

## Global Water Partnership South Asia (GWP SAS)

Monthly Report

July 2014

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### Part 1: GWP SAS Regional Office

- Ms Priyanka Dissanayake, Regional Coordinator of GWP SAS attended the “Regional Workshop on Space Technology Applications for Drought Monitoring and Early Warning” organised by United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in Colombo, Sri Lanka, from 1 to 2 July 2014. Ms Dissanayake did a presentation on proposed Integrated Drought Management Programme (IDMP) and South Asian Drought Monitoring System (SA DMS) developing jointly with GWP, IWMI and World Metrological Organisation (WMO). UNESCAP showed their willingness to collaborate with GWP SAS on the IDMP project.

### Part 2: Bangladesh Water Partnership (BWP)

#### Core activity report

##### 1.1 World Environment Day Celebration 2014

The Halda River Water Partnership observed the World Environment day on the theme “Urbanization and Water Logging - Threat to Coastal Towns from Sea Level Rise” (*Photo1*). The principal objective of the programme was to raise awareness among different stakeholders on impact of sea level rise on the coastal towns. The meeting was presided over by Dr Zafar Alam; Director, Department of Environment, Chittagong and was attended by 52 participants from different stakeholder groups. Dr. Hasan Mahmood Choudhury, Honorable Member of the parliament was present as the Chief Guest.



PHOTO 1: Participants of the World Environment Day

There were two papers presented at the seminar.

- One by Professor Syedur Rahman Chowdhury; Professor, Institute of Marine Science and Fisheries. The title of his presentation was “Sea level rise and urbanisation”.
- Second paper was on “Urbanization, water resources, sea level rise and water logging” which was presented by Architect A. K. M. Rezaul Karim; Chief Town Planner and Architect, Chittagong City Corporation.

The workshop was moderated by Mohamed Imam Hossain Chowdhury, chief executive – NOWZUWAN (An organization of social development).

The technical papers and subsequent discussion emphasized the adverse impact of sea level rise which can be anticipated on coastal towns including Chittagong, the second largest city and the business capital of the country. The recommendations were;

1. Regular interaction among the Government Departments, NGOs and CBOs working on climate change impacts and sea level rise.
2. Short, medium and long term planning for combating sea level rise.
3. Making adequate allocation in the national budget to face the challenges of sea level rise.
4. Strengthening local government institutions to play effective role to minimize effects of sea level rise.
5. Initiate researches from both the academic and government sectors.
6. Identification and promoting the mitigation and adaptation options.
7. Raising awareness among the vulnerable groups.

### **Activities outside the work plan of BWP**

#### **1.2 Meeting on Associated Programme on Flood management (APFM) to “Develop a mutually beneficial flood management programme in Bangladesh”**

The 2<sup>nd</sup> meeting for developing a collaborative programme with APFM (WMO) was held on 7 July 2014 at BWP Secretariat (*Photo 2*).



**Photo 2: Participants of the meeting**

Agenda of the meeting was fixing a date for the workshop, discussing the draft programme and identification of the lead institute.

The following points were discussed to identify the focus areas of the pilot project;

- The study to be limited either to flooding from the rivers or flooding due to storm surges or both.
- Include both polder and non-polder areas.
- Check for similar existing researches that are being conducted by organisation including Bangladesh Meteorological Department (BMD) to avoid duplication.

- Contacting Mr Sarafat Hossain Khan; Project Director/Coordinator of Coastal Embankment Improvement Project (CEIP) of Bangladesh Water Development Board (BWDB) to get inputs for the pilot project.
- A topic “Management of Coastal flood and inundation for integrated development of polders” was suggested as a potential topic for the pilot project.
- Dr Ainun Nishat suggested establishing an editorial board to review the papers which are to be presented in the workshop. He agreed to lead the editorial board.
- He further agreed to present the Key note paper in the workshop.
- The draft proposal for the pilot project should be developed and distributed to participants of the workshop and incorporate their feedback in finalizing the pilot project.
- 24 to 27 October 2014 are the scheduled dates for the workshop and field visit.

### 1.3 Stakeholder Consultation Meeting to finalize Draft (GWP-SAS) APAN Synthesis Report FY 2013.

A Stakeholders Consultation Meeting to discuss the aforementioned APAN Technical Report for year 2013 – the chapter by GWP SAS was held on 17 July 2014 at Dhaka (*Photo 3*). 24 participants from different organisations, agencies and departments of Bangladesh related to water and environment participated for the meeting. The finalised report with comments has been submitted to the Regional Coordination of GWP-SAS office in Sri Lanka.



PHOTO 3: Participants of the stakeholder's consultation

## Part 3: Bhutan Water Partnership (BhWP)

### Core Activity Report

1.1 All the four small scale water projects funded by BhWP have been completed successfully and the technical and financial reports have been compiled.

1.2 Member of the BhWP Steering Committee (SC) got together to discuss the activity plan. A progress report activities conducted from January to July 2014 was presented to them.

### 1.3 APAN synthesis report:

One day workshop was conducted for BhWP member and partners to contribute towards APAN synthesis report.

### WACREP Activity Report

2.1 Final evaluation on the Wangjokha-Thangho in Wangdue Phodrang irrigation project was conducted with officers from BhWP and Ministry of Agriculture.

## Part 4: India Water Partnership (IWP)

### Core activity report

#### 1.1 Study for Reviewing and Examining the State Level Regulatory and Institutional Framework of State Water Policy of Maharashtra, Meghalaya and Karnataka to Operationalize the National Water Policy- 2012

With reference to the above activity, review of State Water Policy of Meghalaya is ongoing which also continued in July. The entire State of Meghalaya except Shillong area is covered under the provisions of the sixth schedule of Indian Constitution in Meghalaya. There are three autonomous councils governing the state including Khasi Hills Autonomous District Council (KHADC), Garo Hills Autonomous District Council (GHADC) and Jaintia Hills Autonomous District Council (JHADC). These district councils have the legislative and judicial power. Under legislative power, the district councils have powers to make laws for allotment, occupation, use of land, other than reserved forests for purposes of agriculture, grazing and other residential and non-residential purposes; management of unreserved forests, use of water resources and canals for agriculture purpose, regulation of shifting cultivation, establishment of village councils and town committees, administration of village policy, public health and sanitation, appointment and succession of chiefs or headmen, inheritance of property, marriage, divorce and social customs, money lending and trading by non-tribal within the autonomous districts.

During the reporting period, the study team analysed the regulation and rules of the above mentioned district councils considering that power for legislating on canal, water sources for agriculture under the Indian constitution is vested with the Autonomous District Councils.

Some of the key findings are:

- With regard to supply of good quality of water at the state level - Public Health Engineering Department (PHED) is responsible for water supply in the State. However, since almost all land in the state is owned by the people, PHED's operation is severely restricted.

There are no records on water resources as the State does not have land records and customary laws are not codified. Meghalaya State Water Resources Agency is responsible for proper and efficient implementation of Integrated Basin Development and Livelihood promotion Programme which protects and conserve the water sources and recharge of ground water. The agency would look into aspects of providing clean safe drinking water, irrigation, hydro power generation, protection of forest, issues related with industries and their effect on water bodies and similar other matters. At the district level, the District Water Resources Councils coordinate the management within each river basin. Their functions include coordinating with stakeholders; reviewing management plans and programmes; evaluating application for ground water exploitation/ drilling; carrying out economic analyses of water resources use; ensuring public participation in management and planning processes; coordinating programme implementation; developing budget proposals for programmes.

- Due to unique constitutional position of the state, Panchayati Raj Institutions (PRIs) as understood in the rest of the country are not present in the state. Below the state government there are autonomous district councils with executive, legislative and judicial powers. Below the district councils are the secondary administrative levels called the Syiems/Dolloi's/Nokmas who govern, control and administer the Syiemship/Ilaka/Aking lands respectively and at the primary level are the village durbars and dongs which are the administrative units at the village level.
- In Khasi Hills, the traditional governance structure consists of the Syiemship at the top and the Dorbar Shnong/Dorbad Raid at the grassroots. At the village level, there is Dorbar Shnong or village council headed by Rangbah Shnong (village headman) who is elected by adult male residents of the village and heads of the village administration. Every adult male member of each household in the village is a member of the village council and is required to actively participate in the deliberations of the council and facilitate in decision making. In some areas, there is another tier above the village council which is known as the Dorbar Raid which is the council of cluster of villages presided over by Basans or Lyngdohs. At the top of this structure is the Hima (comprising of villages/Raid) which is governed and ruled by Dorbar Hima (council of adult male members from every constituent village and Raid). The Syiem (chieftain) is the head of the Hima and is generally elected by a small electoral college from a particular clan (syiem clan). Similarly, his assistants (myntri) are elected from a particular clan.
- In the Jaintia Hills, the traditional governance structure is similar to that existing in Khasi Hills, except that in place of the Syiemship they have the Dalloiship (Nongkynrih, 2002; Gassah, 2002).
- The Garos Hills have a much simpler institutional set up which is clan based village community. The system of governance consists of Akhing land which is equivalent to village

or a group of villages. All the land within the Akhing belongs to a particular clan or lineage and the Akhing functions under the supervision of the Nokma who is the head of the clan. The Nokma regulates the political, social and economic life of the people under an Akhing with the common consent of the Akhing elders who function. There is no political unit above the Akhing and no authority higher than the Nokma (Bose, 1936). The Syiems, Daloi and Nokmas perform both executive and judicial functions. They manage markets and forests under their jurisdiction and also administer justice. They also perform functions associated with the indigenous religious practices of the tribal of the state. At the village level, the village headman and the village council play an important role in local dispute resolution and for the welfare of the village (Prasad, 1998; Gassah, 2002).

- An important and sensitive issue with regard to the existing structure and functioning of the traditional institutions is the exclusion of women in decision making process. This is the hereditary nature of chieftaincy and exclusion of non-tribal members from the governance system even in a place like Shillong where account for a sizeable proportion of the population.
- With respect to raising awareness about criticality of water as a natural resource, the State has taken up an initiative to implement “Mission Green Meghalaya” through the Integrated Basin Development and Livelihood Promotion Programme. One of the objectives of Mission Green Meghalaya is environment protection which includes mass afforestation near the streams and water catchments which will also protect water sources. A Green campaign has been launched to collectively implement the objectives of “Mission Green Meghalaya” and Meghalaya Water Mission has a component of mass awareness. Moreover, various trainings provided to the farmers/villagers including Participatory Irrigation Management (PIM), water quality monitoring and mass awareness on water, highlighting water scarcity by different water sector related departments.
- With respect to integrate the concerns of climate variability into water resource management and planning, the Meghalaya State Climate Action Plan envisaged setting up of nine sectoral working groups and one of them was on Water Resources. These working groups were supposed to formulate key priority action points for climate change adaptation and mitigation. The state climate action plans for each financial year will incorporate actions needed to be taken for adaptation and mitigation in each of these identified sectors. Meghalaya has also established a Climate Cell led by the Planning Department to address issues and activities for combating the effects of climate change. In order to have policy convergence, the State has set up a State Council on Climate Change and Sustainable Development (MSCC and SD) under the Chairmanship of the Chief Minister, as well as a Steering Committee on Climate Change chaired by the Chief Secretary that would coordinate the State Action Plan for assessment, adaptation and mitigation of climate change.



- Information on different climate change adaptation practices like sustainable agriculture practices, inland-soil-water management methods are collected from Agriculture Department/Horticulture/Soil and Water Conservation Department. The other government departments of Meghalaya have also contacted to get the information.

### **1.2 Reviewing the State Water Polices of Bihar and Gujarat in line with National Water Policy -2012 in the context of climate change**

Continue with the June report.....

Recommendations made at the workshop on “Approach to Bihar State Water Policy with Special Reference to Climate Change” at Patna, Bihar were sent to Government of Bihar for their incorporation in the draft policy. Project Director, Institute for Resource Management and Economic Development (IRMED) made a request to the nodal officer of Government of Bihar to incorporate significant recommendations in the draft state water policy. The Water Resource Department of Government of Bihar promised the Project Director to take the necessary action.

Also as per the decision taken in the workshop and on the request of Project Director, IRMED the draft of the Bihar State Water Policy in both Hindi and English was uploaded on the [www.wrd.bih.nic.in](http://www.wrd.bih.nic.in) website on 27 June for wider dissemination. Subsequently, a press notification No.371 dated 14 July 2014 inviting suggestions on the Bihar State Water Policy was also put on the website of the said department. Aspects related to climate change have been incorporated quite adequately in the draft and are in line with the National Water Policy, 2012. There is a separate section (Section 4) on policies related to climate change, besides references to climate change related issues are made quite prominent also in the sections of 1, 1.2, 1.3, 9, 10 and 15. Thus, the objective of the study which was to integrate aspects of climate change in the state water policies has been achieved through the study.

In July IWP facilitated IRMED to start reviewing the draft State Water Policy of Gujarat. On the request of IWP, a letter was sent by Ministry of Water Resources to Mr S J Desai; Secretary Narmada water resources, water supply and kalpsar department, Government of Gujarat to support IRMED study team for carrying out the study. Following the request, a Chief Engineer was nominated by Mr Desai to provide all the support and cooperation to IRMED team for smooth completion of the study.

### **1.3 Development of participatory decision support tool for water resources assessment in 15 quality affected villages of Warangal District, Telangana**

Continue with the June report.....

In July the focus was given on calculating water balance. Combination of both scientific knowledge and participatory methods for data collection was used for assessing the water resources allowing the local community to easily understand the process.

The secondary information such as satellite imageries, application of remote sensing data and use of GIS for interpretation were collected. Data like cropping pattern, application of fertilizers and pesticide were collected by organizing focus group discussions with farmers in each village.

Attempt was made to adopt a method which is easy to understand by the community at local level by maintaining the scientific base for calculation in developing a simple tool for estimation of water balance. Reference material from National Institutes of Hydrology, Central Ground Water Board (CGWB) report of Warangal district and Ground Water Estimation Committee guidelines were used for this purpose. (In simple terms, “water balance” is measuring the amount of water coming in and going out; to assess water availability in a given specific area.)

Though the required data had been collected for all the fifteen villages, the data analysis was conducted at micro-watershed level as micro-watershed provides natural boundaries for surface flows, which is one of the most important inputs for estimation of water balances. Therefore micro watershed is the most appropriate hydrological unit for the study of water resources. Out of fifteen villages, three villages (Nizampally, Gorikothapally and Gangirenigudem) fall into the micro-watershed which were selected for the calculation of water balance.

Table 1: Village Profile – villages falls under micro-watershed

	Nizampally	Gorikothapally	Gangirenigudem
<b>Population</b>	2067	3932	1549
<b>Household</b>	497	945	372
<b>Watershed area Ha</b>	<b>1650</b>		
<b>Drinking water sources</b>	23 Hand Pump and Water Supply Scheme	28 Hand Pumps, 4 Bore Wells for Water Supply & Piped Water Supply	18 Hand Pumps and Piped Water Supply
<b>Irrigation sources Bore well</b>	100	110	<b>0</b>
<b>Dug well</b>	150	300	100
<b>ijal Station set up during the month, year</b>	April 2010	October 2011	June 2011
<b>Average volume L/month</b>	84,158	72,381	49,947

The total population of these micro-watersheds is 7,548 people. According to the government norms, 40 liter per capita per day water is planned for domestic needs and around 300 kiloliters of water per day is required for the people residing in this micro-watershed area. To meet this demand, a large number of water sources have been created under public water supply schemes that supply untreated water.

As part of this study, the following steps were taken to generate information about the parameters essential for the study.

**Delineation of Watershed:**

Demarcating the watershed boundary that helps in defining the study area was the first step of the study. This was conducted by using topo-sheet which is available at the Survey of

India in 1:50,000 scale or high resolution satellite imagers. The Central Ground Water Board (CGWB) has categorized river basin wise watershed and has assigned the codes, which are accessible in the CGWB website. Similarly, India- Resources Information System (WRIS) project has also classified basins, sub-basins, watersheds and micro-watersheds. The Digital Elevation Model (DEM) of each watershed is available at India-WRIS site and these were referred to understand the characteristics of selected watershed.

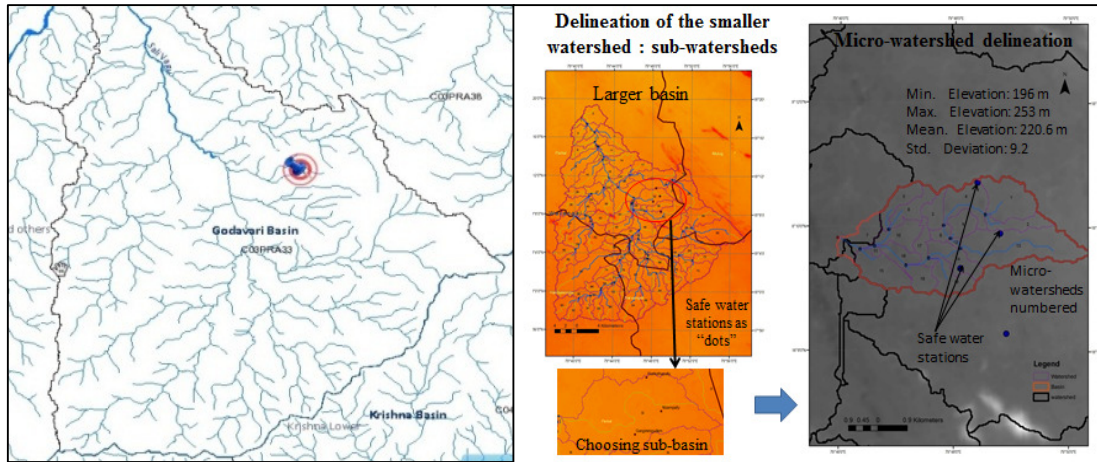


Figure 1 (a) Basin Boundaries

Figure 1 (b) delineation of micro-watershed

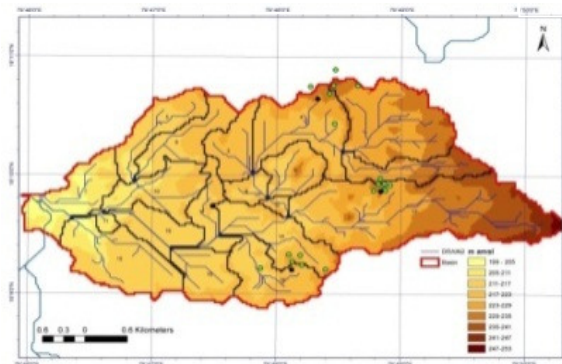


Figure 1(c) topography of the micro-watershed

Figure 1 depicts the steps adopted for selection of basin and micro-watershed for the study. The larger basin classified as CO3PRA33 watershed which is part of Godavari basin. From Godavari basin a micro-watershed was selected which has three ijal stations with the area of 16.5 Sq km. The area consists of three villages used for measuring the water balance. The next step was to correlate delineated watershed area with ground condition. The entire area of village Gangirenigudem falls into this watershed and assumed that 30 percent area of Nizampally and 50 percent area of Gorikothapally forms part of this watershed. Estimating the proportion of village area in micro-watershed for further analysis is essential. (DEM presents elevation difference with different color shedding- dark brown represents higher elevation, which is ranging between 247 to 253m from Mean Sea Level (MSL) whereas light yellow represents the rang between 199 to 205m MSL.

### Rainfall

Precipitation is the only input of water resources in the micro-watershed area. Therefore annual rainfall data from nearest rain gauge station are essential for analysis. Average annual rainfall for 60 years in Warangal district (895mm) was taken from Indian Meteorological Department records for the analysis.

**Hydrogeological Condition**

The occurrence and movement of groundwater is governed by various factors that includes topographical, climatological, hydrological, geological and structural, which together forms an integrated dynamic system. There are 210 bore wells and 550 dug wells in just 1,650ha area for irrigation purpose and more than 73 bore wells are constructed for drinking water supply. Users in the area are heavily dependent on these resources. This is an indication that the hydrogeological conditions are favorable for groundwater development in micro-watershed area.

As part of this study, observation wells were set up for recording water levels three times per year (pre-monsoonal, post monsoonal and during winter season). The pre and post monsoonal data collected in 2012, 2013 and 2014 indicate that the groundwater level fluctuation in Nizampally is 5.8m, Gangirenigudem is 4.7m and Gorikothapally is 7m. Figure 2 depicts a graph showing seasonal water level fluctuations in Nizampally and Gorikothapally village.

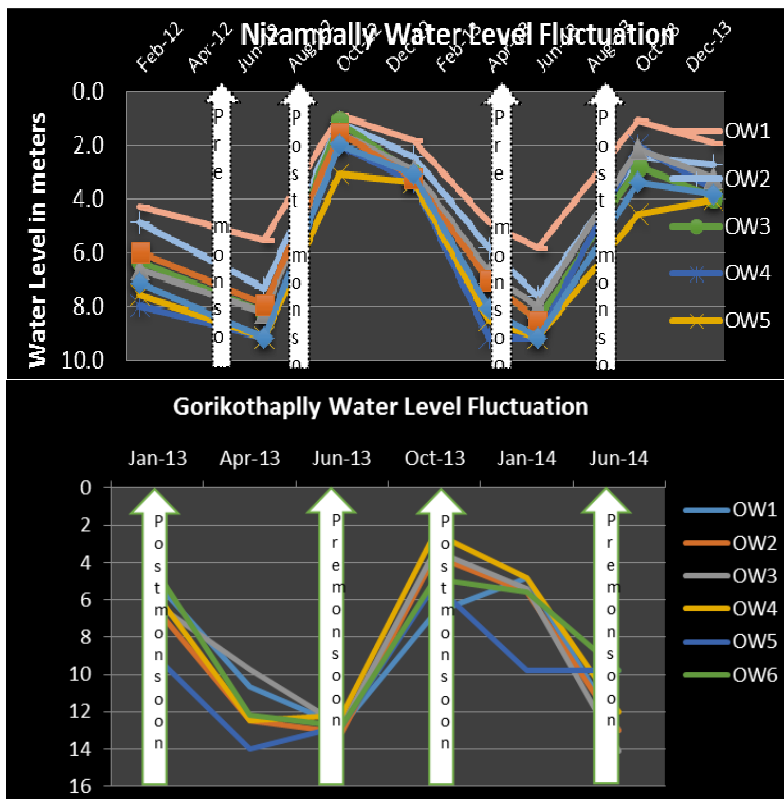


Figure 2: Seasonal Water level fluctuations – village Nizampally and Gorikothapally

## Water Quality

The water quality in the micro-watershed is suitable for irrigation and domestic use. Whereas against the acceptable drinking water standards specified by Bureau of Indian Standard (BIS 10500), this particular water samples does not meet many parameters. Safe Water Network conducts regular water quality analysis of the raw water source (apart from treated and reject water) and *Table 2* indicates the results of the tests conducted in September and October 2013 for raw water, treated and reject water of iJal stations. It can be seen from the presented data that the total dissolve solids, hardness, nitrate and fluoride are the key constituents posing risk to the people in the area.

**Table 2: Water quality data of Raw, Treated and Reject water sources at three Safe Water Stations**

S No	Test Parameters	Unit	BIS 10500: 2012 Acceptable Standards	NIZAMPALLY			GANGIRENIGUDEM			GORIKOTHAPALLY		
				Raw	Treated	Reject	Raw	Treated	Reject	Raw	Treated	Reject
1	Total Dissolved Solids	mg/L	500 Max.	780	70	1,270	2,200	175	2,620	1,470	130	3,190
2	Total Hardness	mg/L	300 Max.	470	15	843	1,470	40	1,274	941	98	1,784
3	Calcium	mg/L	75 Max.	126	16	189	322	16	424	220	16	440
4	Magnesium	mg/L	30 Max.	38	4.8	91	162	1	52	95	14	167
5	Sodium	mg/L	--	53	13.8	55.4	146	40	344	86.7	0.5	301
6	Potassium	mg/L	--	6.2	2	7.0	9.8	4	19	6.2	<0.1	12
7	Chloride	mg/L	250 Max.	81	7.4	145	734	30	808	301	20	633
8	Sulphates	mg/L	200 Max.	19	3	17	120	3	102	77	2	174
9	Nitrates	mg/L	45 Max.	81	10	156	264	78	355	250	40	440
10	Fluoride	mg/L	1.0 Max.	1.5	0.1	1.7	1.5	0.1	1.6	0.9	0.1	1.7

During the focus group discussions, data regarding the application of chemical fertilizers and pesticides were collected. The average use of fertilizers in the watershed is around 0.5 tons/acre. Besides, the contamination due to fertilizers and pesticides, there is a possibility that the rock formation and soil cover is also contributing the chemical contamination.

## Quantity

Estimation of quantity of water used for different purposes in the micro-watershed is an essential step to understand the utilization practices and emerging demand. The total groundwater extracted for treatment by the three iJal stations is around 5,000 cubic meters annually. This quantum is around 0.03 percent of the annual precipitation within the micro watershed. The design of the treatment plant ensures the reject water quantity is around 50 percent of water extracted. This quantity is, therefore, negligible in comparison to both agriculture water use as well as water used for livestock and other domestic applications. However, the reject water is disposed in the village waste water disposal drains, which also has a large catchment area to collect household waste water that eventually dilutes the reject water.

**Table 3: Estimated quantity of water withdrawn for drinking water purpose for treatment and volume of water received in Watershed area**

Quantity of Water used at three ijal Stations under study				
a.	Volume of water treated - 2013 cubic meter	1,995	1,298	1,798
b.	Reject generated KL	998	649	899
c.	Total withdrawal of water for SWS from Watershed cubic meter			5,091
d.	Area (sq km)			16.5
e.	Average Annual Rainfall (mm)			895
f.	Volume of Water Received in watershed million cubic meter			14.77
g.	% withdrawal against the % of annual rainfall			0.03%

As per the Central Ground Water Board (CGWB) classification, the stage of groundwater development in this watershed is in the safe category. This means the aquifer condition in this area is comparatively better and water level recoup during the post monsoon is less than 70 percent drop from pre-monsoon.

**Hydrological Assessment:**

There are standard methods to work out water balance of an area. Ground Water Estimation Committee, 2009 has recommended a detailed procedure for estimation of water balance. Academic and research institutions are applying hydrological modelling for estimation and the basic principle for estimation remains the same. The water in a village/micro-watershed is present in either as atmospheric moisture, ground water and flowing. For clear understanding, 100 units are assigned, which means 15 percent ground water, 20 percent surface flow and 65 percent water is available in atmospheric moisture.

Table 4: Calculation of water balance is presented in given below table

Table 5. Estimated Water Balance - A Simple Tool		
Sl.No	Items	Micro-watershed
1	Village area in ha (Crop area as reported by farmers + 10% for other purpose)	1,650
2	Total volume received Mm <sup>3</sup> /year (1650 x 0.895 = )	14.77
3	Ground water recharge assumed 15% Mm <sup>3</sup> /year	2.21
4	Surface flow Mm <sup>3</sup> /year (20%)	2.95
5	Absorbed by soil - available for plants & ET+PET (65%)	9.60
<b>A</b>	<b>WATER STORAGE in Tanks/Ponds/Lakes</b>	
1	Total Volume stored (surface area of storage structure (in ha) x 0.6 (efficiency factor) x depth in m)	1.06
2	Available = Surface flow - Storage	1.89
Sl.No	Items	Micro-watershed
3	Total Water Available for ground water productivity (20%) (available quantity x 0.2)	0.38
4	Total Water Available = ground water + storage + 1 Mm <sup>3</sup> /year assumed from other sources	3.59
<b>B</b>	<b>WATER REQUIREMENT FOR VILLAGE</b>	
1	Population (7548 x 40 lpcpd x 365)	0.11
2	Cattle population (total cattle population 1636 x 75 l per day per animal)	0.04
3	Crops (crop water requirement is calculated based on type of crop, area under cultivation and requirement)	15.19
4	Annual Water Utilisation Mm <sup>3</sup> /year	15.34
<b>C</b>	<b>WATER BALANCE ( Mm<sup>3</sup>/year) (-deficit)</b>	<b>-12.07</b>

It can be seen from above table that the crop requires more than 99 percent of water available in the micro-watershed. The quantity required for domestic needs is insignificant in comparison to the water requirement for crops. The quantity of water withdrawn for treatment at safe water station if compared with total use, it is a tiny fraction to the total utilization in micro-watershed area.

The deficit is around 78 percent of total annual water utilization. The hydrograph prepared based on water level monitoring data indicate that the recharge conditions in the area are favorable, hence water table recoup every year from the annual recharge from rainfall. This situation leaves the users at risk of lowering the water table in case of any failure of monsoonal rains and continuation of cultivation of water intensive crops.

The assessment of water resources in micro-watershed area indicates that the groundwater withdrawal for iJal station is negligible in comparison to water using for irrigation. The water level fluctuation records do not indicate any major drop in water level and annual recharge is taking place which maintains water level in the area. However, considering the quantity of deficit which is around 78 percent of the water required for crops, it is essential to work towards improving irrigation water use efficiency to avoid the risk of drop in water table in case of failure of monsoon.

The quantity of chemicals disposed through reject water is insignificant in comparison to the annual application of chemicals in crops. The community awareness on crop water relationship, judicious use of water resources and improved agriculture practices can be conducted under extension services by Department of Agriculture and other local agencies. Understanding the stage of ground water development, need for recharge measures and improving water use efficiency are important set of information in assessing the water resources of micro-watershed area. These can be utilised to plan better for managing the water resources in areas where safe water stations are being setup in order to achieve sustainability of safe drinking water supply for the community.

#### **1.4 Awareness generation and water quality testing by rural women for using safe drinking water in Kommaragiri Village, Kakinada District, Andhra Pradesh**

IWP with the support of All India Women's Conference (AIWC) is undertaking awareness generation activities and water quality testing by rural women of Kommaragiri village of Kakinada District, Andhra Pradesh. In the month of July, the AIWC team undertook the following activities:

1. AIWC team organised a talk to farmers in Kommaragiri village on 29 July on the optimum usage of water in agriculture by a Divisional Agriculture Officer. In Kommaragiri, paddy is the main crop grown and farmers tend to overuse water. In paddy cultivation, if adequate water is being provided during and after transplantation of paddy, there is no need for channelizing water to the fields throughout the cycle until the crop is ready. Also providing water to the crop two weeks prior to harvesting is not required. The Officer cited examples on how in countries like Israel and China maximized the rice produce through optimum usage of water.

Nearly 50 participants including agriculturists and farmers attended the meet which was held in the AIWC Kommaragiri premises. The session was concluded with a discussion with farmers and the agriculture officer.

2. AIWC Kakinada branch organised a gathering at Kommaragiri village as a part of their awareness raising activities on 12 May. There the participants discussed about the worsening condition of a hundred year old drinking water well which was serving the entire village prior to the supply of protected water by the state government in 2010. They further discussed the need for renovation to avoid seepage from the nearby sewers and had requested AIWC team to look into the matter. The AIWC team visited well in July observed that the well is no longer in use. Discussions ongoing with Panchayat authorities to find possible solution.

3. AIWC with the support of IWP have conducted a workshop on Water Quality Testing at Kommaragiri village in May 2014. The Chief Guest of the event Srimati Neetu Prasad I.A.S; Collector and District Magistrate, East Godavari District presented water testing kits to



Panchayat President, representatives of a local School, Women’s Self Help Groups and Komaragiri Youth Association. Accordingly the 6 recipients along with 5 others visited the Institute have gained intense training on the usage of the kits after the request made by AIWC team in July from the scientists of National Institute of Hydrology (*Photo 4*).



**PHOTO 4: Training given by the National Institute of Hydrology to the Recipients of Water Testing Kits**

### **1.5 Consultation on “Emerging and Critical Issues of Climate Change Adaptation” under Asia Pacific Adaptation Network (APAN) and GWP-South Asia Initiative**

IWP organized a consultation on “Emerging and Critical Issues of Climate Change Adaptation” on 25 July at New Delhi in association with Development Alternatives (one of the IWP’s network partner) under Asia Pacific Adaptation Network (APAN) and GWP SAS initiative. The objective of this workshop was to identify emerging and critical issues of climate change adaptation that concern the water security of India. Discussions in the consultation helped to identify consolidate country’s perspective on climate change adaptation and water security. The main agenda of this consultation was to come up with recommendations to strengthen the technical paper of India which would feed into the Asia APAN regional synthesis report focusing on South Asia’s status with respect to Climate Change and Water Security. The consultation focused on three key issues and comprised of Inaugural Session, followed by three Technical Sessions on:

- Water Security : Progress and Success Stories;
- Knowledge, Skills and Practices for Climate Change Adaptation; and,
- Enabling Policies and Institutional Framework for Climate Change Adaptation in Water Sector

The Welcome Address was given by Dr Veena Khanduri; Executive Secretary, IWP was followed by an Introductory Remarks by Mr A. B. Pandya (*Photo 6*); Chairman, Central Water Commission, Government of India. The Opening Remarks was given by Mr Avinash C Tyagi; Secretary General, International Commission on Irrigation and Drainage.

The first session was chaired by Mr Pandya and the panelists were Mr S. C. Jain; Regional Council Member, GWP SAS and Dr Sandhya Rao of Integrated Natural resources Management (INRM) Consultants (*Photo 7*). The second session was chaired by Mr D. K. Manavalan; I.A.S (Retd.), Executive Director, Action for Food Production and the panelists

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were Prof M. S. Rathore; Director, Centre for Environment and Development Studies, Jaipur and Member, Advisory Committee, IWP. The second panelist was Dr K. Murari; Senior Programme Manager, Development Alternatives. The third session was Chaired by Dr A. K. Sikka; Deputy Director General (Natural Resources Management), Indian Council of Agricultural Research, Government of India and the panelists were Mr A. K. Kharya; Director, Central Water Commission and Ms Aditi Kapoor; Director (Policy and Partnership), Alternative Futures, New Delhi.

More than 30 participants including a wide range of stakeholders from Ministry of Water Resources, Ministry of Agriculture, Central Water Commission, Government of India, representatives of Research Institutions; like International Water Management Institute, The Energy and Resource Institute (TERI), Jawaharlal Nehru University, Indian Institute of Technology, New Delhi; representatives of bi-lateral agencies like; UNDP-India, Community Based Organizations and IWP partner organizations led to the success of the consultation and helped in strengthening the recommendations. Following are the session-wise major recommendation that emerged from the consultation:



PHOTO 5: Mr A. B. Pandya delivering the Introductory Remarks



PHOTO 6: From left: Mr Pandya, Mr S. C. Jain and Dr Sandhya Rao

#### **Session-I: Water Security: Progress and Success Stories**

- For water security planning, availability of water resources and its use by various sectors, in various basin and States in the country need to be assessed scientifically and reviewed at periodic intervals;

- Aspects like climate change, population growth, increasing urbanization and industrialization growth needs to be taken into account for planning for water security;
- Storage of water should be emphasized to ensure steady water supply (small scale storage to large scale). Resilience of system should be strengthened by improving the condition of natural water storage structures,
- Equitable sharing of water resources should be focused while higher level scientific aspects needs considered at global level and social issues are to be considered at local level,
- Use of decision support system and water budgeting can play an important role in increasing water use efficiency. Such tools should be applied with participatory approach; and,
- Skewed availability of water between different regions is a problem in ensuring water security. Therefore micro scale water availability (dependent on monsoon factor) should also be considered for proper planning for water security.

### **Session II- Knowledge, Skills and Practices for Climate Change Adaptation (CCA)**

*(Photo 7)*

- Need for exchange of knowledge between climate change scientists and professional and water management community;
- Tools and techniques for vulnerability assessments needs to be critiqued for comparable analysis with indicators having wider consensus;
- Adaptation requires flow of information, systems, funds, goods services and ideas to connect to regional and global level;
- Natural Resources Management and livelihood enhancement should both be focussed for increasing the resilience of communities to climate change;
- Skill development for contextual approaches such as geology, civil engineering and hydrology mapping for dealing with the impacts of climate change should be focussed and transformed to apply in the grass roots level; and,
- Evolving mechanism, traditional wisdom and platforms needs to be adapted to bring climate change knowledge for all levels.



**PHOTO 7: From Left; Mr D. K. Manavalan, Prof M. S. Rathore and Dr K. Murari**

### Session III- Enabling Policies and Institutional Framework for CCA in Water Sector

(Photo 8 and 9)

- All the ministries needs to be WaterSmart as in India a number of ministries are governing different aspects of water resources;
- Bottom up water governance through strengthened Panchayati Raj Institutions, communities and inclusive water user group should be focused;
- Focus on “Water as Common Property Resources” in all programmes;
- Compilation of best practices and mainstreaming those practices through policy should be encouraged and disseminated; and,
- Local capacities should be built. Local level access to customized tool for getting information related to climate change should be made available.



PHOTO 8: From Left; Dr A. K. Sikka, Mr A. K. Kharya and Ms Aditi



PHOTO 9: Discussion being carried out during the consultation

#### 1.6 “Ganga Manthan”- A National Dialogue on Rejuvenation of River Ganges

Mr R. K. Gupta; President and Dr Veena Khanduri; Executive Secretary, IWP participated in one day national dialogue on rejuvenation of the sacred river Ganges. The dialogue “**Ganga Manthan**” was organized on 7 July at Vigyan Bhavan, New Delhi under National Mission for

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Clean Ganges by the Ministry of Environment, Forests and Climate Change, Government of India.

The aim of organizing this event was to bring the stakeholders together on to a single platform to discuss the issues and possible solutions of the challenging task of Ganges Rejuvenation. Ms Uma Bharti; Union Minister for Water Resources, River Development and Ganges Rejuvenation, Government of India was the Chief Guest of the event. She said that the whole country and the people from every section of the society, irrespective of their faith are committed for continuous and uninterrupted flow of Ganga from Gangotri to Ganga Sagar. Ms Bharti further told that there will not be any shortage of funds for Ganges Rejuvenation Programme.

Mr Nitin Gadkari; Union Minister for Road Transport, Highways and Shipping, Government of India in his address said that it is proposed to undertake dredging of Ganges river to provide a width of 45 meters and 5 meters draft (depth) to enable navigation of small ships between Varanasi and Hoogly in the first stage of its development. He said that barrages are proposed to be constructed at every 100 km on the river. Shri Gadkari also said that his Ministry has sent a proposal in this regard to World Bank for the development of Allahabad-Haldia corridor.

Four parallel sessions on “*Ganga and Sanskriti*” (for Spiritual Leaders), “Public Participation for Ganges” (for Public Representatives and Administrators), “*Aviral and Nirmal Ganga*” (for NGOs and Environmentalists) and “Comprehensive and Sustainable Solutions” (for Academicians and Technocrats) were organized. Union ministers, Members of Parliament, scientists, experts, religious leaders and NGOs attended the event.

Dr Veena Khanduri attended the inaugural as well as in the session on Aviral and Nirmal Ganga and provided written suggestions. It is hoped that the views expressed by the stakeholders and the participants in the dialogue will help in formulating a comprehensive strategy to rejuvenate the Ganges River.

### **1.7 Participating for the first organizing committee meeting for India Water Week-2015 (IWW-2015)**

The first meeting of Organizing Committee of India Water Week-2015 was held at Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India. The meeting was chaired by Additional Secretary of the Ministry. The Executive Secretary, IWP attended the meeting and the issues discussed at the meeting are given below;

The inaugural function will be organized on 13 January 2015 at Vigyan Bhavan, New Delhi. Mr Narendra Modi; Honourable Prime Minister of India has been requested to inaugurate the event.

The Committee decided to invite one country representing main partner countries for the event and selected Australia for this purpose. Similarly, it was decided to take-up one of the States of India as a partner State and the Committee selected Maharashtra as a State partner. It was also decided that there is need to start formalizing the modalities at the earliest. The eight sub-themes selected for the IWW-2015 were discussed in detail.

The Additional Secretary, Ministry of Water Resources suggested to select one Theme Leader for each session and the Theme Leader has the responsibility to invite the key speakers for the respective theme. The Organising Committee members should provide contact details of leading organizations/agencies who are working on the selected sub-themes. IWP has provided the details of few organisations who are working in Water, Sustainable Agriculture and Irrigation.

### **WACREP activity report**

#### **2.1 Augmenting Water security and food security of small farmers in the Gundar Basin by rehabilitating or constructing water harvesting tanks**

In the month of July, the following activities were undertaken by IWP with the support of Dhan Foundation.

##### **Visit of Project Director, WACREP to Naryanan Thevan Oorani Vayalagam of Rajakkalkudirruppu village in Gundar basin**

Project Director, Dhan Foundation for WACREP visited Naryanan Thevan Oorani Vayalagam in Gundar basin where the work of fencing the Oorani with the barbed wire is ongoing. The work is in progress and was observed that the Oorani got partially filled with water due to some rains in July. This Oorani provides drinking water for 130 households amidst climate variability of long dry spells.

##### **Review of WACREP**

As part of M&E, Dhan Foundation team reviewed the progress of WACREP on 8 July at Madurai and detailed action plan for Quarter 3 of 2014 was prepared based on the review.

##### **Project impact sharing meeting at Tiruchuli in Virudhunagar District, Tamil Nadu**

Two Tank farmers' Federations (*Vayalagam* Federations) namely Tiruchuli Vattara Vayala Federation and Narikudi Vattara Vayalaga Federations jointly organised the Annual General Body Meeting (AGBM) on 28 July (*Photo 10*). They have shared the impacts of WACREP activities observed by the tank association members of Mugavur tank and Rani Sethupuram Oorani. More than 200 farmers took part in the AGBM. Few government department officials also took part in the event and apprised on the WACREP activities and the

important roles played by IWP, GWP-SAS and DHAN Foundation under the programme. The government officials promised to extend all possible support in the future.



PHOTO 10: WACREP project impact sharing meeting at Tiruchuli in Virudhunagar district

### Project Appraisal for Tanks Rehabilitation

DHAN Foundation proposed to rehabilitate five 5 irrigation tanks whereas only one namely Mugavur supply channel got desilted and the tank bed was deepened by the Public Works Department of Tamil Nadu by Q2. Four more tanks have to be identified and the work has to be initiated to complete the initiative.

Project Director visited three more tanks in July and the farmers showed their willingness to desilt the tank partly with their contribution and the rest with WACREP funding. Survey is being carried out to prepare technical estimates. On receipt of technical estimates and approval from village panchayat, funds will be released preferably in August on the receipt of Q3 funds from GWP-SAS. The project is in progress.

## 2.2 Climate adaptive planning, capacity building and training programmes in Bundelkhand Region of Madhya Pradesh

In continuation to the work in June the following activities were undertaken by IWP with the collaboration of Development Alternatives (DA) in July;

### Village level meeting for sectoral planning and finalization of village climate adaptive plans

Village strategy meetings were conducted for sectoral mapping and finalization of village climate adaptive plans. Sectors such as agriculture, water, forests, livelihoods, livestock etc. were analysed with the participation of community to develop plans based on climate change (*Photo 11*).



**PHOTO 11: Participation of village community at the sectoral planning and finalization of village climate adaptive plans**

### **Validation of climate adaptive plans at district level**

Meetings were conducted with Chief Executive Officer of Datia District, Madhya Pradesh and technical staff of line departments, who are now validating the climate adaptive plans prepared at village level.

### **Knowledge sharing scientific workshop for climate change adaptation**

A roundtable Scientific Exchange Meeting on “Drought Proofing Strategy for Semi-Arid Region of Bundelkhand” was organised by IWP with the support of Development Alternatives on 4 July at National Research Centre for Agroforestry (NRCAF). During this meeting, scientists from NRCAF, Indian Grassland and Fodder Research Institute (IGFRI), Bundelkhand University, Central Soil and Water Conservation and Training Institute (CSWCRTI), National Institute of Disaster Management (NIDM) and Krishi Vigyan Kendras (KVKs) discussed climate related vulnerabilities and possible adaptation measures for drought proofing of Bundelkhand. DA would provide proceedings of this workshop to IWP in mid-August.

### **State level engagement for mainstreaming CCA**

Meetings were held with Mr Lokendra Thakkar of Environment Planning and Coordination Organisation (EPCO), Mr Mangesh Tyagi; Madhya Pradesh State Planning Commission and Mr Amitabh Pandey; Indian Institute of Forest Management (IIFM) at Bhopal to share the status of WACREP initiative. In the meetings, it was agreed that a joint workshop should be organised by DA, EPCO and IIFM to achieve the WACREP outcome at state level. The state level consultation workshop is tentatively scheduled for 12 September.

### **Farmers training on sustainable agriculture practices and water management**

A one day Farmers Training on “Sustainable Agriculture Practices and Water Management” was organised on 24 July. Around 73 farmers (both males and females) participated from Datia district of Bundelkhand (proceedings report is attached as *Annex I*).



The training was organised at Central Soil, Water Conservation Research and Training Institute, Datia (Madhya Pradesh) for the highly influential farmers of Datia district in Madhya Pradesh. Main objectives of the training programme were;

- To make participants aware about soil and water conservation measures for effective crop production and its linkages with climate change.
- To motivate participants to resort to soil and water conservation measures to gain effective production
- To teach them several ways of soil and water conservation practices.
- To make participants aware about integrated and sustainable farming.

#### **Activities Planned for August, 2014**

- Finalization of knowledge products such as Vulnerability Assessment Report, Adaptation Guide, Capacity Building Module;
- Finalization of Climate Adaptive Plans of Kamher and Nauner village, Datia District, Madhya Pradesh;
- Organising state level workshop on “Climate Adaptive Planning in Madhya Pradesh”.

#### **2.3 Assessment of vulnerability to climate change on water resources, commons, agriculture system and animal husbandry in Sinhar watershed in Bhinder Block in Udaipur district of Rajasthan**

In continuation to the activities undertaken in June IWP with the support of Action for Food Production (AFPRO) conducted the following activities in July:

##### **Village level monthly meeting with Core group members**

Four village level meetings were organised on different dates at Dhawadiya, Kheda Fala, Rayla and Fusriya villages with core group members including cluster core group members and village elders. These meetings were facilitated by selected field associates and following issues were discussed;

- Methods of enhancing the productivity and quality of fodder in pasturelands,
  - Improving the understanding on climatic variance and its impact on agriculture, livestock and water,
  - How the physical works of soil and water conservation at private joint pasture lands of Dhawadiya village can be initiated,
  - Discussions on the existing coping mechanism for water, crop and livestock due to climate variability like high temperature, unpredictable and late onset of rain during the current year,
  - Discussion on protection and conservation of water bodies, forest lands and animals for livelihood enhancement.
-

**Meeting of Cluster level Committee Members:**

A cluster meeting was organized at Bhavyadhara Training Centre, Rayla on 15 July. Twenty Three representatives from all project villages attended the meeting and introduced core group members and field team to each other. It was agreed that if the monsoonal rains get delayed, three types of crop combinations were recommended for sowing- Maize + Ragi; Maize + Urd or Maize + Soybean. If the rains fall on time maize is recommended whereas if the rainfall is below the normal then cultivation of Urd and Ragi is recommended.

**Physical work on selected Private Pasture:**

Continue with June report.....

After the Participatory Technology Development Approach (PTDA) and the topographical survey completed in June, following activities were undertaken and completed in July 2014:

Soil and Water Conservation measures; Continuous Contour Trenches (CCT), Gradonis, Box trench, bolder gully plugging, plantation, grass seeding etc. were undertaken which will enhance the soil moisture and ultimately would enhancing the fodder production (*Photo 12*).



**PHOTO 12: Soil and Water Conservation Work at Kamaliya**

In addition as a result of PTDA and as per the need of the site, the activities like renovation as well as gap filling of stone fencing, gate with bamboo material etc. were also completed for protection of the pasture lands.

**Visit of Executive Director, AFPRO to Udaipur:**

Mr D. K. Manavalan; Executive Director AFPRO visited Udaipur from 30 July to 1 August. The first two days of his visit were devoted for overseeing and discussing the status of WACREP activities. On Day 1, a meeting was organised at AFPRO Regional Office, Udaipur with AFPRO-Udaipur staff and Mr C. P. Choubisa, a local level NGO partner. Mr Manavalan briefly shared the objectives of WACREP at the meeting. Mr P. K. Dutta; Regional Manager, AFPRO, Udaipur shared the progress of WACREP. He further discussed the climatic variability and its

effects, what adaptive measures should be taken and avenues to improve women’s involvement in WACREP.

On Day-2, Mr Manavalan went to the field and visit Chuna ka Vela fala village for onsite visit of a pasture land (*Photo 13 and 14*). During the visit, Mr Manavalan the village women’s group on climate change and its impact on women’s life style and the status of safe drinking water. The local women were aware about WACREP and its activities and the benefits of pasture land development on fodder production.



PHOTO 13: Mr D. K. Manavalan interacting with women folk at Chuna ka Vela fala village



PHOTO 14: WACREP Signboard displayed at Chuna ka kheda village

### Farmers Field School (FFS):

FFS works with a selected group of farmers (that include extension workers/skilled farmers) and meet once a week for the entire crop growing season. FFS provides a primary source for discovery-based learning applying non-formal education methods to these farmers (*Photo 14*).

Accordingly, AFPRO has formed a FFS on Agriculture under WACREP by selecting 24 farmers from all the 10 project villages for Kharif 2014 season. A series of meetings were held with the group members for growing Kharif crops. An understanding has been developed with Maharana Pratap University of Agriculture and Technology, Udaipur for providing technical support like agronomy, entomology, pathology and agricultural extension for facilitating the FFS activities.



PHOTO 14: Farmers Field School (Agriculture)

**Climatic vulnerability assessment and preparation of climate vulnerability matrix:**

For assessing the climate vulnerability, AFPRO in consultation with IWP has developed a format. Data has been collected and the analysis is in progress. Similarly AFPRO consulted IWP for developing a Climate Vulnerability Matrix and is in progress (*Annex II*).

**Activities planned for July, 2014**

- Continue monitoring of ongoing physical works at private as well as community pasture land at Dhawdiya, Khera fala and Rayla villages.
- Initiate climatic vulnerability assessment based on the Participatory Rural Appraisal (PRA) and group meetings.
- Finalizing the compiled PRA report and preparation of Assessment Report.
- Organize two village level meetings with core group members for planning demonstration activities like FFS on Water and Animal Husbandry.
- One day training programme for FFS (Agriculture) on crop cultivation, especially after sowing practices like basal dressing of nitrogenous fertilizers and inter-culture operation activity.
- One day training programme for data collection of household survey forms.
- Monitoring of household data collection.
- Testing of adaptation Matrix format at individual and village level interaction.
- Climatic data analysis and interpretation.
- Monthly village level meetings by field associates involving village and cluster core group members in the project villages.
- Preparation of Vulnerability Assessment Report and Adaptation Framework which is in progress.

## **2.4 Enhancing the knowledge and capacity of Country Water Partnerships and Regional Water Partnership to promote climate resilient development in the water sector**

Identification of inadequacies in existing Reservoir Operation Schedules (ROS) in Sanjay Sarovar Dam and Ghosikhurd Dam, developing a strategy for introduce changes in the ROS and preparation of community led aquifer management plan are the three tasks under the above activity. IWP with the support of Gomukh Environmental Trust for Sustainable Development (Gomukh Trust), Pune organised two meetings separately with the villagers of Wirli and Itaan villages of Bhandara District in Maharashtra.

Agenda of the meetings was to discuss the reasons for sudden shock releases from the Sanjay Sarovar and Ghosikhurd dams without warnings and secondly the required changes in Wirli and Itaan villages with regard to organizational structure in order to include groundwater aquifer management.

On the first issue Mr Manish Ranajkar of Gomukh Trust raised the point that despite the two meetings held in January February 2014 with the Executive Engineers of Sanjay Sarovar and Ghosikhurd dams along with the written letters and suggestions, the shock releases were made from these dams which resulted loss of property and damage to the newly sown crops. Reason for the shock releases was the prolonged dry period which continued in June and July. It was agreed that the Gomukh Trust team along with the villagers will liaise with the Executive Engineers especially on shock releases without warning and discuss about the decisions on Reservoir Operation Schedule.

On the second issue it was agreed that instead of establishing an additional committee for groundwater, the society registered by the fishermen in Wirli and Itaan villages under the Societies Act should be given the additional responsibilities of aquifer managements.

Under WACREP, the Gomukh Trust with the support of IWP is also preparing case studies on the following topics;

- Restoration of dilapidated *Malguzari* tanks through community work for increasing livelihood opportunities and incomes ultimately to enhance resilience,
- Translocation of fish cultures along with their related species and other flora for restoring biodiversity and productivity of inland tanks,
- Formation of district level federations of fishing co-operatives based on latest government policy/resolutions (Government of Maharashtra),
- Traditional practices of farming; different varieties/growing species of *cucurbits* on stream and river sand-beds,
- Groundwater aquifer management model for conjunctive use of surface water and groundwater; and assessing the potential for replication.

One of the case studies of Wirli and Itaan villages of Bhandra District for groundwater aquifer management is enclosed as *Annex III*.

## 2.5 Finalization of Yelganga Success Story by India Water Partnership

The Yelganga case study documented under Low cost/no regret investments options in Maharashtra was finalized in consultation with Mr K. L. Induruwage, Programme Manager, WACREP and the same was shared with Regional Office, GWP SAS.

## 2.6 Finalization of WACREP Brochure - India

IWP prepared the WACREP Brochure for India. The Brochure gives glimpses of climate change situation in South Asia and the initiatives taken by GWP SAS under this programme. The Brochure also highlights in brief the activities taken-up by the IWP through different work packages to adapt and mitigate the climate change effects in eight states of the country. The brochure has been finalizing in consultation with Mr Induruwage, Programme Manager, WACREP. The brochure would soon be sent for printing.

## Part 5: GWP Nepal/ JVS

### Core activity report

#### 1.1 Study on integrity in hydro projects in Nepal

GWP Nepal/JVS selected *Kulekhani III* and Upper *Trishuli III A* hydropower projects to conduct case studies to assess the integrity in hydropower development processes in Nepal. Both projects are of great importance from the perspective of integrity assessment. The study team inspected the sites of *Trishuli III A* hydropower project and carried out discussions with the project manager, some officials of the project and local people (*Photo 15, 16, 17 and 18*).



PHOTO 15: Dam site of *Trishuli III A*



PHOTO 16: Field study team



PHOTO 17: Discussion with the Nepal Electricity Authority (NEA) Officials of Trishuli III A



PHOTO 18: Discussion with the local stakeholders

## 1.2 151<sup>st</sup> Executive Committee Meeting (ECM)

The 151<sup>st</sup> Executive Committee Meeting (ECM) of GWP Nepal /JVS was held on 27 July 2014 in Kathmandu. Programmatic and administrative issues of GWP Nepal/JVS were discussed at the meeting.

### WACREP activity report

#### 2.1 Preparation of one new Local Adaptation Plan for Action (LAPA) and investigate the investment requirements at the Village Development Committee level to implement LAPA

A consultative workshop;

As a new LAPA is being prepared at Lamatar VDC of Lalitpur District, a complete adaptation plan using 5 "K" approach which needs to be integrated into VDC/Local planning process has been prepared. A consultation was held for LAPA validation. Dr Vijaya Shrestha; Chair, Mr Som Nath Poudel; Vice-chair, Mr Surya Nath Upadhyay; Secretary General, Mr Batu Krishna Uprety; Executive Committee Member of GWP Nepal/ JVS and Mr Pashupati Pokhrel; Local Development Officer of Lalitpur District marked their presence at the programme. The possible ways to overcome water issues were discovered;

1. Establish umbrella organizations for different water and forest user groups to avoid the conflict of inequitable distribution of accessible resources in the communities.

2. Developing plans and police on water resource distribution and responsibilities for circulation.
3. Proper management of waste which was produced due to increased urbanization and industrialization in the VDC, through reduce, recycle and reuse policy.
4. Give high importance to pro-poor, marginalized and vulnerable groups in preparing local plans and distribution.

(Photo 19, 20, 21, 22 and 23)



PHOTO 19: Participants during the local level consultative workshop



PHOTO 20: A participant with her comments



PHOTO 21: Local Development Officer, Mr Pashupati of Lalitpur district with his remarks



PHOTO 22: Mr. Batu Uprety with his remarks



PHOTO 23: Dr Vijaya Shrestha with her remarks



## **2.2 Document the on-going climate change adaptation projects with particular emphasis on major activities on climate financing**

GWP Nepal/JVS carried out a study in order to document the climate change adaptation projects and activities, and analyse funding availability and gaps on climate financing in Nepal. The report is under the peer review.

### **Part 6: Pakistan Water Partnership (PWP)**

#### **WACREP activity report**

##### **1.1 WACREP Work Package 1: Regional and Transboundary cooperation**

Second meeting of the Regional and Transboundary Cooperation is being scheduled for 15 to 16 September in Kathmandu. Tentative agenda and rationale are enclosed as *Annex IV and V*.

##### **1.2 WACREP Work Package 2: National Development**

After several meetings with Government agencies and stakeholders/ beneficiaries it has been decided to hold a consultative meeting with all relevant agencies for which a concept note was prepared and sent to Dr Pervaiz Amir for further review. The concept note is enclosed as *Annex VI*. The Consultative meeting is being scheduled for last week of August 2014.

##### **1.3 WACREP Work Package 3: Development of Area Specific Investments**

Area specific Investment proposal for Tharparkar Drought prepared and presented to the Government of Pakistan in May 2014 in order to secure appropriate donors. In July, the Government of Pakistan has perused the report and indicated PWP for giving the priority for the matter together with donors for funding.

- The bio sand filter was successfully experimented in PWP office and will be demonstrated and replicated in the remote areas of Tharparkar as a source of clean drinking water. The task will be carried out in August and logistical arrangements have been made in July for the visit of PWP mission to Tharparkar.
- Water sample of a drinking water well of Kot Najibullah, Haripur was tested from the Water Clinic prior to passing through the bio sand unit (the report of the water test is enclosed as *Annex VII*). The water filtered by the bio sand unit was retested to determine the degree of purification and its safe use for human consumption on 15 July (*Annex-V*). The biosand unit has improved the water quality and made it safe for human consumption.
- Improving Hygiene Conditions in Tharparkar 1,000 packs of homemade low cost hand and clothes washing soaps manufactured by PWP's special project will be distribute among marginalised communities of Tharparkar in mid- August.

#### **1.4 WACREP Work Package 5: Demonstration Project**

Piloting biogas plants as alternate farm energy technologies in collaboration with Eco-Conservation Initiatives (ECI) - a partner of PWP is in progress. As previously identified sites were found unfeasible, two more areas were selected in July at Potohar region after thorough review and consultation with all relevant stakeholders. The newly selected two sites are found suitable for these innovative approaches to be implemented and demonstrated. Specifications for the biogas unit and pumping system have been finalized and the installation will commence in August. This will be utilized as an opportunity to train about 15 potential beneficiaries from other communities with an objective of getting replicated the same among the interested communities at their own expense.

#### **1.5 Launch of Area Water Partnerships in Gilgit-Baltistan and South Punjab**

The discussions ongoing with the local partners for establishing new Area Water Partnership (AWP) in Skardu, Gilgit-Baltistan, the Himalayan foothill. Necessary logistical arrangements for the tentatively planned meeting in 29 to 30 August in Skardu is being done in July (*Photo 24*).

Establishing and launching an AWP in South Punjab which was discussed within the PWP Board during April was taken up in a meeting with Cholistan Development Council (CDC) held in PWP office on 23 July 2014. Four representatives of PWP and three office bearers of CDC were attended for the meeting. The formalities were thoroughly discussed and selected Bahawalpur to establish the new AWP. Cholistan Development Council agreed to propose a steering committee to oversee all processes and completion of formalities for the new AWP. The launch meeting is anticipated in October or November in Bahawalpur after making all necessary arrangements.



**PHOTO 24: The meeting with CDC**

### C. Outcomes

Reports from AWPAs have confirmed that the adoption of rainwater harvesting has increased the availability of water for agricultural and domestic purposes of farmers. This impacted the crop production improving their household incomes. This is one of the outcomes of WACREP farmers' trainings on rainwater harvesting conducted in the area.

### D. NEWS

- i) Dr Pervaiz Amir, Director PWP was interviewed by third pole in July on the topic of "Pakistan's farmers worry over the poor monsoonal forecast". The article was published in the magazine on 17 July 2014 (*Annex VIII*).
- ii) Ms Shai Bista; Second Secretary, Environment-Science-Technology and Health Officer of the Embassy of United States of America held a meeting with the PWP Country Coordinator on 24 July. The discussion was on assessing the training needs of Pakistan in the field of Water Management and Environmental Improvements. More than two hours long meeting concluded with an understanding to make collaborative efforts in capacity building of Pakistan nationals through the Embassy's support and scholarship programmes.
- iii) Dr Pervaiz Amir was interviewed by Radio Pakistan on gas and oil exploration on 30 July 2014.
- iv) PWP Executive Director/CEO has been requested by the GWP-SAS to chair a session "Nexus: P2.2 Implications of hydropower for food security in a changing climate" in the 4<sup>th</sup> Asia-Pacific Climate Change Adaptation Forum 2014 to be held in Kuala Lumpur, Malaysia on 1 to 3 October 2014.
- v) Mr Naseer Ahmad Gillani; Chairman PWP/Chief Water and Environment is developing a case study titled "A Case Study of Dattu Hydropower Project – Impacts of International Finance and Public Policy". Possibly this is to be presented at the session on "Nexus: P2.2 Implications of hydropower for food security in a changing climate" at the 4<sup>th</sup> Asia-Pacific Climate Change Adaptation Forum 2014.

## Part 7: Sri Lanka Water Partnership (SLWP)

### Core Programme

#### 1.1 Programme on Urban Wetlands.

A follow up activity on the Bolgoda wetlands complex was held on 11 July at Kesbewa Urban Council. The meeting facilitated connecting local authorities and community organizations with the state agencies such as Central Environment Authority (CEA) and Divisional Secretariat. Three volunteer community groups were formed at the meeting to represent each administrative division and the groups will assist in monitoring the status of wetland and report to CEA and authorities. CEA will undertake the registration of these organisations. This was the first time where the local authority has taken the responsibility for monitoring functions.

37 participants including the Public Health Officials, the Kesbewa Urban Council Chairman, CEA Staff, Officer in-charge (OIC) Police and Development Officers of the Divisional Secretariat participated in this programme. Dr Deepthi Wickremasinghe of the University of Colombo and Mr Missaka Hettiarachi of Queensland University provided resource input. These professionals also joined with SLWP in Urban Wetlands programme initiated in Kollonnawa urban wetland in 2012.

Two more follow up programmes for wetlands in Panadura and Moratuwa to be organised in August/September. Mapping and status survey to be undertaken in collaboration with CEA and 3 local authorities after the creating the monitoring groups.

Output:

Established formal organizations constitute of local authorities and communities to work on issues related to Bolgoda wetland with CEA and other relevant agencies.

### **1.2 Kotapola/ Deniyaya (Nilwala Sub Basin River Basin Organisation/River Basin Management (RBO/RBM) Programme)**

The 2<sup>nd</sup> meeting of this activity aimed at a survey on water resources and water quality, socio economic mapping and raising awareness on water quality, health and sanitation in the estate sector. The activity was organised by the Nilwala AWP, University of Ruhuna and ALAF Alumni (Beneficiaries of the Australian leadership programme supported by SLWP and NetWater), Kotapola Pradeshiya Sabha and the National Water Supply and Drainage Board (NWSDB). Meeting was held on 28 July at the Deniyaya Cooperative Hall. Activities of the programme include developing a resource inventory, identifying issues related to drinking water, health and sanitation especially in the estate sector and build capacity of the local government authority to address the gaps. This programme will ultimately contribute to the National Water Surveillance Programme.

A total of 41 attended the programme including 5 resource persons from health and water sector and the University. The survey and expertise will be funded by ALAF, water quality testing by NWSDB and logistics will be handled by SLWP. Main objective of the project is to link the activities undertaken by NWSDB, Local Authority and the Estate sector.

Output:

The Nilwala Upper Catchment Action Group has been developed.

### **1.3 Menik Ganga Clean River Programme**

SLWP supported the Menik Ganga AWP Clean River Programme activities for the 8<sup>th</sup> successive year starting from 8 July. This is a week long programme implemented during the

Kataragama festival where the river in the town gets polluted extensively due to pilgrims who camp for festival and water intake by NWSDB.

This is an annual voluntary activity jointly organised by the AWP and NWSDB conducted using posters, banners, bilingual leaflets and a public addressing. Reportedly it impacted to a certain extent to reduce pollution in the river in Sella Karatagama area. The cost for publications was borne by SLWP while the other activities were sponsored by AWP.

Output:

Results of water quality testing conducted by NWSDB indicated that there is a reduction in pollution of the river during the festival mainly by collecting fecal matter after this year's intervention. Nevertheless the acceptable levels are yet to be achieved.

#### **1.4 Deduru Oya AWP Programme on RSM and CCA at Bingiriya.**

A programme on Climate Change Adaptation (CCA) and RSM was held in Bingiriya at the Bingiriya Divisional Secretariat on 19 July (*Photo 25*). A total of 70 AWP and CBO members including 2 resource persons and 2 media representatives attended the programme. Illicit sand mining which exacerbated the impacts of CC and water supplies for drinking and livelihoods in Deduru-oya and its tributaries including Kolamuna-oya, was highlighted in the programme. SLWP is collaborating with Special Task Force (STF) which was given a special training on River Sand Mining (RSM) in 2013 on this issue.



**PHOTO 25: Programme at Bingiriya**

#### **1.5 Meemure IWRM/ CCA programme**

At the request of the Forest Department, SLWP held an IWRM/CCA programme in a remote village of Meemure and Kaikawela situated in Knuckles (a UNESCO Heritage site) on 22 July SLWP collaborated with the Forest Department, NWSDB, Provincial Health Department of Central Province for programme implementation (*Photo 26*). The programme was focused on raising awareness on IWRM, Water Resources Conservation, catchment conservation and CC adaptation measures including traditional practices.

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A mini-hidro project is in place in the village, where the generated power is being utilized for irrigation purposes during day time while villages use them at night to full fill their electricity requirements. However, as per the villages only 15 families constitute of village elites are being utilizing the benefits of this Community Water Supply and Sanitation Project (CWSSP) forcing the rest to use the river. SLWP will work closely with FD on catchment management activities based on the agreed activities integrated to its RBO/RBM programme.



PHOTO 26: The programme in Meemure

### 1.6 Joint Private Sector Activity.

11 Sanitations Awareness Programmes were held at Denuwara Education Zone in Kandy during July 2014. This is a follow up of the Health Support and Toilet Rehabilitation Programme conducted with the assistance of private sector partner- National Development Bank (NDB) and Lions Club Pillimalawe in 2013. Two More programmes are to be conducted in September. The programme was initiated by SLWP and was handed over to NDB to conduct with the assistance of Lions Club. SLWP is assisting only to generate publications for the programme.

### Output:

The water and sanitation programme catalyzed and facilitated by SLWP in 2012/13 has now fully handed over to NDB and is continuing under their CSR programme.

### **1.7 Other**

The 7<sup>th</sup> SLWP Programme Committee (PC) Meeting was held on 17 July. The 8<sup>th</sup> PC meeting is scheduled for 15 August and Steering Committee on 26 August.

### **1.8 Associated Events**

SLWP Chair participated in the Disaster Management Committee Meeting on 17 July at the Ministry of Disaster Management.

## **2 WACREP activities**

The prolonged dry spell which destroyed vast extents of *Yala* cultivation and created issues in drinking water resulted shift of emphasis of Irrigation Department, Irrigation Management Division of the Ministry and the NWSDB on CCA.

### **2.1 Technical/ Field Staff CCA Programmes (Lead collaborating partner ID)**

- a) The programme was held on 1 July at Mahiyangana Cultural Centre for Project Committee Members of the Minipe (Kandy/Matale), Soraborawewa, Mapakda and Bathmeddilla major schemes back to back with the Farmer Organisation (FO) Leader programme held on 30 June at Hasalaka, Minipe. A total of 79 participated including 64 Project Management Committee (PMC) members. Resource persons included the Regional Director-Irrigation; Central Province, Additional Director - Natural Resource Management Centre (NRMC) of the Department of Agriculture (DA), Deputy Director Agriculture Extension and an Irrigation Agronomists. Director Irrigation Management Division (IMD) also attended the programme.
- b) Two programmes were held on 5 and 30 July at Kothmalen and Galgamuwa respectively based on two requests from Kothmale International Irrigation Training Institute of Mahaweli Authority of Sri Lanka (MASL)/Ministry of Irrigation for its in service trainees and Irrigation Department (ID) for its Engineering Assistants of Irrigation Training Institute Galgamuwa. Resource Persons included Director Department of Meteorology, Director - Water Management; ID, Director -Extension and Training; Department of Agriculture, Additional Director NRMC and Senior Lecturer of *Rajarata* University. Director Planning, Designs and Capacity Building of ID represented the Director General of Irrigation at this event.
- c) A two and half day Training of Trainers programme for selected staff of ID, IMD, NWSDB, DA and Department of Agriculture Services (DAS) is scheduled for late September at DA in-service Training Centre Gannoruwa. This is follow-up to the above programmes where selected staff will be trained in CCA as well as communication and training methods. This would enable the collaborating partners to develop a core group of trainers to continue with WACREP initiatives. The Programme is being organised with the Extension and Training Division of the DA.

## 2.2 Farmer Organisation Leader/ Farmer Awareness CCA Programme. (Lead Collaborating Partner IMD.)



PHOTO 27: FO leader programme in Puttalam

a) A FO Leader Programme was held in Puttalam for major and medium schemes in the District on 21 July held at the District Secretariat (*Photo 27*). The FO leaders from major Schemes - Tabbowa, Inginimitiya, Radavi Bendi Ela and Neela Bemma and 7 medium schemes in total 94 attended this programme. Senior Lecturer from the University of Rajarata attended as a resource person for the programme.



PHOTO 28: FO Leader programme in Puttalam

The Regional Director (Irrigation); Puttalam, an Irrigation Agronomist (consultant), a subject specialist from DA, Director IMD and Additional District Secretary; Puttalam attended the programme (*Photo 28*).

b) Two FO leader programmes were organised back to back on 30 and 31<sup>st</sup> July at Nuwara Wewa and Tissawewa Anuradhapura as follow up activities to the FO Leader Programmes undertaken earlier (*Photo 29*). 92 and 87 farmer leaders were attended for Nuwara wewa and Tissawewa programmes respectively. Deputy Director (Agriculture) Anuradhapura,



Regional Director (Irrigation) Anuradhapura and a Senior Lecturer of the Rajarata University were also attended the programme.



PHOTO 29: FO leader programme

### 2.3 Drinking Water CBO Programme (Lead Collaborator NWSDB)

A drinking water CBO related CCA programme was held in Minipe for CBO office Bearers in Wilgamuwa, Minipe, and Ududumbara. A total of 103 participants from CBO of a total of 109 attended this programme. Experts from NWSDB and Regional Director Health Services attended as resource persons and Chair, SLWP attended the programme. The issue of Chronic Kidney Disease of unknown cause (CKDu) was also discussed at the meeting as a matter of interest of the area.

### 2.4 School CCA Programme (Lead Collaborator Provincial Education/ Health Depts.)

a) A School CCA awareness Programme was held on 1 July at Hadaththawa Maha Vidyalaya back to back with a similar programme on 30 July at Mahiyangana (*Photo 30*). 191 students and 18 teachers participated for the programme. Project Director NWSDB and Senior Epidemiologist Provincial Health Department attended as resource persons while Mr S. B. Niyangoda; Senior Advisor represented SLWP. Programme covered issues related to climate change, water quality, health and Sanitation issues.



PHOTO 30: School CCA awareness programmes

b) A similar programme was organised at St. Thomas College, Matale on 11 July (*Photo 31*). The resource persons were the Senior Chemist; NWSDB, Senior Epidemiologist; Provincial Health Department and Head KITI Kothmale. 247 participants included 10 teachers and 65 senior students attended the workshop.



PHOTO 31: CCA School programme in Matale

### **2.5 New Technology Options - Demonstration Projects. (Main Collaborators Ruhuna/ Rajarata Universities.)**

a) The first demonstration for selected farmers of Southern Province out of two planned was held on 2 July at the In-service and Development Centre of DA at Angunakola pellessa organised by the University of Ruhuna and DA (*Photo 32*). 40 selected farmers from Weeraketiya, Walasmulla, Mulkirigala and Medamulana and 10 officers from the relevant agencies were participated the programme. Experts from the University, DA, Grain, Legumes and Oil Crops Research Centre, School of Agriculture and Red Cross Society attended as resource persons.

Suitable different cropping options, available technology packages and their uses and costs, available subsidies/credit facilities for crops and maintenance were discussed at the session. Famers rated this as an extremely valuable programme as they currently get similar information only through the commercial sector.



PHOTO 32: The demonstration programmes for selected farmers

b) The two programmes for North Central Province were held on 22 and 23 July organized by the University of Rajarata and DA Field Crop Research and Development Institute (FCRDI) Maha-Illupallama (the premier centre for research and development in Sri Lanka). Altogether 51 selected farmers including farmers from major schemes of Huruluwewa, Mahakandarawa, Mah villachiya, Nuwara wewa, farmers from medium schemes and three project managers attended the programme held on 22 July. Similarly, 48 farmers including farmers from Rajangana and Nachaduwa and from surrounding medium schemes, project managers and a Development Officer from the respective schemes attended programme held on 23 July.

Director; FCRDI and his staff and Heads of the Agricultural Engineering and Soil Science Departments of University of Rajarata coordinated the overall programme. It was agreed to continue the communication and information flow from the University to the farmers and vice versa through the respective project managers.

## **2.6 Farmer Resilience Survey (University of Ruhuna, Rajarata and Open University.)**

Pilot testing of the questionnaire has been done in early June and the forms were printed in local languages (sinhala and tamil). TOR and survey schedules are being completed and the consultancy awards were processed by IWMI. A mobilization advance will be paid for the

consultants to start with the survey. The field survey is being scheduled for September for North Western Province and North Central Province.

## **2.7 Some Perceived Output/ Impacts from WACREP Intervention**

At the beginning WACREP activities were more supply driven and SLWP put more effort to promote them within the implementation regimes of the participating agencies. However, consecutive floods and dry spells in the country increased the demand and response of farmer organizations and CBOs for CCA. Consequently, the higher level staffs of IMD, ID and NWSDB are now routinely attends the district programmes organized by SLWP on CCA by indicating the importance of the programmes. Further the interdisciplinary approach - involving relevant different agencies and Universities has resulted enhancing the interaction between institutions working on CCA.

Few observations on behavioural changes of partners have given below;

- a) The ID and IMD will seek to provide annual budgetary allocations, from consolidated fund to incorporate CCA in there programmes, rather than support through ad-hoc funding. This may be due to the pressure and demand from farming community consequent to greater awareness raised by WACREP.
- b) The Irrigation Training Institute (ITI) of Irrigation Department with and Kothmale International Irrigation Training Institute (KITI) of Ministry/MASL with are planning incorporate CCA as part of their curricula.
- c) For the first time, the agencies who are concerned on water, Universities (Rhuhuna, Rajarata) and research stations of Department of Agriculture (Maha-Illuppallama and Angunkolapelessa) are working together on reinforcing CCA activities. Though the interaction between agencies was common, it was very rear to see the involvement of universities in CCA in the past.
- d) Through WACREP, CCA activities, SLWP have facilitated linking the Department of Meteorology with agencies implementing irrigated agriculture.
- e) Following close interactions with SLWP on WACREP, the DA intends to set up a CCA unit within the Extension Division of the Department. The DA has been actively supporting WACREP and will also assist in organising TOT programme planned for September.

## **3 Conclusions**

WACREP has provided an avenue to undertake a set of sub-sector based, complementary fully integrated and timely activities on CCA. The catalyzing and facilitating role played by


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SLWP assisted the relevant state stakeholders to facing the challenges due to CC especially drought. Conversely IWRM led multi- faceted approach under Core activities need much attention and SLWP/GWP should secure the “branding” as a major IWRM/water sector player in the country/world. However more discrete and infrequent interventions due to lack of funding would take much longer to establish change. One of the major successes under Core was SLWP RSM activity which was given impetus through extra funding under the WIN programme.

Therefore it is essential to lay emphasis on few selected themes both under Core and WACREP and increase the intensity and frequency of intervention. A minimum of Euro 8 to 10 thousand annual funds needs to be allocated on one selected theme atleast for two successive years to facilitate carrying out acritical mass of activities. Further it is essential to have a budget of Euro 20,000 only for programme implementation and a total of Euro 30,000 to attain the generic objectives of Core programme.

**Annexes:**

- Annex I: Farmer’s Training on Sustainable Agriculture Practices and Water Management: Proceedings, 24 July 2014
- Annex II: Action for Food Production (AFPRO), Monthly Narrative Report for the Month of July 2014
- Annex III: A Case study of Wirli and Itaan villages (Wainganga Basin), Bhandara District, Maharashtra
- Annex IV: Agenda; Strengthening regional co-operation among Afghanistan, India & Pakistan on climate change resilience (Indus & Kabul Rivers), Second Regional Meeting
- Annex V: The rationale of strengthening regional co-operation among Afghanistan, India & Pakistan on climate change resilience (Indus & Kabul Rivers) workshop, Second Regional Meeting
- Annex VI: Concept Note, Background of Floods & droughts in Pakistan
- Annex VII: Post water analysis
- Annex VIII: Interview with *The Third Pole*



This report contains the activities conducted by the GWP SAS Network, which comprises of the GWP SAS Regional Office and the Country Water Partnerships of Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka. This is the monthly report for July 2014.