e-flows) and explained how e-flows are necessary to manage river ecosystems and conserve ecosystem service values citing an example from Chambal River. The session ended with lunch. On the 13th Nov the team started from Morena at around 8 am and reached WII, DehraDun at around 7 pm.

FEEDBACK FORM EVALUATION:

Grading of the Course: The below pie chart (figure 1) depicts overall course grading given by participant. Out of total, 88% of the participants grade the course excellent, while 12% grade very good.

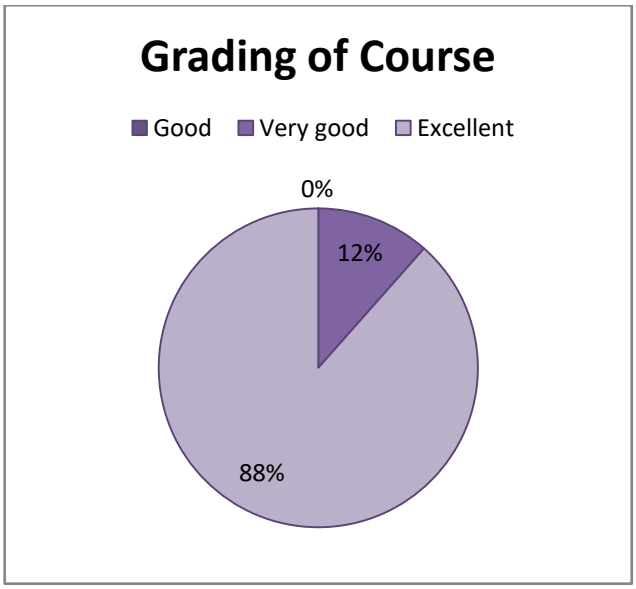

Figure 1: Grading of the course given by participants

***Views about facilities provided during the training workshop*:** The below graph (figure 2) explains about the grading of facilities provided during the training workshop. All the participants positively respond to the facilities and arrangements provide during their training visit.

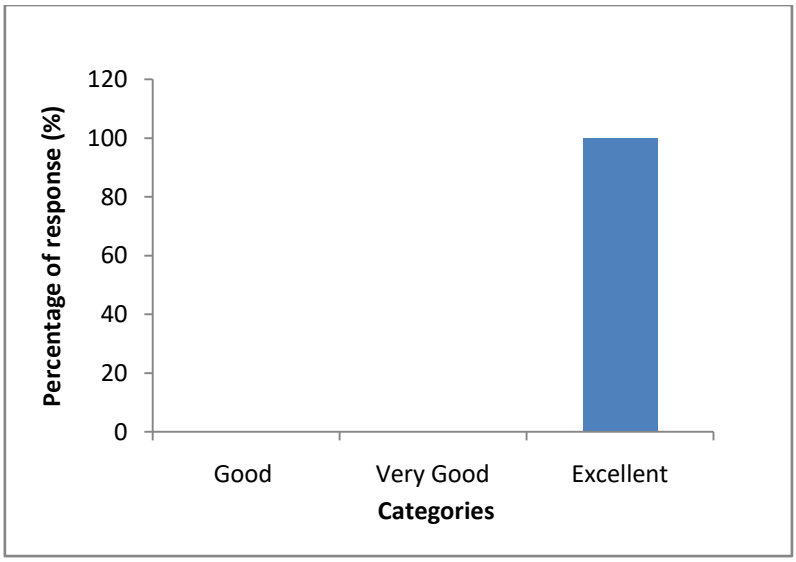

Figure 2: Grading of facilities given by participants

Participant Suggestions: The below pie chart (figure 3) represents about the suggestions given by the participants. From all the participants 42% of them gave no suggestion; 11% of the participants demanded that this type of workshop should be given in sustained and continuous way; 16% participants suggested that during the lectures study materials should be provide and the lectures should be in Hindi and English both. Other 31% of participants suggested that the vehicle facilities can be improved; during the lectures site specific problem should be discuss and entry point method should be explain; workshop should be give in each range and division and awareness programme should be organise for the local community.

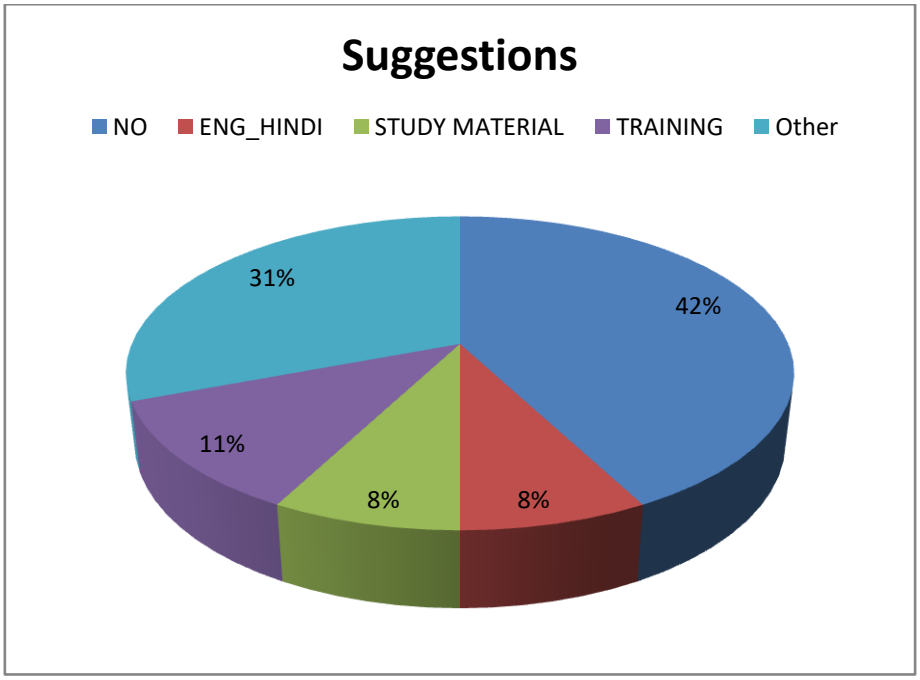

Figure 3: Suggestions given by participants

Participants Remarks: The below pie chart (Figure 4) explains about the remarks given by the participants. 34% of the participants rated the training workshop very good 23% rated excellent. 8% of the participants gave no remarks while other 8% gave the remark that the training workshop lectures should include the topic on river ecosystem, ecosystem services and entry point activities. The remaining 27% of the participants gave the remark that the training programme should be conducted in all the Ganga states and all the monitoring technique should be explained practically; duration of the training programme should be enhanced; need for workshops for the frontline staff; training is important to fulfil the goals of the Namami Gange programme and the training programme is useful for all the participants in their field activities.

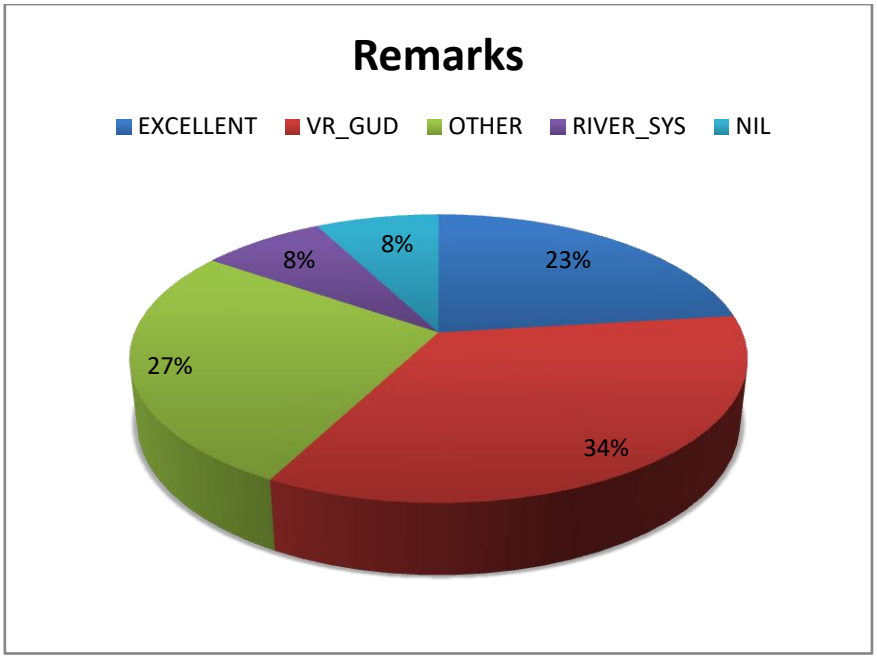

Figure 4: Remarks given by participants

Different topics suggested by participants during training workshop: For more information and knowledge participants suggested some important topics (Table.1)

Conservation and Management	1. Information regarding saving the Ganga River and its biodiversity 2. Wildlife management and conservation 3. Forest conservation 4. Joint forest management 5. Ecosystem services and management 6. River ecosystem and management 7. Management building for species conservation 8. Engineers participation in conservation
Monitoring and identification Aquatic Biodiversity	1. Monitoring of all aquatic species 2. Nursery raising 3. Monitoring of riverine vegetation 4. Monitoring of herpetofauna 5. Identification of poaching activities with special reference to aquatic fauna 6. Practical classes on monitoring techniques 7. Identification of aquatic fauna 8. Monitoring of gangetic dolphin 9. Monitoring of birds 10. Forensic Lab: Biological Sample Collection and Genetic Monitoring 11. Monitoring of water quality and ecotoxicology 12. Measuring and monitoring of river

	variable 13. Monitoring of turtles 14. Socio-economic survey methods 15. Eco-tourism activity survey 16. Mass communication methodologies among different departments
Awareness programmes	1. Community development programme 2. Conservation education
Others	1. Role of spearhead team 2. Human wildlife conflict 3. Sustainable livelihood opportunities 4. Dams related problems and its solution 5. Communication building among different departments