

WORKSHOP REPORT



LEADERSHIP AND RESEARCH METHOD FOR INTERDISCIPLINARY WATER RESEARCH

AUGUST 26 – SEPTEMBER 7, 2019
ANNA UNIVERSITY, CHENNAI, INDIA



IDRC | CRDI

International Development Research Centre
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Canada



EXCLUSIVE SUMMARY

Regional Training Workshop on 'Leadership and research methods for interdisciplinary water research' brings together women Water Engineers from 4 South Asian countries

SaciWATERS, the South Asia Consortium for Interdisciplinary Water Resources Studies, a policy research institute based in Hyderabad, India has been coordinating a fellowship program on South Asian Water (SAWA) Leadership Program on Climate Change funded by IDRC, Canada under the climate change program. As part of this project, a regional training workshop on 'Leadership and research methods for interdisciplinary water research' was organized by SaciWATERS and Anna University with funding from IDRC, Canada and UNDP cap-net (SaciWATERS Cap-Net Network) in Chennai, India from August 26th to September 7th 2019.

The aim of the workshop was

- (a) To build the capacities of the SAWA fellows in understanding climate change and water insecurity through the application of interdisciplinary research methods that include gender and social approaches,
- (b) To develop leadership skills through activities such as team-building sessions, communication skills, application of negotiations and conflict resolution in the field.

The workshop brought together 13 SAWA fellows (women engineers) who are pursuing Masters in Integrated Water Resources Management (IWRM) along with 4 professors from four institutions in Bangladesh, India, Nepal and Sri Lanka. Apart from that it also trained 19 post-graduate students (both men and women) from the IWRM stream of Centre for Water Resources, Anna University, Chennai.

The 13 days training program was designed in such a manner that students can have a hold of research methods and theoretical frameworks for interdisciplinary water research, including paradigms in interdisciplinary research, interdisciplinary framework and theories in water research, research tools and techniques for urban water research, Climate change: Science and society; Methods of analysis and interpretation. It also included a strong component of conceptualization and application of gender. In addition to classroom teaching, the training had a strong fieldwork component to ensure that the fellows could apply what they have learnt; both in terms of research methods and leadership.

The fieldwork was carried out in Kovalam (Covelong), Chennai for three days. The fieldwork was directed at two ends. One wherein they applied research methods that they learnt to answer the question on "what are the differences in access and use of water and adaptations to water scarcity and excesses within different sections of the community, grouped by gender, class, caste and ethnicity? What are the intersectionalities that exist between these social axes with respect to water access and use? " Secondly the students picked varied views from the community (fisherman, Salt pan workers, restaurant and hotel owners) to understand the quality and accessibility of the groundwater, the impact of climate change as well as environmental changes and its impact on livelihoods occurred over time and used their mediation skills with different sections of the community to come up with the best common solution and adaptation strategies with justice and equity as guiding principles.

Beside knowledge sharing and field exposure, a two-day write-shop were also organized to hone the skill of the fellows in research paper writing. The students were asked to write the methods that they have employed in answering the question and elaborating on the findings and the best possible solutions. Three groups, each consisting one SAWA fellow from the 4 countries presented its research findings on the last day of the workshop, while the external experts provided useful suggestions on improving the research paper for further submission for a joint publication.

Feedback from the workshop was very positive – participants saw great value in working with like-minded people from so many countries, great exposure for the fellows to learn from one another, and the chance to explore ideas.

This report provides an overview of the workshop, background information and objectives, a summary of the presentations and discussions, and suggestions for next steps. The details of the presentation slides made by the SAWA fellows can be found on the SAWA leadership program website:

<http://www.saciwaters.org/sawaleadershipprogram/from-the-field/>

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CONTENT

ORGANIZERS	8
Centre for Water Resources (CWR), Anna University	8
SaciWATERs:the South Asia Consortium for Interdisciplinary Water Resources Studies	8
SPONSORS AND CO-SPONSORS	9
International Development Research Centre (IDRC).....	9
The SaciWATERs-Cap-Net Network (SCaN)	9
Cap-Net, UNDP.....	9
BACKGROUND.....	10
OBJECTIVE AND EXPECTED OUTCOME	11
Objective	11
Expected Outcomes	11
METHODS USED FOR FACILITATION	12
Interactive Sessions	12
Field Exposure	12
Evaluation	12
WORKSHOP SUMMARY	14
TRAINING SESSIONS.....	14
DAY 1.....	14
OPENING CEREMONY	14
CLIMATE CHANGE: A CONSUMING CONUNDRUM: DR JAYANTHI RAJENDRAN.....	15
ALUMNI OF SAWA FELLOWS.....	15
INTRODUCTION TO COASTAL CHALLENGES (CLIMATE CHANGE AND ADAPTATION): PROF N H RAVINDRANATHA	17
DAY 2.....	17
INTERDISCIPLINARITY AS CROSSING BOUNDARY: PROF. PETER MOLLINGA.....	17
THE BASICS OF INTERDISCIPLINARITY: PROF. PETER MOLLINGA	18
CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION: PROF. JANAKARAJAN	19
DAY 3.....	20
CROSSING BOUNDARIES: PROF. PETER MOLLINGA.....	20

CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION: EMERGING CONCERNS ABOUT RISK AND INEQUALITY: PROF K S KAVI KUMAR.....	20
URBAN FLOOD MANAGEMENT AND ENVIRONMENTAL ACCOUNTING: PROF S JANAKARAJAN	20
DAY 4.....	21
SEEING WATER THROUGH GENDERED LENS: PROF. VISHAL NARAIN	21
SCREENING DOCUMENTARY ON “AS THE RIVER FLOWS” :DISCUSSION	21
UNDERSTANDING GENDER AND DOING GENDER: PROF. SUCHARITA SEN	22
DAY 5.....	23
BIPOLARITY OF QUALITATIVE AND QUANTITATIVE APPROACHES: TOWARDS A MIXED METHODS ANALYSIS: PROF. SUCHARITA SEN.....	23
FOUNDATION OF SOCIAL SCIENCE RESEARCH: APPRECIATING THE PARADIGM: PROF. VISHAL NARAIN	24
BASICS OF QUALITATIVE RESEARCH: PROF. VISHAL NARAIN	24
DAY 6.....	25
COASTAL ZONE ENVIRONMENT PROTECTION AND MANAGEMENT IN INDIA: A REVIEW: DR. P. NAMMALWAR	25
INTRODUCTION TO FIELD RESEARCH THEMES AND FIELD SITES: DR. P. NAMMALWAR	25
FIELD RESEARCH METHODS: INTRODUCTION: PRAKASH NELLIYAT	26
DIFFERENCE BETWEEN QUALITATIVE AND QUANTITATIVE METHODS: DR TANUSREE PAUL.....	26
FIELDSITE: DR SOORYA VENNILA	27
DAY 7, 8 and 9: Fieldwork	27
FIELDWORK SCHEDULE	28
Day 1: Fieldwork	28
Day 2: Fieldwork	30
Day 3: Fieldwork	31
DAY 10 – DAY 12	31
SCIENTIFIC WRITING: Dr. Tanusree Paul.....	32
DAY 13.....	32
GROUP PRESENTATIONS.....	32
CLOSING CEREMONY	33
CONCLUSION.....	34
Workshop Evaluation.....	35

Participant Profile	35
Participant’s Reaction	36
Participant Suggestion	37
APPENDIX I	40
AGENDA: 2 nd SAWA REGIONAL WORKSHOP 2019	40
APPENDIX II	46
Attendance Sheet	46

ORGANIZERS

Centre for Water Resources (CWR), Anna University

The Centre for Water Resources (CWR) was established in May 1979 to pursue teaching, research, consultancy and impart training programmes in hydrology, water resources engineering, irrigation management and water quality and quantity management. It is basically the upgraded Hydraulics Division of the Department of Civil Engineering, College of Engineering, Guindy, Chennai.

Right from inception the Centre is academically supporting various subjects for B.E. Civil Engineering and selected subject for other branch students. In July 2006, Centre has started B.E. Agricultural and Irrigation Engineering with an intake of 40 students, however, the intake for this course was suspended in the year 2019.

From the year 1956, the Hydraulics Division was offering a M.Sc.(Engg.) degree in Advanced Hydraulics, Dam Construction and Irrigation Engineering of 18 months duration. This programme was restructured to M.Sc (Engg) in Hydraulics Engineering, increasing the duration to 2 years. In 1974, the course was further restructured as M.E. in Hydraulics and Water Resources Engineering and then modified as Hydrology and Water Resources Engineering in 1981, another programme was introduced as M.E. in Irrigation Water Management. The Centre had offered a Postgraduate Diploma course in Hydrology and Water Resources Engineering, sponsored by UNESCO, of one-year duration between 1983 and 1991. Course on M.E. Integrated Water Resources Management was started in the year 2006 sponsored by Government of The Netherlands, through Wageningen University under Crossing Boundaries Project, however this course is merged with M.E. Irrigation Water Management in the year 2019.

The Centre for Water Resources had been supported in its development by UGC through its Department of Special Assistance (DSA) and COSIST Programmes. Department of Science and Technology had supported the Centre through FIST Programme. Presently the Centre is supported by UGC under “Centre for Advanced Studies” (UGC-CAS) from 2014 to 2019.

<https://www.annauniv.edu/WaterResource/>

SaciWATERs: the South Asia Consortium for Interdisciplinary Water Resources Studies

SaciWATERs is a policy research institute at Hyderabad, India and working on the issue of water resources education, capacity building, research and action in South Asia. It is committed to bringing about structural changes in the dominant water resources management paradigm in South Asia by focusing on transforming water resources knowledge systems through working with universities and academic institutions. The key ideas are in interdisciplinary approach to undertaking water resources issues from a pro-poor, gendered and human development perspective and emphasis on exchange, interaction and collaboration at South Asia level. SaciWATERs is active in three domains- Education, Research and Advocacy. <http://saciwaters.org/new1/>

SPONSORS AND CO-SPONSORS

International Development Research Centre (IDRC)

IDRC is a Canadian Crown Corporation that initiates, encourages and supports research in developing countries in order to help find practical and sustainable solutions to social, economic and environmental problems that are being faced in these countries. Additionally, IDRC on the means for applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions. <http://www.idrc.ca>

The SaciWATeRs-Cap-Net Network (SCaN)

It is a platform for partnership towards capacity building in Integrated Water Resources Management (IWRM) in South Asia region. It comprises autonomous regional and national institutions and individuals committed to capacity building in the water sector. The network was conceptualized by SaciWATeRs, which hosts the network and acts as its legal, administrative and financial umbrella. www.saciwaters.org/scan

Cap-Net, UNDP

It is a Global Network of autonomous international, regional and national institutions and networks committed to capacity building in IWRM. Cap-Net supports capacity building networks as its key partners and implementing members. These networks have proven to be effective at promoting the understanding of IWRM. www.cap-net.org

BACKGROUND

The workshop has been conceptualized under the ‘South Asian Water Leadership Program on Climate Change’, a fellowship project funded by the International Development Research Centre (IDRC) Canada. The aim of the program is to increase the number of women occupying leadership roles in the water sector fostering an interdisciplinary approach linking climate change and water insecurity by awarding fellowships to 36 women enrolled in masters-level Integrated Water Resources Management (IWRM) programs in Bangladesh, India, Nepal and Sri Lanka.

This project continues as part of an earlier project coordinated by SaciWATERs namely the South Asia Water (SAWA) Fellowship Project also funded by IDRC. The project is implemented by SaciWATERs and its four partner institutions, namely:

- Institute of Water and Flood Management (IWFM) of the Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
- Centre for Water Resources (CWR), Anna University, Chennai, India
- Centre for Post Graduate Studies, Nepal Engineering College (NEC), Kathmandu, Nepal.
- Post Graduate Institute of Agriculture (PGIA), University of Peradeniya, Peradeniya, Sri Lanka

A key feature of this program is an intensive training in the application of research methods for interdisciplinary water research. Three such trainings are proposed under the project. These trainings are held once a year at the regional level for each batch of the awardees. The training includes classroom learning, practical exercises and fieldwork. The first workshop for the 1st cohort of awardees of the program was held in Nepal. The following sections give a detailed account of the sessions of the workshop and the fieldwork.



OBJECTIVE AND EXPECTED OUTCOME

Objective

To impart training to the awardees of the SAWA Fellowship from four South Asian countries in order

- (a) To build the capacities of the SAWA fellows in understanding climate change and water insecurity through the application of interdisciplinary research methods that include gender and social approaches,
- (b) To develop leadership skills through activities such as team-building sessions, communication skills, application of negotiations and conflict resolution in the field.

Expected Outcomes

- A clear understanding of interdisciplinarity and interdisciplinary research
- Conceptual understanding of gender
- Fundamental know-hows of methodological frameworks to carry out interdisciplinary research on water and climate change
- Basics of scientific writing
- Enhanced communication and presentation skills



METHODS USED FOR FACILITATION

The workshop lasted for thirteen days, with multiple sessions on each day. The following methods of facilitation were used.

Interactive Sessions

The sessions were interactive in nature. Each classroom session included class room lecture using power-point, followed by discussion of about 15 minutes. Participants were encouraged to take active part during the discussions. Some sessions were even more interactive, having exercises for each individual.

Field Exposure

A three-day field visit was organized to provide exposure to coastal village in Kovalam near Chennai where participants carried out focus group discussion, key informant interviews and unstructured individual interviews in order to understand the functioning and impacts of the climate change

Evaluation

There was an inbuilt mechanism of participatory evaluation throughout the training workshop. Instruments used for evaluation included feedback reports and questionnaire that was administered



WORKSHOP SUMMARY

TRAINING SESSIONS

The workshop was held for 13 days from August 26 to September 7, 2019, in Chennai, India. It consisted of 6 days of classroom learning, 3 days of fieldwork and 4 days of data analysis. This section gives a description of the various sessions of the workshop.

DAY 1

OPENING CEREMONY

The panel of the inaugural ceremony had representation from Anna University and SaciWATERS. Prof. B V Mudgal, the director of the Centre for Water Resources (CWR), Anna university addressed the participants and said that through programs such as SAWA, women are taking leadership roles in India. Prof. Sreenivasan Janakarajan, President, SaciWATERS discussed the evolution of the fellowship program which started in 2008 with the Crossing Boundaries project. He also presented the highlights of the current program and how it is different from the previous phase of SAWA fellowship program and Crossing Boundaries. A key point that he made was the 'need to balance the expectations of the program and the expectations of the respective engineering institutions'. Prof M. K. Surappa, Vice-Chancellor of Anna University in his presidential address discussed the importance of women's participation in science and technology. Prof. N. K. Ambujam, Professor and Former Director of CWR gave a brief overview of the IWRM program and gave the SAWA fellows key points that they must focus on while conducting research and documenting it.



Picture 1: Inagural Session of 2nd SAWA Regional Workshop

CLIMATE CHANGE A CONSUMING CONUNDRUM DR JAYANTHI RAJENDRAN

Dr Jayanthi Narendran, Former Additional Director General, India Meteorological Department, Chennai delivered a wonderful and thought-provoking lecture on climate change. She clearly explained why climate change is a conundrum. Afterwards, she briefed about the difference between climate change and climate variability. Then she projected an example of extreme flood events in India (Urban floods), Nepal – Glacial lakes outbursts floods (GLOFs) and shared a few words about it.

The major takeaways from the lecture are as follows:

- The major cause of climate change is anthropogenic activity.
- El Nina and La Nino and its Contribution to climate change.
- Students were also introduced to the models like CORDEX, GALA hypothesis etc.
- Finally, she discussed carbon farming, how the carbon converted to nutrients for the plants.



Picture 2: Dr Jayanthi Rajendran's lecture during SAWA workshop

ALUMN OF SAWA FELLOWS

On the first day of the workshop, SasiWATERS and Anna University organized alumni meet, in order to enhance and shape the current training program based on student experiences. Most of the SAWA fellows (phase 1) have either a position in government, private or research organization or are pursuing research, and hence are in a position to make a difference in the trend of research in the future and policymaking in the respective areas. However, they also are facing challenges in their work environments in an attempt to bring about this paradigm shift in the water sector. Through this meeting, a platform was created

to learn from the student’s experiences of how the fellowship program has helped shaped their career and how the program can be further developed to enable the fellows to work in this sector. This meeting also provided the opportunity for the current awardees to interact with the alumni of the program and learn on the future paths that can be taken. It aided in cross-fertilization of knowledge and ideas among the current batch of students and the alumni.

Table 1: SAWA Alumni

Name of Ex-SAWA Fellows	Designation	Email Id
Ms. S. Monisha	Assistant Engineer, Groundwater Division, IWS compound	monishavave999@gmail.com
Ms. S. Packia Lakshmi	Associate Professor, Dept of Civil Engg, Sathyabama University	bagyaram@gmail.com
Ms. S.Suriya	Assistant professor, Dept of Civil Engineering, Jerusalem College of engineering	suriya.svu@jerusalemengg.ac.in
Ms. A. Ellakiya Priyaa	Free lancer, (Water Conservation)	Ellakiyapriyaa92@gmail.com
Ms. M. Kuzhali	Assistant Executive Engineer, PWD	akuzhali@yahoo.co.in
Ms.V. Veeralakshmi	Assistant Executive Engineer, WRD/PWD	valliveerl@gmail.com , tnspmu@gmail.com



Picture 3: Ms Manisha Sharing her experience with current SAWA Fellows

INTRODUCTION TO COASTAL CHALLENGES (CLIMATE CHANGE AND ADAPTATION): PROF N H RAMNDRANATHA

Prof N H Ravindranath Professor of Indian Institute of Sciences, Bangaluru, India introduced different steps of climatic vulnerability assessment in his lecture. He also discussed the necessity of current climatic (inherent) vulnerability assessment and major stakeholders for vulnerability assessment.

The key messages were:

- The climate change vulnerability assessment would help to assess which part of the country/region needs more resource allocation for adaptation and mitigation of climate change, depending on how vulnerable they are.
- The adaptation to Climate Change is a collaborative effort between appropriate use of technology, a vision that produces policies, a change at ground level and engaging the local communities. Assessment of vulnerability has an important role in this effort.



Picture 4: Prof. N.H.Ravidranath's Lecture during SAWA Workshop

DAY 2

INTERDISCIPLINARITY AS CROSSING BOUNDARY: PROF. PETER MOLLINGA

Prof. Mollinga introduced the concept of interdisciplinarity through a photograph of irrigation channel and a sluice gate. This was a photograph taken in Senegal in the early 80's during his research work. The village was affected by drought in 1991. It had an irrigation system which is 20 ha. The sluice gate was locked and dilapidated. He looked at the metal gate which is a material device as the social right device; the gate is a device where water rights are translated into practice.

"The gate embodies social relations and social relations gets translated into material things."

EXERCISE

This was followed by an exercise on 'what do disciplinarity and interdisciplinarity mean to you'? A handout with three questions on discipline was given to participants. The aim of the exercise was to let the students do a brainstorming of what they understand by the word

discipline. The conclusion of the session was disciplinarity and interdisciplinarity are different ways of looking at the world (theory, method, philosophical underpinnings).



Picture 5: Prof. Peter Mollinga lecture during SAWA Regional Workshop

THE BASICS OF INTERDISCIPLINARITY: PROF. PETER MOLLINGA

The session focused on understanding or answering questions such as ‘why do we have disciplines’ and ‘why are disciplines not enough’. This was followed by an introduction to the definitions of disciplinarity, multi-disciplinarity, participatory, interdisciplinarity and transdisciplinarity. Key takeaways from this session are below:

- Division of labour leads to mechanization which further leads to specialization (discipline), therefore the need for disciplines
- Disciplines tend to privilege their own field, have limited and partial view of the world, and complexities are not addressed through one discipline.
- Disciplinarity: Mere collaboration of different disciplines. All the disciplines work parallel. There is no common goal.
- Multi- Disciplinarity: There exists a loose cooperation among the different disciplines and each one try to achieve the goal it their own way.
- Participatory: There is space for the non-academic participation.
- Inter- Disciplinarity: Different disciplines work towards a common goal.
- Transdisciplinarity: In the framing of the research both the academic and non-academic work towards a common goal.

EXERCISE

The exercise was to design an interdisciplinary research project. The students were asked to formulate a research question and design a research strategy for the 'handpump and water supply' case of the second day. The research question and strategy that will be designed should take up the following practical development challenge: how can the handpumps and the R.O. Units contribute better to the realisation of the human right to water.

KEY TAKEAWAYS

- Disciplinarity and interdisciplinarity are not given or fixed, but continuously being (re)constructed
- Challenge of interdisciplinarity: modeling a heterogeneous, interconnected system

CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION PROF. JANAKARAJAN

The session began with definitions of basic concepts of weather, climate, climate variability and change and GHG emissions. Along with this, the global scenario of climate change, sources and impacts were dealt with in the session. The session also focused on how climate change has affected and is going to affect food, water, glacial melt etc. and this has been illustrated with examples and evidence from the IPCC reports. Sea level rise which is a growing threat for coastal aquifers and ecosystems has been covered. Declining groundwater conditions in India is a concern and the presentation dealt with this issue by linking it with climate change and how competing demand for water is having a serious consequential effect on ecology and environment of the fringe areas of major cities.

Key takeaways:

- GHG emissions are accelerating temperature rise
- Glacier melts and sea level rise will be a major threat to freshwater stock and coastal areas
- South Asia countries will be the worst affected by climate related extreme events
- 75% of the Himalayan glaciers are likely to disappear by 2035, which may result in the perennial rivers of South Asia turning into seasonal rivers
- Groundwater economy of India is already in a critical condition. If unchecked, climate change will have a devastating impact on it.



Picture 6: Prof. Janakarajan Delivering lecture during SAWA Workshop

DAY 3

CROSSING BOUNDARIES: PROF. PETER MOLLINGA

The session focused on framework that is required to do an interdisciplinary analysis i.e. boundary work is needed to cross boundaries. There are three steps in boundary work, which are:

1. Developing boundary concepts: Analytical work for understanding the relevant concepts.
2. Configuring boundary objects: Design and construction of models, processes and frameworks to be used to answer the research question/ achieve the objective. This is followed boundary organization in order to bring the spheres of different disciplines and their models into perspective
3. Boundary setting: Organisational work that is needed to facilitate the above two, e.g. collaboration and communication.

EXERCISE

The session was followed by an exercise on 'unravelling complexity'. The participants were handed a short written piece on water scarcity in bemetara district of Chattisgarh in India. After reading the article, the participants were asked to prepare a conceptual model to unravel the complexity of watershed problems. The idea of the conceptual model was a heterogenous diagram with different actors and their role in accessing water. The hand out helped in identifying the entities and actors and their relationships. The four groups prepare the conceptual diagram for research strategy, how to differentiate the problem through ontological, social and analytical complexity. After that discussed the previous sessions, clear the doubts and give more suggestions.

CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION EMERGING CONCERNS ABOUT RISK AND INEQUALITY: PROF K S KAM KUMAR

The session discussed the concept of vulnerability and climate risk assessment and management. It also provided a clear understanding of the loss and damage due to climate change and also how to see climate change as top-down and bottom-up approaches.

URBAN FLOOD MANAGEMENT AND ENVIRONMENTAL ACCOUNTING: PROF S JANAKARAJAN

He discussed why flooding in Chennai and Kerala. Flooding is anthropogenic or natural and how it contributes to other planning like an understanding watershed, per capita drainage capacity and so on. After that explained the water bodies and ecological hotspot in Chennai and how it is important to our city. Environmental accounting means measure the efficiency of economic development affect natural resources and others.

Key Takeaways:

- it is a real challenge to make the city and the State climate- and disaster-resilient.
- The State should immediately work on formulating comprehensive and actionable policy documents on (a) climate emergency; (b) water conservation (both surface and groundwater); and (c) disaster management and disaster risk reduction strategies.
- Most importantly, these policies should be backed by legislation and implemented straight away. Otherwise, it is going to be very difficult to save the State, its economy, and the people from the accumulated stress that is already being witnessed.

DAY 4

SEEING WATER THROUGH GENDERED LENS: PROF. VISHAL NARAIN

The objective of this session was to provide SAWA fellows with some entry points for the analysis of gender-water linkages by deepening their conceptual understanding of gender, providing an overview of the different ways in which water access and use are generated.

Some key takeaways from the session are mentioned below:

- Different categories of women experience water access differently
- Access to resources is gendered and water collection is shaped by gender division of labour
- Gender relations are not static
- Need to mainstream gender in water policy and planning
- Need for more women in the water sector
- It is important to focus on gender relations and not on women while studying gender in the field

This was basically a brainstorming session for the students to learn to bring in gender lens in the research from the conceptualization stage so as to avoid doing and treating gender as a separate section of the thesis.



Picture 7: Prof Vishal Narain during his lecture Session

SCREENING DOCUMENTARY ON “AS THE RIVER FLOWS” :DISCUSSION

“As the river flows” is a forty minutes long documentary about the complex cultural, social and economic relationship that a river shares with the inhabitants around them. It is a witness

of how a community in general and the womenfolk in special surrounding the river Brahmaputra in Assam interact with the river and adjust to its vagaries.

The river Brahmaputra has been the lifeline for the millions of people residing on its bank and tributaries, yet it is a mystery as a whole. The river has provided succour, miseries, memories and of course livelihoods to these people. There are quite a few realities addressed in this documentary, like the constant erosion leading to shrinking of landmass at Majuli, environmental forces of flood, submergence, loss of physical assets and lives on the one hand and migration, coping strategies, changing gender roles and transition of subsistence mode of economy to a market-driven one on the other hand. The film's narrative unfolds through a series of storylines gathered during a boat ride around Brahmaputra: the semi-nomadic life experience on the sandbars nurtured and dictate by the river, changing life experiences with the changing river courses, exposure to the market economy and changing women's role and responsibilities.

It is seen that people share their personal stories, speaking passionately about their experiences and uncertainty, heartbreak and fear, conquest and hope. People also express their perceptions of the importance of the river in their life. Although deeply affected by the natural force, their attachment with the river has not loosened. As the river flows conclude by showing the new ways of restoring the harmonious co-existence of man and nature.

UNDERSTANDING GENDER AND DOING GENDER PROF. SUCHARTHA SEN

Prof. Sen's lecture started with the TED talks of developmental feminist Kamala Bhasin. She said 'Culture does not make the human being, human being makes the culture'. She gave a lecture on gender stereotypes, patriarchy and feminism, intersectionality and paradigms for understanding gender issues.

The session also focused on understanding the concept of sex and gender, and intersectionalities of caste, religion, age, language and gender. Paradigms of understanding gender issues were dealt with in detail in the session. The lecture also focused on understanding the relationship between gender and work through some evidence from India. Following are the key takeaways from the lecture:

- The popular explanations of gender differences fall within nature and nurture view of gender
- The concept of gender role: tasks and responsibilities assigned to individuals on account of their sexual identity and cultural definitions of feminine and masculine
- High gender disparities in work participation rates in peri-urban areas
- Gender has to be understood as a political relationship that provides a unique perspective but is all-pervading- cuts across all other social relations.



Picture 8: Prof Sen delivering a lecture on gender during SAWA regional workshop

DAY 5

BIPOLARITY OF QUALITATIVE AND QUANTITATIVE APPROACHES TOWARDS A MIXED METHODS ANALYSIS: PROF. SUCHARITA SEN

Prof. Sen started her lecture with the discussion on epistemology, critical realism, positivism, post positivism, historiography etc. During the session, bipolarity in qualitative and quantitative analysis and the importance of a mixed-method was discussed. The lecture also discussed the importance of proposal, which determines the quality of research. This was followed by a detailed explanation of conducting surveys with questionnaires. Key takeaways from the session are as follows:

- Objectives of surveys are to make an attempt to prove or disprove an explanatory assertion and to reveal relationships that are unknown to researchers
- Steps in developing surveys
 1. Stating the research question
 2. Defining the concepts in the research question
 3. Pilot survey to test the concepts (part of this can feed into the actual analysis).
 4. Operationalizing the concepts into measurable variables after pre-testing.
 5. Specifying the cause, effect and intervening variables.
 6. Frame the questionnaire/s
 7. Data cleaning
 8. Analysis

- The features of a good questionnaire are those that are based on a pilot survey, those that deal with a significant topic, concise, questions presented in a logical order, easy to tabulate and interpret.

Rules for construction of questionnaires, factors affecting responses, and strategies for increasing user response rates, and ethical considerations were discussed. Time use survey, which would be used by the students in the field were also discussed.

FOUNDATION OF SOCIAL SCIENCE RESEARCH APPRECIATING THE PARADIGM PROF. VISHAL NARAIN

The focus of this session was on understanding the significance of appreciating research paradigms and becoming familiar with different paradigms in social science research. Some key lessons from the session are mentioned below:

- Paradigms influence the choice of research tools and techniques of data collection
- Positivism, interpretivism and critical social science research are the three basic paradigms
 1. Positivism: approach of the natural sciences; uses quantitative data, surveys and statistics; relies on rigorous, exact measurements and objective research
 2. Interpretivism: a systemic analysis of socially meaningful action; done through detailed observation of people in natural settings
 3. Critical social science: sees social science as a critical process of enquiry

The relevance of this discussion is as researchers one must understand the paradigm from which they are coming and this needs to be made more explicit in the work.

BASICS OF QUALITATIVE RESEARCH PROF. VISHAL NARAIN

This lecture provided an overview of the characteristics of qualitative research and the techniques employed in conducting it. Ethnography, a technique of doing qualitative research was explained in detail. Some key points that were made are given below:

- Qualitative research provides rich contextual detail and the researcher's personality plays a role in the overall research.
- Techniques for conducting qualitative research are ethnography, life history, grounded theory and case study research
- Ethnography entails fieldwork wherein long periods of observation and direct interactions are done
- The major steps in a fieldwork are selecting a research question; defocusing; site selection; dealing with the key informants; observation; and regular field notes.
- While analyzing qualitative data fair out the field notes, classify the data using labels or categories or concepts, write periodic memos and club the memos to write chapters.

DAY 6

COASTAL ZONE ENVIRONMENT PROTECTION AND MANAGEMENT IN INDIA: A REVIEW DR. P. NAMMALWAR

This session gave the participants a critical overview about coastal zones. He explained the major activities, environment, vulnerability, problems and issues in coastal zones. He also gave a brief about Sagar Nidhi research vessel (ORV Sagar Nidhi is an ice-strengthened multidisciplinary vessel operated by the National Institute of Ocean Technology, India) and Coastal constructions. The lecture session proved to be useful for the students especially before conducting the field work in the coastal area.

Key messages are:

- The coastal management issues are complex, involving political, economic and environmental arguments.
- The east and west coast are markedly different in their geomorphology. The west coast is generally exposed with heavy surf and rocky shores and headlands. The east coast is generally shelving with beaches, lagoons, deltas and marshes.
- Many of the coastal fishing villages are vulnerable to sea level rise as they are located close to the sea shore. The data on vulnerable fishing villages will be useful to sensitize the fishing communities on the perils of rising sea level and to take up appropriate disaster management.

INTRODUCTION TO FIELD RESEARCH THEMES AND FIELD SITES DR. P. NAMMALWAR

In this lecture session, Dr Nammalwar discussed the importance of Participatory Research Approach (PRA) with the fishing communities on various issues starting from awareness on marine biodiversity conservation, marine pollution impact, nature conservation (forest), livelihood, alternative livelihood, health, micro-enterprises other than fishing activity, social, economic and ecological impact, natural disasters impact, capacity building, women empowerment, youth development programmes, vulnerability assessment - flood and drought and tourism impact.



Picture 9: Lecture by Dr P Nammalwar

FIELD RESEARCH METHODS: INTRODUCTION PRAKASH NELLIYAT

The session started with a discussion on the interdisciplinary database. The presentation highlighted the principles of scientific methods and design of research study.

Key takeaway lessons are:

- Social facts are as real as facts in natural sciences
- Through the application of scientific method, one can generate scientific knowledge in social sciences
- Research design is a symbolic representation of such decisions as help in the creation of conditions for the successful completion of a research



Picture 10: Dr Prakash Nellyat during SAWA workshop

DIFFERENCE BETWEEN QUALITATIVE AND QUANTITATIVE METHODS: DR TANUSREE PAUL

Dr Tanusree Paul elaborated the difference between qualitative and quantitative methods. Then she brief about research, Study plan, sampling etc. after that the participants were split into three groups based on three research themes. The participants were engaged with three research papers for analyzing the research methods and methodology. Each group had to come up with a presentation based on their understanding.



Picture 11: Dr Tanusree Paul delivering lecture during SAWA Workshop

FIELDSITE DR SOORYA VENNILA

The presentation built upon the concepts of social research through developing a research questionnaire for field survey and understanding the sampling methods. The types of questionnaire, importance of relevance of questions to be asked, and construction and administration of the questionnaire were discussed.



Picture 12: Dr Soorya Vennila delivering lecture on fieldwork

Dr Vennila also gave an introduction about fieldsite (Kovalam). Kovalam (Covelong) is a fishing village in Chennai, India, 40 kilometres south of Chennai, on the East Coast Road route to Mahabalipuram. Fishing is the main occupation of the natives of this village. In this village, around 368 households and 450 fishermen are occupied in fishing with a total of 6000 population.

DAY 7, 8 and 9: Fieldwork

A three-day field trip was organized to Kovalam (Covelong) village of Chennai. The students were divided into three groups and by design each group consisted of four/five people, one

each from the 4 institutions. This division of groups ensured that there is at least one person with knowledge of local language to conduct interviews. The three groups worked on the following three themes, which are:

- To explore the intersection between gender and water within diverse livelihood practices - **Team 1**
- To explore the social, economic and environmental vulnerability due to natural and human-induced disasters – **Team 2**
- To identify the impact of anthropogenic factors on water resources and to assess the gendered impact of degradation of water resources – **Team 3**

The students were asked to prepare the research question and design a strategy to address this. They were given half a day to do this and towards the end each group presented their framework and received comments. The students also prepared broad guiding questions to conduct Key Person Interviews (KPIs) and house listing questionnaire based on which they were to administer the detailed questionnaire.

FIELDWORK SCHEDULE

Venue: Kovalam, Chennai.

Fieldwork timing: 7.00 AM- 12.30 PM

Data cleaning and coding timing: 5.00 PM- 9.00 PM

S NO	DAY	DATE	FIELDWORK	DATA CLEANING AND CODING
1	7	01.09.2019	Transect walk and pilot survey	quantitative and qualitative Questions were framed
2	8	02.09.2019	Questionnaire survey and Time use survey	Cleaned the data's according to the research theme
3	9	03.09.2019	KPI (Key Person Interview), In-depth Interview, Social Mapping and FGD (Focus Group Discussion)	Analyzed using SPSS software and key findings for the research question

Day 1: Fieldwork

First day of the fieldwork started from ICAR, Kovalam. Participants had gone to the sea shore and met fishing community people to understand their daily routine and type of fishes they catch. The participants were introduced to some of the basic information for instance, they sail 10 to 50 km from the shore to catch fishes. In general, territory line for fish catching is 12 nautical miles from the shore. Fisherman usually go at night or early morning to catch fish. During night time they tend to use GPS to navigate and catch fishes.



Picture 13: Fieldwork

By selling they earn around ₹ 600 which may go up to ₹ 3000 occasionally based on quantity of fishes caught. In the fish breeding season, government will give ₹ 1000 for two months (April, May). The fishermen use different types of fishing nets depending upon the purpose and durability. More than 60% of people follow traditional fish catching methods and 20% use motorized boats. Some other source of income is tourism development (Horse riding, resorts). Major places are Kovalam fish market and Taj hotel.

Generally, in coastal regions due to seawater intrusion the quality of groundwater is severely affected and the increase in population growth augment this problem. The poor quality of water tends to affect their health. It forces people to change their source of water for domestic and drinking purposes. There is a need to spend more money to get water. This results in insufficient income to satisfy their daily needs. Their plight is extreme in condition during natural disasters since seashore areas are more prone to natural disasters. Improper access to sanitation due to lack of quality and quantity will increase the probability of contagious diseases. Another major cause is anthropogenic activities that will increase the contaminant level in freshwater. Some other extraneous factors like occupation, disparity in gender, caste, religion give another dimension for the inaccessibility of public sources of water.

These factors lead us to formulate 3 major research objectives such as,

- To explore the intersection between gender and water within diverse livelihood practices - **Group 1**
- To explore the social, economic and environmental vulnerability due to natural and human-induced disasters – **Group 2**
- To identify the impact of anthropogenic factors on water resources and to assess the gendered impact of degradation of water resources – **Group 3**

Under these objectives, 3 teams were formed to explore the linkages between different factors which influences the major impact on water resources. Each team contains approximately four members and supported by two technical and one non-technical person.

With the help of indigenous knowledge of a local person, we plotted a rough sketch to know the places in Kovalam. It was more helpful for us to get a clear view and to make a Transect walk (PRA tool) to reach different destinations and to meet different people.

1)Team 1 Members: Deepa Neupane, Rabeya sultana Leya, J. Sivaranjani, S.D.N.M.Senadeera, Zarin Subah

Places surveyed: Seashore, Bajhana koil street and Nadu colony

2)Team 2 Members: Sumaia Kashem, Shreeya Lohani, Shanmuga Priya, Meththa Prabodhani menike

Places Surveyed: Nadu colony and Kundrakadu

3)Team 3 Members: M Manisha, Manisha sha, Chaya Dissanayake, Nazwa Tahsin

Places Surveyed: Kanniyanman kovil street, Anzari nagar and Darga street

Data cleaning and coding:

These background idea gave us a platform to formulate the questionnaires in quantitative (close ended) and qualitative (Open ended) way and some teams did the time use survey to see the things in gendered perspective.

Day 2 Fieldwork

Day 2 started with conducting interviews for collecting the information. 30 Persons were interviewed. Sampling technique which we have used is Random and Stratified sampling. The information was collected using the questions formulated on the previous day.

Data cleaning and coding:

We cleaned up the information required for our research theme because we could not constrain our conversation with the people in a systematic way to obtain the entire information. Observing the things without pre-conceived notion is one of the important qualities for a researcher to see the actual situation in the community.

By this interview, we have identified the key persons of that area and it has helped us to conduct KPI and In-depth interview for the next day of field work.



Picture 14: KPI during SAWA fieldwork

Day 3: Fieldwork

The third day we did KPI (Key Person Interview) and In-depth Interview and practised PRA tools such as Social Mapping and FGD (Focus Group Discussion). Social Mapping was done by the men and women separately to know their view of major sources which they are actually accessing and FGD was to bring the major issues experienced in their own community.

Data cleaning and coding:

In this we have drafted the KPI's and In-depth Interview, to know the overall community status and changes over a period.



Picture 15: In-depth Interview



Picture 16: Resource Mapping

DAY 10 – DAY 12

Three days time was allocated for data feeding, cleaning and analysis. Students continued to work in their respective groups. They were trained in data feeding and SPSS where they cleaned the data and analysed it. They were also trained in faring the field notes and classifying the data under different categories and concepts and analyzing it. On day 12,

students worked on preparing power-point presentations. On day 10, there was a session on scientific writing.

SCIENTIFIC WRITING Dr. Tanusree Paul

The lecture began with a slide that attempted to differentiate between scientific and science writing, and it is important to have clarity of the audience that the author wants to target. Key to good scientific writing is storyline and structure. The session also focused on how to conduct a literature review, which is the first step before actually writing a paper. This was followed by a detailed explanation for writing abstract and the different parts of the paper, which are introduction, methods, results, arguments, discussions and references.



Picture 17: Dr Tanusree Paul delivering lecture on Scientific Writing

DAY 13

On the last day, the three teams presented their work and were evaluated by external evaluators on the basis of their conceptual understanding and application of interdisciplinary research methods and gender lens.

GROUP PRESENTATIONS

This session completely involved presenting the results of the field exercises that were held. Participants were charged with making a presentation of their research findings and to describe the methodology they used in order to carry out the analysis.

- To explore the intersection between gender and water within diverse livelihood practices - **Group 1**

- To explore the social, economic and environmental vulnerability due to natural and human induced disasters – **Group 2**
- To identify the impact of anthropogenic factors on water resources and to assess the gendered impact of degradation of water resources – **Group 3**



Picture 18: Presentation by the SAWA Fellows

After the presentations, each group was given feedback as to improvements and further steps, as for most of the participants this was the first experience of such participatory and qualitative research work, it proved beneficial to have this kind of field practicum.

CLOSING CEREMONY

The training programme thus drew to a close with the closing ceremony. Representatives from each partner institution, both students and faculty said a few words about the training programme. Prof B V Mudgal proposed the vote of thanks, after which certificates of participation were distributed to each participant. The session drew to a close with a final few words from Prof S Janakrajan.

CONCLUSION

“Regional South Asia Water (SAWA) Fellows Training on “Leadership and research methods for interdisciplinary water research”, was organized jointly by CWR, Anna University, Chennai and South Asia Consortium for Interdisciplinary Water Resources Studies (SaciWATERs), Hyderabad, India. The participants were post-graduate level students at partner institutions in Bangladesh, India, Nepal and Sri Lanka. There were 28 participants in all, with 14 students from Anna University and 3 each from the other institution and 4 coordinators. The programme involved many resource persons, who are experts in their fields. The training included classroom sessions, group activities and field visits.

As evident from the results of the evaluation, the training programme was able to achieve its goal in inculcating in the participants various facets of IWRM. They were made aware of the issues in each of the four countries, issues of climate variability, ground water exploitation, participatory research, gender and equity and so on. Further field visits and practicum, were conducted.

Participants were very appreciative of the overall organization of the training workshop and were quite satisfied with the kind of content and new information that they were able get from 13 days of the intensive and interactive programme. Some recommendations that were made by students have been noted, and it hoped that they will be addressed in future programmes. All in all, this programme could be considered a success.

Workshop Evaluation

For the overall evaluation of the training programme, a questionnaire provided by Cap-Net was administered on the participants on the last day of the workshop. The questionnaire asked participants to give their opinion on:

- a) relevance of the course;
- b) extent to which new information is acquired;
- c) whether the course reach their expectations;
- d) content and quality of the presentations and training material compendium;
- e) participation possibilities during the course; and
- f) the action which they intend to take to implement the knowledge gained from the training workshop.

Participant Profile

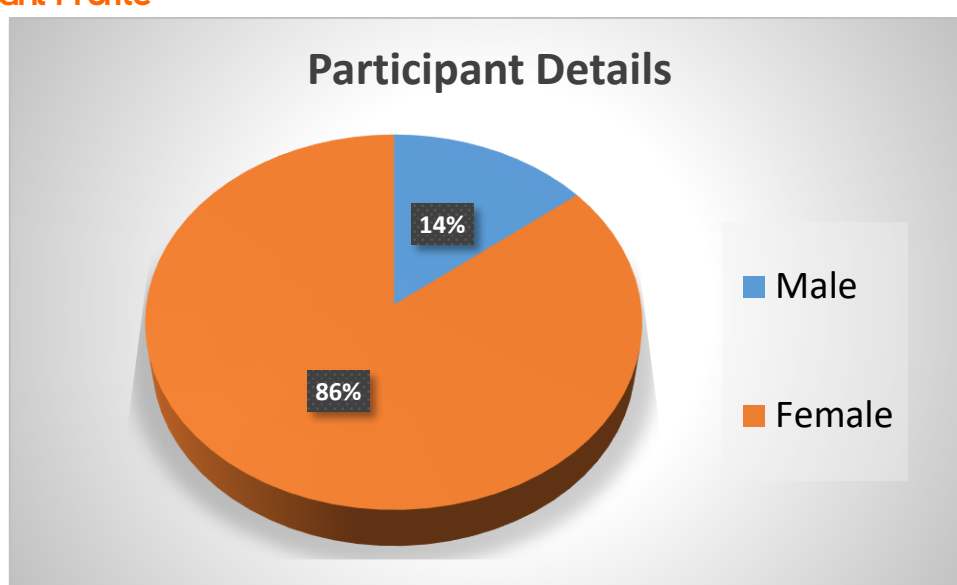


Table 2:Countrywise participant Profile

	Name_of_the_Institutions				Total
	CWR, Anna University, India	IWFM, BUET, Bangladesh	Postgraduate Institute of Agriculture, SriLanka	Nepal Engineering College, Nepal	
Personal_Information_gender Male	2	1	0	1	4
Female	13	4	4	3	24
Total	15	5	4	4	28

On the basis of the completed questionnaires, the participants' profile was determined. The profiles of the selected participants did, however, demonstrate a wide variance in the depth and diversity of experience. Out of 28 participants, 24 (86%) were female participants and 04 (14%) were male participants. The participants for this training programme were those who were selected as fellows as part of the South Asia Water (SAWA) fellowships, through a

competitive process from each of the four partner institutes. Five fellows from each country were in attendance, as well as an additional five people from the host institution, leading to a total of twenty five participants. All participants were pursuing post graduate level courses in IWRM. Many had a traditional civil engineering background, thus introduction to the above mentioned issues was important to them.

Participant's Reaction

As the name suggests, this section focuses on the reaction of the participants about the training captured in the evaluation process. It assesses learners' satisfaction with the training. The evaluation was conducted using the evaluation questionnaires.

1. Was the training relevant to the area of your work		
	Frequency	Per cent
Relevant	8	28.6
Highly relevant	20	71.4
Total	28	100.0
2. Did the training meet your expectation objectives?		
High	12	42.9
Very high	16	57.1
Total	28	100.0
3. Do you think that the training information content will be sufficient to improve your work performance in future?		
Sufficient	9	32.1
Highly Sufficient	19	67.9
Total	28	100.0
4. Have you gained new knowledge on water resource management from the course?		
No	5	17.9
Yes	23	82.1
Total	28	100.0

Interestingly, all the respondents expressed that they either found the training either **highly relevant** or **relevant** to their area of work and to meet their expectations/objectives. While 71.4% of the respondents felt that the training was highly **relevant** to their area of work, the other three respondents (08) found the training **relevant** to meet their expectations/objective. The participants have also explained how the training program has met the expectation/ objective of participating in the training program. One of the participants has mentioned that "Based on the workshop and fieldwork done during the time helped my team to develop the research paper which is in the process of publication."

In response to the question 'did the training meet your expectation objective', 57.1% of the respondents (16) stated that it was very high, while 42.9% replied that it was high. While none of the participants felt that they have not learnt anything from the training program.

Around 32.1% respondents felt that the training information/content was sufficient to improve their present work performance. While 67.9% felt that the training was highly sufficient to improve their work performance. The participants have expressed the reasons for their satisfaction with the training program in the following manner:

Around 82.1% of the total participant has stated that they have gained new knowledge on water resource management from the course. The participants have also explained the way they have gained new knowledge from the training program:

Table 3: **Response to the way respondents have gained new knowledge from the training program**

Response to the way respondents have gained new knowledge from the training program
The idea of what nature, interdisciplinarity and crossing boundaries mean. Also, need for climate risk assessment, etc.
The water resource management, the effect of climate change due to global changes and how important water is to our life.
Interdisciplinary management and Crossing the boundaries for managing water
Knowledge includes considering management of water in an interdisciplinary manner including climatic parameters.
The explanation of paradigms was an entirely new and fascinating concept which I had learned. In spite of learning a course on gender & water previously, the lectures on feminism and gender & water deepened our understanding. We were able to realize the severity of climate change and its impacts.
Till now am not aware of IWRM. But now I think I have gained some knowledge and interest in it.
Water should be integrated into all ways
Water is one of the vulnerable we should need to maintain the sustainability of water
I have learned about the gender lens and water crisis elaborately
SPSS
Water management requires a holistic and integrated approach to be successful
About interdisciplinarity. About gendered relationships in the scientific approaches
Water Quality and Quantity, Climate change, Vulnerability context, Leadership goals
Social issues and concepts are also equally important than technical aspects during WRM
Management using quantitative and qualitative strategy
Qualitative research methods
Gained new knowledge on Interdisciplinarity, gender, scientific writing
Ocean/marine ecology (new), though it was monotonous
The different paradigms, knowledge on gender to be more specific.
On intersectionality of class, caste, religion and gender in relation to water.

Participant Suggestion

Participants' plans regarding taking actions to implement the knowledge gained from the training programme?

Many of the participants felt that they had very good all-round learning from the training programme. As expected the learning is different for different individuals. Some participants, who were from a background of Civil Engineering, realized the importance of the concepts of gender and equity into their thinking process. Some were exposed to the issues of water management in different countries for the first time, and were struck by how similar issues are across South Asia. The field exposure part of the training programme was received well and mentioned by a number of participants.

Table 4: Response to the question how the training program would improve your research Work particularly in the context of research methods used

How it would improve your research Work particularly in the context of research methods used.
Yes, the sessions attended gave me an idea on interdisciplinarity and how it would be inculcated in my project for a good one with IWRM concept. Also research methods lecture on both qualitative and quantitative were useful
Water Research Training programme is very useful for the purposes of project work and IWRM concept would be benefits for the research training programme
The training has helped me to learn more about Qualitative research. Helped me to differentiate between positivistic and interpretivism approach and gave idea about the boundaries between the disciplines
Interdisciplinary research helps us to gain knowledge on water resource management. It makes us to look beyond one discipline towards research and leadership
Before attending this training, I had no idea on qualitative research and how to incorporate that concepts into my technical project. Even that postivist, interpretism kind of research and all I learnt from this training. I vow I have learnt the importance of critical thinking/analysing start from framing our research problem. Because all the things, seem to appear as objective ones but in reality it is our subjective. Our research depends upon our internal perceptions and disposition. I believe that now I can carryout my research in an unbiased way.
The training has broadened our perspectives especially in the fields of gender and water, climate change and paradigms of research. It would enable us to think more in an interdisciplinary perspective for our research. The emphasis on Qualitative aspects of research enabled us to open up new avenues in our research.
Generally we focus on one issue in one way but this helped me to think from other perspective
I understood that, we should see a solution in all point of view and not only in single direction.
Now I am in third sem, I have to do my phase-I project. By attending this workshop, I got a broad exposure to do my project
From my perspective, the gendered perspective is not much important thing. Now I come to know that this creates impact. I learnt how to do Qualitative part
It gives the broad knowledge about field work, research question and questionnaire survey
Interesting content on qualitative and feminist research that I felt could be used in context for my future work
Getting idea of interdisciplinary methods of analysis in SPSS
Concept of Gender, water management concept, Vulnerability context will help me in real scenario, helps me in doing research and leadership still to make me lead the world.
I got to learn about qualitative and quantitative methodologies
Interdisciplinary and gender concept including in thesis
The topic explained here were like providing a light to my dark path. Before this session, I have not enough knowledge about gender and interdisciplinarity but now I have different dimension.
With the concept of Qualitative research methods and interdisciplinarity
My task now is to assess water scarcity for slums, where incorporating social and gender issues was a challenge. This training can help in this regard.
This training will help me to focus more on Interdisciplinary research and gender
Implementation of learning to guide students work
Exposure to research methods (both Qualitative and quantitative) like time use survey is really helpful in understanding gender better
Will be able to integrate gender and social aspects better than before.

Comments or suggestions on course content; facilitation; support materials; and course organizations

Most of the participants felt that the course content was very good, quite comprehensive, well-structured and appropriate. Some stated that sessions were informative, and that some resource persons made their sessions entertaining, while being extremely informative. However, one participant felt that there should be more sessions on water issues and more field visits to varied places in order to understand the difference within one country.

Participants enjoyed the course facilitation and rated it as very good. They found the discussions very interactive and enriching. Participants were also appreciative of the way the group exercises as they provided them an opportunity to engage and apply classroom learning to real world problems.

Participants were very happy to get the training materials, some shared as handouts, while others shared online. However, some participants suggested that it should have been shared a few days before the commencement of the training programme.

Overall, participants rated the organizations of the workshop to be well coordinated, and the accommodation to be good.

Table 5: Suggestions for the training Program

Suggestions for the training program
The research training is really good & interesting. It helps us to broaden our knowledge. It shows or throws light on multidisciplinary approach
More emphasis on solutions and remedies could be given
Need more time for field work
They are only telling in the point of research. Not actually insisting what we do to the society and people.
Some sessions are confused (because of same topics), Increase fieldwork day (I think, it will be helpful)
The research project needs more time to have a better set of data
Time is not enough for doing surveying
It would be great if you provide internship opportunity to other country
Lecture sessions were too long
Increase days of field work, if possible 5 days training, Some sessions (especially on climate change) were very repeatative. This can be improved
Please include few sessions on "Leadership" in future trainings
More emphasis on other aspects of water resources, Climate change is highly emphasized, Issues such as economics, conflicts should also be taught
a section on leadership
An overview on IWRM in the host-country context would be relevant

APPENDIX I

AGENDA: 2nd SAWA REGIONAL WORKSHOP 2019

'Leadership and Research Methods for Interdisciplinary Water Research'

26th August to 7th September 2019
Anna University Campus, Chennai, India

PROGRAM	TIME	RESOURCE PERSON
Day 01 (26.08.2019)		
Registration	9:00 – 9:30	
Invocation Lighting the Kuthu Vilakku	9:30 - 9:35	
Honouring the Dignitaries on the Dias	9:35- 9:40	
Welcome Address	9:40-9:45	Prof. B. V. Mudgal , Professor and Director, CWR, Anna University, Chennai
Inaugural Address	9:45-9:50	Prof. S. Janakarajan , President, SaciWATERs and Former Professor, MIDS, Chennai
Presidential Address	9:50-10:00	Prof. M.K. Surappa , Vice-Chancellor, Anna University, Chennai
IWRM in CWR- Summing Up	10:00 – 10:10	Prof.N.K.Ambujam , Professor and Former Director, CWR, Anna University, Chennai
Vote of Thanks	10:00-10:15	Dr. Carolin Arul , Associate Professor, CWR, Anna University, Chennai
National Anthem		
Tea Break 10:15 – 10:45		
Experience sharing by Coordinators (Success stories)	10:45 – 11:30	Prof. Shahjahan Mondal , Professor & SAWA coordinator, IWFM, BUET, Dhaka, Bangladesh Dr. Carolin Arul , Associate Professor & SAWA Coordinator, CWR & SAWA Coordinator, Anna University, Chennai Mr. Robert Dongol , Associate Professor and SAWA Coordinator, NEC, Nepal Dr. N.D.K. Dayawansa , Professor and SAWA Coordinator, PGIA, University of Peradeniya
Climate change: a consuming conundrum	11:30 – 13:00	Dr. N Jayanthi , Former Additional Director General, India Meteorological Department, Chennai
Lunch 13:00 – 14:00		
Screening of video documentary of last year SAWA workshop	14:00-14:15	
Experience sharing by Ex SAWA Fellows	14:15-15:15	Prof. M. Karmegam , Former Professor, Anna University, Chennai (Moderator) Ms. S. Monisha , Assistant Engineer, Groundwater Division, IWS compound Ms. S. Packia Lakshmi , Associate Professor, Dept of Civil Engg, Sathyabama University Ms. S. Suriya , Assistant professor, Dept of Civil Engineering, Jerusalem College of engineering Ms. M. Hemalatha , IPS officer, Assistant Superintendent of Police, SHO, Kalady, Kerala Ms. A. Ellakiya Priyaa , Freelancer, (Water Conservation) Ms. M. Kuzhali , Assistant Executive Engineer, PWD

		Ms.V. Veeralakshmi , Assistant Executive Engineer, WRD/PWD
Discussion on the SAWA website	15:15-15:20	Ms. Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad
Tea Break 15:20-15:30		
Introduction to Coastal Challenges (Climate change and adaptation)	15:30-17:00	Prof. N. H. Ravindranath , Professor, IISc, Bangalore
Summing up	17: 00–17: 10	Ms. Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad

Day 02 (27.08.2019)		
Overview of Day 1	9:00 – 9:15	SAWA Fellow
<i>Getting to know each other: What do 'disciplinarity' and 'interdisciplinarity' mean for you?</i>	9:15 – 10:15	Prof. Peter Mollinga , Professor, SOAS, London
<i>Introductory lecture: The basics of interdisciplinarity</i>	10:15 – 11:15	Prof. Peter Mollinga , Professor, SOAS, London
Tea Break 11:15 – 11:30		
Exercise 1: Unraveling complexity	11:30 – 12:30	Prof. Peter Mollinga , Professor, SOAS, London
Exercise 2: Nature and Society: are they separate things?	12:30 – 13:30	Prof. Peter Mollinga , Professor, SOAS, London
Lunch 13:30 – 14:30		
<i>Wrap up session: What have we learnt today?</i>	14:30 – 15:30	Prof. Peter Mollinga , Professor, SOAS, London
Tea Break 15:30 – 16:00		
Climate change: concepts, impacts and emerging food security concerns	16:00 – 17:30	Prof. S. Janakarajan , President, SaciWATERS and Former Professor, MIDS, Chennai
Summing up	17:30 – 17:40	Dr. Carolin Arul , Associate Professor, CWR, Anna University, Chennai

Day 03 (28.08.2019)		
Overview of Day 2	9:00 – 9:15	SAWA Fellow
Crossing boundaries: what does it take to do an interdisciplinary analysis?	9:15 – 10:15	Prof. Peter Mollinga , Professor, SOAS, London
Exercise: Design of an interdisciplinary research project	10: 15 - 11:15	Prof. Peter Mollinga , Professor, SOAS, London
Tea Break 11:15 – 11:45		
Some further questions on inter and transdisciplinarity	11:45 - 13:00	Prof. Peter Mollinga , Professor, SOAS, London
Lunch 13:00 – 14:00		

Climate change vulnerability assessment and adaptation: emerging concerns about risk and inequality	14:00 – 15:30	Prof. K S Kavi Kumar , Professor, MSE, Chennai.
Tea Break 15:30-16:00		
Urban and Peri-urban Water	16:00-17:00	Prof. S. Janakarajan , Former Professor, MIDS, Chennai
Summing up	17:00 – 17:10	Prof. Shahjahan Mondal , Professor, IWFM, BUET, Dhaka, Bangladesh

Day 04 (29.08.2019)		
Overview of Day 3	9:00 – 9:15	SAWA fellow
Seeing water through a gendered lens	9:15-10:15	Prof. Vishal Narain , Professor, Public Policy & Governance, MDI, Gurgaon
Screening Documentary on “As the River Flows” discussion	10:15 –11:00	
Tea Break 11:00 – 11:30		
Understanding gender and doing gender	11:30 – 13:00	Prof. Sucharita Sen , Professor, CSRSD, JNU
Summing up	13:00-13:10	Mr. Robert Dongol , Associate Professor, NEC, Nepal
Lunch 13:10-14:10		
Discussion on the institutionalising the newly developed curriculum (Only for the coordinators of the PIs)	14:10-15:10	Prof. Shahjahan Mondal , Professor, IWFM, BUET, Dhaka, Bangladesh Dr. Carolin Arul , Associate Professor, CWR, Anna University, Chennai Mr. Robert Dongol , Associate Professor, NEC, Nepal Dr. N.D.K. Dayawansa , Professor, PGIA, University of Peradeniya Prof. Sucharita Sen , Professor, CSRSD, JNU Prof. Vishal Narain , Professor, Public Policy & Governance, MDI, Gurgaon Prof. B. V. Mudgal , Professor and Director, CWR, Anna University, Chennai Prof.N.K.Ambujam , Professor, CWR, Anna University, Chennai
Tea Break 15:10- 15:40		
Cultural Programme		

Day 05 (30.08.2019)		
Overview of Day 4	9:00 – 9:15	SAWA Fellow
Selected elements of Quantitative Research	9:15 – 10:45	Prof. Sucharita Sen , Professor, CSRSD, JNU
Tea Break 10:45 – 11:15		
Towards a mixed method approach	11:15 –12:45	Prof. Sucharita Sen , Professor, CSRSD, JNU
Lunch 12:45 – 13:45		

Paradigms in social science research	13: 45 -15:00	Prof. Vishal Narain , Professor, Public Policy & Governance, MDI, Gurgaon
Tea Break 15:00 – 15:30		
Basics of Qualitative Research	15:30 - 16:45	Prof. Vishal Narain , Professor, Public Policy & Governance, MDI, Gurgaon
Summing up	16:45 - 17:00	Dr. N.D.K. Dayawansa , Professor, PGIA, University of Peradeniya

Day 06 (31.08.2019)		
Introduction to field research themes and field sites	9:00 – 11:00	Prof. S. Janakarajan , President, SaciWATERS and Former Professor, MIDS, Chennai Dr. Nammalwar Rajan , Former Principal Scientist, ,Central Marine Fisheries Research Institute (ICAR- Govt.of India), Cochin, Kerala
Tea Break 11:00-11:30		
Introduction to field research methods	11:30 - 13:00	Dr. Prakash Nelliya t, Fellow ,Centre for Biodiversity Policy and Law, National Biodiversity Authority, Chennai Dr. Soorya Vennila , Assistant professor ,CWR, Anna University Dr Tanusree Paul , Assistant Professor, Centre for Women Studies, Visva Bharati University
Lunch 13:00 – 14:00		
Questionnaire designing	14:00 - 17:00	Dr Tanusree Paul , Assistant Professor, Centre for Women Studies, Visva Bharati University Dr. Prakash Nelliya t, Fellow ,Centre for Biodiversity Policy and Law, National Biodiversity Authority, Chennai Dr. Soorya Vennila , Assistant professor ,CWR, Anna University Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad

Day 07, Day 08, Day 09 (01.09.2019 to 03.09.2019)		
Field work Venue: Kovalam, Chennai	7:00 – 14:00	Dr. Nammalwar Rajan , Former Principal Scientist, ,Central Marine Fisheries Research Institute (ICAR- Govt. of India), Cochin, Kerala Dr. Prakash Nelliya t, Fellow ,Centre for Biodiversity Policy and Law, National Biodiversity Authority, Chennai Dr. Soorya Vennila , Assistant professor ,CWR, Anna University Dr Tanusree Paul , Assistant Professor, Centre for Women Studies, Visva Bharati University Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad
Data cleaning and coding	17:00 – 20:00	Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad

Day 10 (04.09.2019)		
Scientific Writing	9:00 – 11:30	Dr Tanusree Paul , Assistant Professor, Centre for Women Studies, Visva Bharati University
Tea Break 11:30 – 12:00		
Introduction to SPSS	12:00 – 13:30	Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad
Lunch 13:30- 14:30		
Field notes and analysis	14:30 – 17:30	Dr. Prakash Nellyyat , Fellow, Centre for Biodiversity Policy and Law, National Biodiversity Authority, Chennai Dr. Soorya Vennila , Assistant professor ,CWR, Anna University Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad

Day 11 (05.09.2019)		
Field notes and analysis	10:00-11:00	Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad
Tea Break 11:00 – 11:30		
Field notes and analysis	11:30 – 13:00	Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad
Lunch 13:00 – 14:00		
Trip to Mahabalipuram		

Day 12 (06.09.2019)		
Field notes and analysis	9:00 – 17:30	Dr Sreenita Mondal , Research Fellow and SAWA coordinator, SaciWATERS, Secunderabad Ms Shreya Chakraborty , Research Fellow, SaciWATERS, Secunderabad Mr Daniel Raj Abraham P , Research Associate, SaciWATERS, Secunderabad

Day 13 (07.09.2019)

Preparation time for presentations	9:00 – 11:00	Prof. S. Janakarajan , President, SaciWATERs and Former Professor, MIDS, Chennai
Tea Break 11:00 – 11:30		
Preparatory time for presentations	11:30 – 13:00	Prof. S. Janakarajan , President, SaciWATERs and Former Professor, MIDS, Chennai
Lunch Break 13:00 – 14:00		
Presentations	14:00 – 15:30	External Evaluators Dr. R. Shakti Vadivel , Former Director, CWR, Anna University Dr. Jayalakshmi , Former Professor, Dept. of Sociology, University of Madras, Chennai
Tea Break 15:30 – 16:00		
Presentations	16:00 – 17:30	External Evaluators Dr. R. Shakti Vadivel , Former Director, CWR, Anna University Dr. Jayalakshmi , Former Professor, Dept. of Sociology, University of Madras, Chennai
Feedback and Certificate distribution	17:30 – 17:40	
Vote of Thanks	17:40 – 17:50	Prof. B. V. Mudgal , Professor and Director, CWR, Anna University, Chennai

APPENDIX II

Attendance Sheet

Technical Sessions (26th Aug to 30th Aug).

Name	26th	27th	28th	29th	30th	Email Id.
ARUNAA . S	<i>Sasuna</i>	<i>Sa</i>	<i>Sasuna</i>	<i>Sasuna</i>	<i>Sasuna</i>	Sasuna97@gmail.com
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<hr/>						
NIVEDHA . E	<i>Nivedha</i>	<i>Nivedha</i>	<i>Nivedha</i>	<i>Nivedha</i>	<i>Nivedha</i>	elangonivedha@gmail.com
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P.T. SANTHANA KRISHNAN	<i>P.T. Santhana</i>	<i>P.T. Santhana</i>	<i>P.T. Santhana</i>	<i>P.T. Santhana</i>	<i>P.T. Santhana</i>	santhana.krishnan.p@gmail.com
SHANTHI . A	<i>Shanthi</i>	<i>Shanthi</i>	<i>Shanthi</i>	<i>Shanthi</i>	<i>Shanthi</i>	Shanthivel17@gmail.com
<hr/>						
DHARMALINGAM	<i>Dharmalingam</i>	<i>Dharmalingam</i>	<i>Dharmalingam</i>	<i>Dharmalingam</i>	<i>Dharmalingam</i>	
MARIAPPAN	<i>Mariappan</i>	<i>Mariappan</i>	<i>Mariappan</i>	<i>Mariappan</i>	<i>Mariappan</i>	
SUNDARAMURTHY	<i>Sundaramurthy</i>	<i>Sundaramurthy</i>	<i>Sundaramurthy</i>	<i>Sundaramurthy</i>	<i>Sundaramurthy</i>	
CHANDRA BABU	<i>Chandrababu</i>	<i>Chandrababu</i>	<i>Chandrababu</i>	<i>Chandrababu</i>	<i>Chandrababu</i>	
PANCHATCHALAM	<i>Panchatchalam</i>	<i>Panchatchalam</i>	<i>Panchatchalam</i>	<i>Panchatchalam</i>	<i>Panchatchalam</i>	
PRASANTH	<i>Prasanth</i>	<i>Prasanth</i>	<i>Prasanth</i>	<i>Prasanth</i>	<i>Prasanth</i>	
<hr/>						
KANASARAJ						
VAYAPURI						

Non-SANA Students.

Student Volunteers

Support Staff for Logistics

Field Based Technical and Data Analysis sessions (31st Aug / 4th Sep - 7th Sep)

Name	31 st	4 th	5 th	6 th	7 th
Arunaa . S	<i>Arunaa</i>	<i>Arunaa</i>			<i>Arunaa</i>
Evangeline Viditha	<i>Eyhu</i>	<i>Eyhu</i>			<i>Eyhu</i>
Praveena	<i>Praveena</i>	<i>Praveena</i>			
Jaisri	<i>P.V.Jf</i>	<i>P.V.Jf</i>			
Akshaya . S	<i>Akf</i>	<i>Akf</i>			
Sarath kumar	<i>Sarth</i>	<i>Sarth</i>			
Naveen	<i>Naveen</i>	<i>Naveen</i>			
Raja . D	<i>Rjd</i>	<i>Rjd</i>			
Ramana . N	<i>Ramana</i>	<i>Ramana</i>			
Ilanangai . K	<i>Ilan</i>	<i>Ilan</i>			<i>Ilan</i>
Oviya	<i>Oviya</i>	<i>Oviya</i>			<i>Oviya</i>
Kabila Priya	<i>C. Priya</i>	<i>C. Priya</i>			<i>C. Priya</i>
Haseeb Noorsidha	<i>H. Haseeb</i>	<i>H. Haseeb</i>			<i>H. Haseeb</i>
G. Mahesh	<i>G. Mahesh</i>	<i>G. Mahesh</i>			<i>G. Mahesh</i>
Raja . Abirami	<i>Abirami</i>	<i>Abirami</i>			<i>Abirami</i>
P.A. Ezhilan	<i>P.A. Ezhilan</i>	<i>P.A. Ezhilan</i>			
Kowsalya	<i>Kowsalya</i>	<i>Kowsalya</i>			
Kamali S.M	<i>Kamali S.M</i>	<i>Kamali S.M</i>			
Salva KK	<i>Salva</i>	<i>Salva</i>			
<hr/>					
Nivedha . E		<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
Manimozhi . A	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
P.T. Santhana Krishnan	<i>PSK</i>	<i>PSK</i>	<i>PSK</i>	<i>PSK</i>	<i>PSK</i>
Shanthi . A	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
<hr/>					
Dharmalingam					
Mariappan	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>
Sundaramurthy	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>	<i>S</i>
Chandrababu	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>	<i>C</i>
Panchalchalam	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>
Piravanthi .	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>	<i>P</i>

26.08.2019

PARTICIPANT ATTENDANCE

S.No	NAME	REG NO	DESIGNATION	SIGNATURE
1.	S. Priyadarshini	2016101025	BE Agri (4th year)	Priyadarsini
2.	I. Ilaveni	2016101011	B.E. Agri (4th year)	I. Ilaveni
3.	G. Dharaani	2016101006	B.E. Agri (Final year)	G. Dharaani
4.	A. Abigaal	2016101001	B.E. Agri (4th year)	A. Abigaal
5.	K. Santharalakshmi	2016101043	BE Agri (Final year)	K. Santharalakshmi
6.	KARPAGA JOTHI V	2016101016	"	Karpaga Jothi V
7.	SUDARVIZHI K	2016101050	"	Sudarvizhi K
8.	PREETHI.A	2016101034	"	Preethi.A
9.	R. Nandhini	2016101027	"	R. Nandhini
10.	S.N. Haripriyadarshini	2016101010	"	S.N. Haripriyadarshini
11.	M. Sargodha	2016101022	"	M. Sargodha
12.	T. Vinitha	2016101053	"	T. Vinitha
13.	S. Praseetha Reddy	2016101032	B.E. Agri (Final yr)	S. Praseetha Reddy
14.	B. Sowmya	2016101049	"	B. Sowmya
15.	R. J. Shabika	2016101046	"	R. J. Shabika
16.	B.G. KIRUTHIGA	2016101019	"	B.G. Kiruthiga
17.	S. LAWANYA	2016101021	"	S. Lawanya
18.	B. MONIKA	2016101026	"	B. Monika
19.	S. NARMATHA	2016101028	"	S. Narmatha

