

Appendix

*Minutes and Discussion Records on SC, TWG
and Stakeholder Meetings*

No.	Meeting Title	Date
1	1 st Steering Committee Meeting on the Inception Report	February 18, 2009
2	1 st Stakeholders' Consultation Seminar	May 21, 2009
3	Joint Steering Committee and Technical Working Group Meeting on Progress Report 1	October 19, 2009
4	2 nd Stakeholders' Consultation Seminar	October 9, 2009
5	2 nd Technical Working Group Meeting	November 4, 2009
6	3 rd Technical Working Group Meeting	November 25, 2009
7	Joint Steering Committee and Technical Working Group Meeting on Interim Report	February 17, 2009
8	4 th Technical Working Group Meeting	February 24, 2010
9	3 rd Stakeholders' Consultation Seminar	March 11, 2010
10	5 th Technical Working Group Meeting	March 26, 2010
11	Joint Steering Committee and Technical Working Group Meeting on Progress Report 2	August 12, 2010
12	Report on 6 th Technical Working Group Meeting on	September 29, 2010
13	Technical Working Group Workshop	October 7, 2010
14	4 th Stakeholders' Consultation Seminar	October 13, 2010
15	Joint Steering Committee and Technical Working Group Meeting	October 27, 2010
16	Joint Steering Committee and Technical Working Group Meeting on Draft Final Report	December 1, 2010

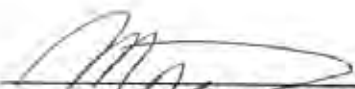
APPENDIX 1

Minutes of 1st Steering Committee Meeting on the Inception Report on
February 18, 2009


**MINUTES OF FIRST STEERING COMMITTEE MEETING
ON
THE INCEPTION REPORT
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COOPERATION AGENCY**

February 18th, 2009 at Quezon City



MAKIKO OTOGAWA
Study Team Leader
Japan International Cooperation Agency



RAMON B. ALKPALA
Executive Director
National Water Resources Board
(Chairman of Steering Committee)

WITNESSED BY:



KENJI NAGATA
Leader of Monitoring Mission
Japan International Cooperation Agency

In accordance with the Implementation Arrangement for "The Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin" (hereinafter referred to as "the Study") agreed upon between National Water Resources Board (hereinafter referred to as "NWRB") and Japan International Cooperation Agency (hereinafter referred to as "JICA") on November 24, 2008, JICA dispatched the Study Team headed by Mr. Makihiko Otogawa for the commencement of the Study.

The meeting of the Steering Committee (hereinafter referred to as "SC") was held on February 17, 2009, 9:00 a.m. – 11:00 a.m. at the Meeting Room of NWRB to discuss the contents of the Inception Report and the necessary items for the smooth implementation of Study. The meeting was chaired by Mr. Nathaniel C. Santos, Deputy Executive Director, NWRB. The list of the participants to the meeting is shown in Annex.

At the start of the meeting, the Study Team officially submitted thirty (30) hard copies and ten (10) soft copies of the Inception Report in accordance with the Implementation Arrangement for the Study.

Mr. Nathaniel C. Santos made opening remarks emphasizing the Pampanga river basin as the one of the most important river basins in the Philippines, the existing problems in the basin such as the frequent water-related disasters and the conflict among water users, which were pointed out in the Central Luzon Water Summit, and the necessity of the implementation of the Study in order to cope with the problems. Mr. Kenji Nagata, Senior Advisor of Water Resources, JICA also made opening remarks that cooperation with the related agencies is indispensable for successful implementation of the Study. He also stated that the Study is challenging not only for the improvement of the water management in the Pampanga river basin but also for being one of good examples for execution of the Integrated Water Resources Management (herein referred to as the "IWRM").

The contents of the Inception Report were explained briefly by Mr. Makihiko Otogawa, Leader of the Study Team, and were accepted by the SC with some comments and suggestions. The major comments and suggestions given in the meeting are as follows:

(1) The SC agreed the following items:

- The SC will take a role to deliberate and approve the plans, methodologies, schedules and all other proposals made by the Study Team in the course of the Study.
- The Technical Working Group (herein referred to as the "TWG") will be responsible to furnish the necessary data/information to the Study Team and further undertake the technical supports for the Study Team. The SC also agreed that the members of TWG would attend the meetings of the SC.
- Difficulties are foreseeable in holding the stakeholder meeting as well as all other coordinating works with the relevant agencies during a period from April to July 2010 due to the general election scheduled in May 2010. The Study Team will re-examine the study schedule, and show the revised schedule to NWRB after approval of JICA.

(2) The members of the SC gave the following comments, and the Study Team will incorporate them into the Study:

- Ms. Araceli C. Ordina, DENR suggested that the good governance of the water resources management should be examined as one of the targets outcomes of the proposed IWRM Plan.
- Mr. Eugene Diaz, RBCO-DENR suggested that the members of the SC at the director levels shall attend the SC meeting as the decision makers. He also commented that the LGUs, who are affected by the inter-basin transfer, should be included as the stakeholders.

- Mr. Ricardo C. Medina, Provincial Gov. of Bulacan suggested that the irrigator's association (farmer's water use association) and the fishery/aquatic resources council should be included in the members of the TWG.
- (3) At the end of the meeting, Mr. Santos requested the members of SC to submit the further written comments and suggestions on the Inception Report to NWRB so as to transmit them to the Study Team.

With no other matters for discussion, the meeting was adjourned by Mr. Santos at 11:00 am.

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
First Steering Committee Meeting
Meeting Room, NWRB Quezon City
February 17, 2009

Attendance Sheet

NAME	POSITION	OFFICE	CONTACT NO.
1. Mr. Nathaniel C. Santos	Deputy Exec. Director	NWRB	(02) 920-2693
2. Mr. Edgar Basilio	Senior Economic Development Specialist	NEDA Central Office	(02) 631-3724
3. Mr. Agustin Mendoza	Supervising Economic Development Specialist	NEDA Region III	(02) 961-3902
4. Mr. Marciano M. Franco	Chief Economic Development Specialist	NEDA Region III	(02) 961-3902
5. Ms. Araceli C. Oredina	Development Management Officer IV	DENR	(02) 961-3902
6. Mr. Arthur dela Cruz		NIA	(02) 928-4130
7. Mr. Orlando M. Casio	Engineer III, DPWH-PS	DPWH	(02) 3304-3069
8. Mr. Atty. Ruben Fondevilla	Assistant Chief State Counsel	DOJ	(02) 524-9315
9. Mr. Eugene Diaz	Civil Engineer / Sanitary Engineer	RBCO-DENR	(02) 924-2540
10. Ms. Rosalie Pagulayan		PAGASA	(02) 929-4065
11. Ms. Rosalia G Adonis	Environmental and Natural Resources Officer, Pampanga	Provincial Government of Pampanga	(045)861-3606
12. Mr. Ricardo C. Medina, Jr.	Environmental and Natural Resources Officer, Bulacan	Provincial Government of Bulacan	(044) 791-8163
13. Mr. Elmer C. Alcanar	Provincial Development Officer II	Provincial Government of Bulacan	(044) 791-0901
14. Ms. Susan P. Abaño	Engineer IV	NWRB	(02) 920-2724
15. Ms. Felisa M. Manlulu	Information Officer IV	NWRB	(02) 920-2724
16. Ms. Josephine R. Billones	Engineer II	NWRB	(02) 920-2724
17. Mr. Francis B. Hilarie	Economist III	NWRB	(02) 920-2724
18. Ms. Florimel R. Balbedina	Economist III	NWRB	(02) 920-2724
19. Mr. Kenji NAGATA	Senior Advisor	JICA Headquarters	
20. Ms. Yoko HATTORI	Program Officer	JICA Headquarters	
21. Mr. Naoto KUWAE	Representative	JICA Philippines Office	(02) 889-7119
22. Ms. Minnie Dacanay	In-house Consultant	JICA Philippines Office	(02) 889-7119
23. Mr. Makihiko OTOGAWA	Team Leader / IWRM	JICA Study Team	0917-492-0023
24. Mr. Tadanori KITAMURA	Deputy Team Leader/ Water Resources Development and Management Planning	JICA Study Team	0927-794-0820
25. Mr. Yukihiko MIZUTANI	Institution, Organization /Consensus Building	JICA Study Team	0927-793-0420

APPENDIX 2

Report on 1st Stakeholders' Consultation Seminar on May 21, 2009

ORGANIZATION

The two-day First Stakeholders' Consultation on the Japan International Cooperation Agency (JICA) - assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin" was held on May 21-22, 2009 at Social Action Center of Pampanga (SACOP), Ephatha Development Center, Brgy. Maimpis, City of San Fernando, Pampanga.

The National Water Resources Board (NWRB) as the overall policy and coordinating body in the water sector and lead agency in the implementation of IWRM in the country, with JICA consultants conducted the First Stakeholders' Consultation Seminar as part of the on-going 2-year Study to formulate the IWRM Plan for Poverty Alleviation and Economic Development in the Pampanga River Basin, under the development study programme of JICA which started in February 2009.

The Pampanga River Basin is the fourth largest river basin in the Philippines with about eight million people who rely on water for various economic uses. The IWRM Study was commissioned in response to the need to manage the multiple uses of the basin's water resources in a sustainable manner without compromising the life-sustaining functions of vital ecosystems. The existing conditions related to water resources management shall be assessed and appropriate interventions shall be proposed within the framework of IWRM.

With stakeholder consultation being an integral part in the IWRM planning process, it was deemed appropriate to organize the First Stakeholders' Consultation with people who will be affected by the IWRM Plan during the data-gathering stage of the Study. The first day was for stakeholders from the upstream areas of Pampanga River Basin (Tarlac and Nueva Ecija) while the second day was for stakeholders downstream of the Basin (Bulacan and Pampanga).

The said consultation was the first of the series of other stakeholder consultations and consensus building activities that will follow which will help refine the focus of the Study and in the end, ensure stakeholder ownership of the IWRM Plan that will be formulated.

OBJECTIVES

The two-day seminar was conducted to:

- a) Increase awareness on the on-going Study;
- b) Have a common understanding on IWRM;
- c) Clarify the objectives, methodology and expected outputs of the Study within the framework of IWRM; and
- d) Solicit issues and concerns that matter to most number of stakeholders.

ATTENDANCE

A total of eighty-one (81) participants attended the 2-day consultation, thirty-one (31) from upstream areas and fifty (50) from downstream areas of the basin. The participants represented various sectors that include government agencies, water districts, local government units (LGUs), non-government organizations, business sector, industries and

academe. List of participants is attached as Plate A. The directory of participants is attached as Plate B.

Some staff from JICA Philippines, consultants from the JICA Study Team and selected NWRB staff were also present. The list of names is attached as Plate C.

PROGRAM

The program for each day of the seminar is attached as Plate D. Ms. Emadelyn M. Quinones, JICA Study Team Coordinator served as the emcee and facilitator/moderator during the consultation while Ms. Felisa M. Manlulu, NWRB Counterpart Coordinator provided the activities for the energizer/ice breaker.

A. OPENING CEREMONIES

The singing of the National Anthem was led by Ms. Josephine R. Billones of NWRB and the invocation by Ms. Felisa M. Manlulu.

B. WELCOME REMARKS

- **Day 1**

NWRB Deputy Executive Director and Officer-in-Charge Atty. Nathaniel C. Santos welcomed the participants. He expressed his appreciation for the attendance of the participants who represented the major stakeholders on water resources management in the region. He acknowledged the role of the academe in providing the scientific perspective in the management of water resources.

He informed that the IWRM Study for Pampanga River Basin is an undertaking of NWRB through the technical assistance of JICA. IWRM has been identified in the Medium Term Philippine Development Plan (MTPDP) as the strategy to be adopted for water resources management using the river basin approach which is also in line with the country's international commitment to the World Summit on Sustainable Development. It is for this reason that a National IWRM Plan Framework was developed by NWRB and the Study on IWRM for Pampanga River Basin is being undertaken.

He took note of the importance of Central Luzon which covers the Pampanga River Basin as the food basket of the Philippines and source of water supply for Metro Manila as water is sourced from Angat in Bulacan. However, it experiences flooding during rainy season and water shortage during summer. The problems and issues faced by the region had been tackled during a Central Luzon Summit held years back. NWRB for its part is faced with the challenge of balancing the water allocation from Angat Reservoir in order to provide water for irrigation and water supply. On the other hand, water districts play an important role in the provision of potable water supply that will meet the country's global commitment to halve the

proportion of the population without access to potable water supply by 2015. This is a priority program of President Macapagal-Arroyo.

He concluded by saying that the consultation is only the first of a series of consultations to solicit views and ideas as inputs to the Study for better management of water resources of the Pampanga River Basin towards addressing its problems, issues and challenges and attainment of national goals.

- **Day 2**

Engr. Isidra D. Peñaranda, OIC of the Policy and Program Division, NWRB welcomed the participants in behalf of Dep. Exec. Dir. and OIC Atty. Nathaniel C. Santos. She expressed her appreciation to the participants for sparing their precious time to be able to attend the consultation. She also thanked JICA through the consultants who were present as partner of NWRB in undertaking the Study.

She informed the participants that a similar consultation was conducted the previous day attended by participants from the upstream areas of Pampanga River Basin composed of Nueva Ecija and Tarlac and the day's consultation was for the stakeholders downstream of the basin from Bulacan and Pampanga including representatives from the River Basin Control Office (RBCO) and Metropolitan Waterworks and Sewerage System (MWSS) as stakeholders also in the Study.

She reiterated the important role of the Pampanga River Basin as the source for domestic water supply in Metro Manila through the Angat reservoir, being within Central Luzon which is the food basket of the country and the role of the participants in the management and development of water resources in the Basin. Likewise, she highlighted the difference of the multi-sectoral consultation for the Study on IWRM for Pampanga River Basin with other gatherings and summits conducted in the past which were sectoral in approach resulting to fragmented and uncoordinated activities. Under the Study, the focus is on the integration of all activities of various agencies to address the water resources problems and issues confronting the Basin consistent with the IWRM approach, a strategy identified in the MTPDP 2004-2010 for water resources management.

She emphasized that the NWRB is the lead in the implementation of the Study but the participants as stakeholders play a big role since the IWRM Plan that will be formulated is for their Basin. It is important that stakeholders develop a sense of ownership through their participation and involvement in the consultations and other activities that will be undertaken within the 2-year Study. Their inputs, comments and recommendation are also very important for the enhancement in the implementation of the Study. With a hard task ahead of them, it is her hope that the day will be fruitful and participation will be sustained in future consultations.

C. PROGRAM ORIENTATION

The program orientation was a discussion on the schedule of activities, methodologies and overview about the consultation as well as the house rules. Ms. Quinones informed that considering the large size of the group and the need to solicit from everyone the

issues and concerns on water resources that matter to them as stakeholders, a workshop was added to the original program to be able to divide the group into four (4) heterogeneous groups, with each group electing its leader or rapporteur who will guide the group in the discussion and consensus building on the important issues and present the outputs during the plenary session. An NWRB staff will seat in each group to facilitate the process of identifying the issues.

She also mentioned that the day's consultation is for stakeholders from the upstream areas of the Pampanga River Basin. Another consultation will be conducted the next day for stakeholders from the downstream areas so the entire Basin is represented in the discussion. The outputs shall provide guidance on how the Study should proceed and where to focus the Study as far as the issues are concerned.

D. PRESENTATIONS

- Engr. Isidra Peñaranda, OIC of the Policy and Program Division (PPD), discussed about the NWRB and its role in the water sector as the apex body and national coordinating agency on water resources management and development activities as well as the National IWRM Plan Framework.

Salient points mentioned were the following:

- NWRB is composed of the NWRB Board and the NWRB Secretariat. The Board approves the policy while the Secretariat is the working staff headed by the Executive Director;
- Water districts without financial obligation with Local Water Utilities Administration (LWUA) are supposed to be regulated by NWRB by virtue of EO 123 but it is not yet being undertaken;
- A Technical Working Group studies and recommends the allocation of water from Angat Reservoir;
- In recognition of the environment as another user of water, the NWRB has an existing policy for the allocation of water that 10% has to be reserved for environmental flow;
- Recent NWRB policies:
 - a) Registration of wells for domestic (household) use;
 - b) Issuance of Conditional Water Permit prior to issuance of water permit;
 - c) Policy on water allocation for golf courses in critical areas where use of recycling and reuse are being encouraged;
 - d) Memorandum of Agreement (MOA) with Cooperative Development Authority (CDA) on the light handed regulation;
- IWRM seeks to address the fragmentation in the water sector through the shared responsibility of all stakeholders in the management of water within a river basin context;
- There are on-going initiatives in the sector for the development of the framework on climate change;
- Agencies have pledged their support in the adoption and localization of the IWRM Plan Framework as well as in its mainstreaming in their respective activities;
- The river basin or the watershed is the best planning unit for IWRM if applicable, otherwise the island may also be used.

- Mr. Makihiko Otagawa, JICA Study Team leader, presented the objectives, methodology and expected outputs of the “Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin”.

The Study area covers three river basins for a total of about 91 municipalities distributed in Pampanga, Nueva Ecija, Tarlac, Bulacan and Aurora. The municipalities of Obando and Meycauayan in Bulacan are beyond the hydrological boundaries of the Pampanga River Basin but in consideration of the possibility of sourcing surface water from these municipalities for the domestic use of residents in the area as well as in other municipalities of Bulacan in the future, it was also included as part of the Study area, particularly for the water demand projection aspect.

The objectives of the Study basically are to formulate an IWRM Plan for the Pampanga River Basin in coordination with other concerned organizations and to transfer relevant skills and technologies on IWRM to personnel of NWRB as well as other concerned organizations. The Study would introduce the management of water resources in Japan which is different from how water is managed in the Philippines.

In recognition of the need to involve stakeholders for a participatory water governance and consensus-building, the formulation of the IWRM Plan is to be done in conjunction with several stakeholders’ meeting where comments, recommendations and proposals on water resources management can be elicited as inputs to the Study. He cited that in the three months of field data collection undertaken since the Study started in February 2009, it was observed that there was a lack of awareness on the Study, which prompted the early conduct of the Stakeholders’ Consultation. The next consultation will probably be held sometime in September for the presentation of the progress report on the Study.

Likewise, in consideration of the socio-economic and natural conditions related to the water resources changes, the Study will use a spiral plan revolution with different stages and steps for a dynamic and adaptive approach to the formulation of the IWRM Plan. It shall be a continuing sequence of the following steps that represents one spiral stage: assessment of existing condition, planning, implementation and monitoring. The Study coverage is until the planning part where the IWRM Plan will be formulated. Currently, it is still under the data collection and analysis phase. He emphasized that after completion of the Study, the IWRM Plan needs to be adjusted in accordance with changes in socio-economic and natural conditions.

E. OPEN FORUM

The issues/queries raised during the open forums and the responses of the resource speakers are tabulated below:

- **Day 1**

QUESTION/COMMENT	RESPONSE
<p>Vic Taylan of CLSU</p> <ul style="list-style-type: none"> ▪ Who will implement the Plan, NWRB or JICA? ▪ What will be the scenario at the basin after 2025 with respect to watershed, waterways, irrigation facilities, economic development, commercial, housing, industries, recreation and quality of life? 	<p>Mr. Otogawa:</p> <ul style="list-style-type: none"> ▪ The JICA Study Team is providing the technical assistance for the formulation of the IWRM Plan. Implementation itself should be done by the development agencies under the integrated coordination by the NWRB. After 2025, the Government of the Philippines should continue with stage 2 of the spiral process of analysis, planning, implementation and monitoring in accordance with the updated socio-economic and natural conditions. <p>Atty. Santos:</p> <ul style="list-style-type: none"> ▪ The scope of the technical assistance is the analysis and planning, so at the end of the project through the assistance of JICA and its consultants, an IWRM Plan will be formulated for the Pampanga River Basin. Part of the Plan is the institutional component that will determine who will be implementing the projects identified in the Plan. It could be the national government through the NWRB or the appropriate agency or in some areas where IWRM will be introduced, NWRB will help the stakeholders in forming an IWRM Council that will be composed of representatives from the different stakeholders in the specific river basin. This could be an option although the national government will continually extend the necessary support if there are projects requiring its assistance. The IWRM Council in this case can help organize, implement and monitor the implementation of the plans and programs that are identified as part of the Plan.
<p>Roglio Miguel of Muñoz WD: What is the legal basis for the implementation of</p>	<p>Atty. Santos: The Local Government Code can be a legal basis in the direction of</p>

QUESTION/COMMENT	RESPONSE
IWRM?	decentralization and devolution. The MTPDP identified IWRM as the strategy to be adopted for water resources management using the river basin approach. The MTPDP is supported by an Executive Order. The option of tapping the regional development councils as an avenue to introduce IWRM council is also being considered. In some areas, like Negros and Bohol, it would be something like a MOA between the affected provincial governments.
<p>Engr. Marcelino Manalo of NIA CamRIS: IWRM is good because it prepares for what will happen in the future especially the need for water. Every agency has already existing policies on how to conserve water resources but the problem is the political will for implementing these policies. The organization that has the political will to implement the policies must be a major consideration in the preparation of the policies.</p>	<p>Atty. Santos: Political will is indeed very important - that everybody in the sector all agree that it has to be done. The strength of this process is that it is not only the ownership of one entity but a Plan that will be owned by all the stakeholders because everyone will be part of the process in preparing and implementing the Plan, monitoring the achievements of the Plan and in making the necessary adjustments if needed. By experience, if the implementation of the Plan rests only on one person or organization, if the organization grows weak, the Plan will not push through. Unlike in a participatory process where everyone helps each other, if there is one organization that lacks the political will to do it, at least there are other people/sectors that can pick up from where it stopped and continue it. The good feature of IWRM is that it is a participatory process whose implementation, failure or success is not dependent on just one organization but to all stakeholders because everyone will be affected by its failure or success.</p>

Observations/ Information/Recommendations Gathered:

- (a) It was requested that water districts be represented in the NWRB Board through its Provincial Associations and not through LWUA considering that only big water districts are being recognized by LWUA.
- (b) The NWRB as the implementing body of the Water Code should be an independent body just like a Commission that cannot be influenced by politics;
- (c) It was recommended to include in the functional chart of water-related agencies under flood management, NIA and NPC as the operator of the Pantabangan and Angat Dam, respectively. These agencies are included in the Flood Forecasting

and Warning System for Dam Operation. Likewise, under hydropower, NIA should also be included since the water releases for Pantabangan Dam is managed by NIA even after the privatization of its operation (Mr. Conde of NIA Nueva Ecija);

- (d) Having observed that the biggest user of freshwater is agriculture and 50% of which is for irrigation, the importance of having representation from water users in the conduct of stakeholders consultations was raised as the implementation of IWRM will go down to the end users. Their commitment has to be directly engaged in the implementation of the Plan (Evangeline Sibayan from the Philippine Rice Research Institute);
- (e) There is an Upper Pampanga River Basin Council which may be included in the TWG.

- **Day 2**

QUESTION/COMMENT	RESPONSE
<p>Orlando Pineda of Mines and Geosciences Bureau (MGB) – Reg. 3: It has been observed that many subdivisions, businesses and factories have its own water system which may not have water permits from NWRB. Considering the limited manpower of NWRB, water districts can be accredited in the issuance of water permits. Considering also that NWRB is already with DENR, staff from PENRO, CENRO and regional offices may be trained to be of help to NWRB. Likewise, LGUs can be of assistance by requiring as part of the business permits of the establishments the submission of their water use projection for input in the data collection.</p>	<p>Engr. Peñaranda: Based on the Water Code, there are already existing deputies in the region, i.e. NIA, DPWH and water districts. NWRB had also piloted the MOA with LGUs. In QC, a WP has to be secured from NWRB as a condition to the business permit. In the same manner, the same collaboration and partnership with concerned agencies can also be applied in the area, given the limited resources of NWRB. The utilization of regional PENRO and CENRO of DENR is part of the rationalization plan. NWRB will be attached to the DENR and the regional offices will be deputized. The appropriate entity, whether PENRO, CENRO or regional offices will be trained, as it is already institutionalized within DENR. However, the approval of the rationalization plan has temporarily been deferred by Pres. Gloria Macapagal-Arroyo due to global financial crisis.</p>
<p>Sonny Dobles, Jr. of Advocacy Development for Central Luzon (ADCL): Does the project include a study on the effects of animal wastes being thrown directly to the rivers, like the piggeries in Porac so as to know the extent of the problem created by animal wastes? There is this information in the internet on how bad the problem is but a case cannot be filed if the study is not</p>	<p>Ms. Quinones: The project shall cover the study of the potential water pollutants of the Pampanga River Basin. The starting point is the collection and inventory of potential sources that includes wastes from agricultural activities, i.e. piggery, poultry and livestock. At present, the data constraint is that the complete list of registered industries has not yet been collected. What has been gathered is the listing of industries that applied for</p>

QUESTION/COMMENT	RESPONSE
<p>undertaken by the government.</p>	<p>discharge permit with DENR-EMB although this is not even a complete list of industries operating in the basin. So far, in the provinces of Pampanga, Tarlac, Nueva Ecija and Bulacan, poultry, livestock and piggery have the most number of discharge permits. Towards the end of the first phase of the study in November, perhaps some estimates of the potential pollution load based on the production volume and capacity of these industries can be arrived at. By September, there will be another consultation meeting for the presentation of results of the initial estimates.</p>
<p>Hermogenes De Castro of Bulacan Confederation of Irrigators Association: Considering that farmers from Bulacan get their water source from Angat, does NWRB have any study on the compensation of farmers in cases when releases of water for irrigation use have to be sacrificed in favor of domestic use during water shortage even though planting has already started?</p>	<p>Mr. Otogawa: As far as the JICA study is concerned, it cannot be said yet. Personally, compensation might be relatively difficult because according to local ordinance, in times of extraordinary drought, full water supply cannot be guaranteed to the water users and in this case, compensation may be difficult. Nevertheless, there will be further clarification on the matter.</p>
<p>Cesar Odi of DENR-RBCO: Will the Study Team conduct primary data collection on groundwater availability within the Pampanga River Basin for the projection on future demand?</p>	<p>Mr. Otogawa: The projection on future demand is an integral part of the study. However, the Team will rely on existing secondary data. No supplemental field survey will be conducted.</p>
<p>Juan Miguel Fuentes of Clark Development Corporation (CDC):</p> <ul style="list-style-type: none"> ● In the development of IWRM, are preparations being made for a model in a scenario wherein there is already overextraction or a scenario wherein the available water resources in a certain area is no longer enough for the users? What kind of policy can be developed or are expected to be the outcome of the plan? What kind of plan is expected to probably apply in these areas? 	<p>Mr. Otogawa:</p> <ul style="list-style-type: none"> ● As the study is still in the data collection phase, there is no recommendation yet. The analysis on water demand-supply balance has just begun. If some critical condition in the water balance is found, some program will be considered to cope with the water shortage. For instance for the Angat Dam, there are some ideas on the new water resources development program and the introduction of new technology for irrigation that will decrease irrigation water demand. Depending on the condition, structural and non-structural measures will be considered.

QUESTION/COMMENT	RESPONSE
<ul style="list-style-type: none"> Relative to the issuance of water permit, is there any document that NWRB has for reference on water availability? 	<p>Engr. Peñaranda:</p> <ul style="list-style-type: none"> NWRB has groundwater availability data that is being used in the allocation of water for the issuance of the water permit. However, there is a need to review and update it since it was prepared way back early 80s. It is for this reason that NEDA is pushing for a proposal to donor agencies to come up with the national assessment of ground and surface water.
<p>Hilton Hernando of PAGASA: Looking at the concerns, issues and problems being tackled on IWRM and NWRB being the spearhead agency, are there any recommendations as to the form of structure that will best work for Pampanga River Basin? It would be best if there is one umbrella body that will handle the matter and integrate all the issues.</p>	<p>Mr. Otagawa: This is also one of the major subjects of the study output. An ideal organizational set-up can be given but the actual condition is quite very different from the ideal condition. There may also be a practical organizational set-up. The Study will prepare two kinds of organizational set-up. One is some sort of a compromise organizational set-up that is practically applicable for the present water resources management and another one is some sort of a milestone to set up the ideal organizational set-up by 2025.</p>
<p>As regard to the objectives of the study, one of the objectives is about capability building or transfer of technology. How can the stakeholder benefit from the transfer of technology by training them as regard to the management of resources?</p>	<p>Mr. Otagawa: The major target for the counterpart training are the counterpart agencies. The transfer of knowledge to stakeholders will be mainly done through stakeholders' meeting and some occasional meetings at the office.</p>

Observations/ Information/Recommendations Gathered:

- (a) It was recommended to include DENR in the functional chart of water-related agencies considering that the NWRB Board Chair is the DENR Secretary and DENR has many projects that are related to watershed characterization, watershed vulnerability and analysis. In the issuance of Environmental Compliance Certificate of DENR-EMB for some housing projects, conditions that can help in water conservation can be included (Orlando Pineda of MGB-Reg. 3);
- (b) There was a project undertaken during the time of then DENR Sec. Ceriles that aimed to establish the water resources database within the country where all the regional offices were required to submit their inputs (Orlando Pineda of MGB-Reg.3);

- (c) The possibility of including LGUs in the proposed institutional set-up for water resources management was raised since it may be accredited in the issuance of water permits of its constituents;
- (d) A study on the extent of the harmful effects and pollution created by hog wastes is not necessary before a case can be filed against the responsible person. The fact that these wastes are discharged without the necessary treatment as required in the guidelines is already a violation and one has the right as a citizen of this country to file a case against them (Mr. Fuentes of CDC);
- (e) There was a study on agrichemical runoff conducted by the Philippine Rice Research Institute where some wells within NE and Pampanga were sampled in order to find out whether agricultural run-off from pesticides and fertilizers have already reached potable sources. The result was negative;
- (f) A query was raised regarding updates on the proposed construction of the Balog-Balog Dam (Alfonso Dobles of ADCL);
- (g) The Study is an opportunity to undertake an inventory of all the establishments operating in the area considering that there are establishments such as piggeries that are operating without a permit or are not being monitored by DENR because it does not comply with the required permits (Eugene Diaz of DENR-RBCO);
- (h) There is an on-going 2-year study being conducted by the Philippine Nuclear Research Institute on isotope dating of waters in Bulacan. Some information are already available with the Calumpit WD. The EEI Corporation has also been commissioned by MWSS to study whether Calumpit can be tapped as a source for Metro Manila and Bulacan water demand (Arthur Carlos of Calumpit WD);
- (i) A query was raised on the location of the man-made recharge area for aquifers in Bulacan so it can be the focus of recharge for the Calumpit WD (Arthur Carlos of Calumpit WD);
- (j) Studies conducted by the UP-National Institute of Geological Sciences (UP-NIGS) showed that there is overextraction of groundwater in Calumpit due to the proliferation of subdivisions in the upstream. There is also seawater intrusion in Meycauayan because of the booming subdivisions in the eastern side. Time will come that there will also be some intrusion in other areas if too much extraction cannot be addressed. With the current amount of rainfall, there is lack in recharge (Orlando Pineda of MGB-Reg. 3);
- (k) In areas covered by San Ildefonso WD, high chloride content in water is being experienced apart from salt water intrusion in the coastal areas. In the issuance of water permit in the area, this should be considered since water may be available but not fit for human consumption.

F. WORKSHOP

The workshop discussion dealt on the issues that the stakeholders think are important and matter to them as far as water resources is concerned.

- **Day 1**

Group 1 identified five issues: a) management/institutional – related issues; b) inadequate water supply during dry season for irrigation purposes; c) flooding during rainy season; d) watershed degradation resulting to erosion and siltation along

waterways of the river basin; and e) water quality related issues such as salt intrusion in some parts of Nueva Ecija and Bulacan. The management related-issues are poor implementation of policies, lack of political will, overlapping mandates/functions of some agencies, inequitable sharing of water resources, poor maintenance of facilities particularly the service irrigation systems, and inadequate access to new technologies such as the use of information technology to water resources management.

Group 2 identified four issues: a) poor water quality due primarily to improper waste management; b) watershed denudation due to unabated influx of people to the watershed and illegal logging in the Doña Remedios Trinidad-Gen. Tinio watershed; c) poor implementation of laws on water permitting and illegal logging practices; and d) water losses being experienced by water districts due to illegal connection. Related to the water quality issue, a case was cited where an open dump site is right beside the pumping station of the Cabanatuan WD.

Group 3 identified five issues: a) lack of water governance; b) watershed denudation; c) inadequate water supply for domestic and irrigation use; d) GW and SW pollution; and e) flooding (due to human intervention)/drought.

Group 4 identified five issues: a) management-related issues; b) water denudation due to illegal logging/farming, overgrazing and forest fire; c) inadequacy of potable water supply due to lowering of water table as experienced by Cabanatuan WD; and d) inequitable distribution between irrigation and domestic water due to political intervention. It was noted that the country has a land use plan but no water use plan.

The workshop grouping with the outputs of the four groups are attached as Plate E.

- **Day 2**

Group 1 identified four issues. The issues identified in order of priority were as follows: a) management issues; b) water supply issues on quantity and quality; c) degradation of watershed; and d) climate change related issues. Management issues concerns the mismanagement/lack of funds and lack of coordination of authorities on policies. Water quantity issues pertain to the conflicting use of water from Angat for hydropower, domestic and irrigation purposes as well as overextraction of groundwater while quality issues arise from improper waste management and effects of pesticides or chemicals on catchment areas. Climate change related issues concerns flooding caused by La Niña and drought caused by El Niño.

Group 2 identified six issues: a) overextraction/groundwater mining; b) watershed degradation; c) political/governance issues; d) poorly managed urban development; e) inadequate infrastructure support; and f) climate change, i.e. global warming resulting to climate change that results in turn to extreme weather (more rain causes flooding while less rain causes drought). The lack of planning in infrastructure development within the Pampanga River Basin and the need to establish real time groundwater monitoring stations within the Basin was noted by the group.

Group 3 identified five issues: a) deteriorating water quality due to sand pumping and improper waste disposal; b) inadequate water supply especially during summer due to aquifer depletion and low water pressure; c) institutional issues such as weak

enforcement of laws and political intervention; d) watershed/river basin degradation and; e) flooding as a result of the degraded watershed.

Group 4 identified six issues: a) water pollution caused by overuse of agri-chemicals and improper waste disposal; b) flooding caused by fishponds along waterways (Bulacan) and lack of flood control structure; c) institutional issues such as poor enforcement of environmental laws, lack of political will and absence of integrated plans for water resources; d) forest denudation caused by irresponsible mining and informal settlers (kaingin); e) scarcity of water supply due to population growth; and f) inadequate research and development on appropriate technology.

The workshop grouping with the outputs of the four groups are attached as Plate F.

G. SUMMARY AND INTEGRATION

- **Day 1**

Common issues were observed among the 4 groups. These were issues that relate to water governance, water quality, water supply and watershed denudation. The prioritization of the issues for each group varied but practically all experienced the same issues with regard to water resources management.

- **Day 2**

There were similar issues identified among the groups and issues were cross-cutting. There were also issues that only a particular group had identified. The issue on the need for research and technology is an issue only Group 4 identified. Technology is available but the appropriate technology is not explored since there is no adequate access to these technologies. Group 2 had identified the need for real time groundwater monitoring although monitoring in general has been identified by the rest of the groups, i.e. the need to manage the data collection and monitoring of some parameters for information on the status of the country's water resources. The need to establish a good monitoring system is an urgent issue to be able to tell real time situation with respect to water quantity, water quality and the quality of the surrounding environment.

Finding the solutions to the issues that beset the Pampanga River Basin is the next step which is within the scope of the Study.

H. CLOSING REMARKS

- **Day 1**

On behalf of the Study Team, Ms. Quinones thanked the participants for their active participation in helping the Study Team set the direction for the next stage of the work. The output of the workshops will set the course of the study in terms of identifying the possible solutions that the Study Team will come up with in order to address the

priority issues that were felt by practically all of the participants. The group sharing in the workshop proper was a realization to everyone that there are issues other than one's selves and issues that are bigger than the turfs that each protects. This must be considered in planning the activities/programs within the individual turfs.

The participants are a part of the Study, being part of the consultative process. There will be a next round of consultations and by that time, whatever that has been agreed upon for the day on the issues, will be a part of the outputs of the Study.

- **Day 2**

Atty. Santos delivered the closing remarks. He was glad to see during the workshop that the participants already have an appreciation of IWRM. He said that with the observation that the issues are all inter-related, there is a need to look at water resources at an integrated manner. This is the biggest change in water resources management. Another change is the current planning process where unlike before, the water resources planning of the central government is from top to bottom, now it is from bottom to top so the issues from the point of view of the stakeholders are already being considered. It is for this reason that the first activity is the stakeholders' consultation.

He congratulated the participants for being productive and for their important contribution to the Study. The inputs provided are very important for it will be the start of the IWRM Plan for Pampanga River Basin. There are more consultations to come. Even after the Study is completed, the participants will have a role in the implementation of the project and in the monitoring of the activities that will be identified in the project.

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5. Takeshi IKEMATSU - JICA Study Team
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9. Jusas MALLARE - JICA Study Team
10. Emadelyn QUINONES - JICA Study Team
11. Francis FUNA - JICA Study Team, GIS Engineer
12. Eleazar RUPIDO - JICA Study Team, Secretary

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1. Nathaniel C. Santos
2. Isidra D. Peñaranda
3. Felisa M. Manlulu
4. Francis B. Hilarie
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6. Josephine R. Billones

First Stakeholders' Consultation on JICA-assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin"

**Schedule of Activities
May 21, 2009**

TIME	ACTIVITIES	RESOURCE PERSON
8:00AM – 9:00AM	REGISTRATION	Secretariat
9:00AM – 9:20AM	Opening Ceremonies <ul style="list-style-type: none"> • Invocation • National Anthem • Welcome Remarks 	Atty. Nathaniel C. Santos Deputy Executive Director Officer-in-Charge
9:20AM – 9:30AM	Program Orientation: Schedule of Activities, Methodologies, Overview about the Stakeholders' Consultation	Ms. Emadelyn M. Quinones JICA Study Team Coordinator Facilitator/Moderator
9:30AM – 9:50AM	ICE BREAKER	Ms. Felisa M. Manlulu Counterpart Coordinator Facilitator
9:50AM – 10:15AM	SNACK BREAK	
10:15AM – 11:00AM	The IWRM Framework and NWRB's Mandate	Engr. Isidra D. Penaranda OIC, Policy & Program Division (PPD) Counterpart Team Leader
11:00AM – 11:30NN	Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin	Mr. Makihiko Otagawa JICA Study Team Leader
11:30AM – 12:15PM	Open Forum	Facilitator/Moderator
12:15PM – 1:00PM	LUNCH BREAK	
1:00PM – 1:20PM	ACTIVITY	Facilitator
1:20PM – 3:15PM	Workshop	Facilitator
3:15PM – 3:30PM	SNACK BREAK	
3:30PM – 3:40PM	ENERGIZER	Facilitator
3:40PM – 4:10PM	Presentation of Workshop Outputs	Group Rapporteur
4:10PM – 4:20PM	Summary & Integration	Facilitator/Moderator
4:20PM – 4:30PM	Closing Remarks	
4:30PM	End of Session	

First Stakeholders' Consultation on JICA-assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin"

**Schedule of Activities
May 22, 2009**

TIME	ACTIVITIES	RESOURCE PERSON
8:00AM – 9:00AM	REGISTRATION	Secretariat
9:00AM – 9:20AM	Opening Ceremonies <ul style="list-style-type: none"> • Invocation • National Anthem • Welcome Remarks 	Atty. Nathaniel C. Santos Deputy Executive Director Officer-in-Charge
9:20AM – 9:30AM	Program Orientation: Schedule of Activities, Methodologies, Overview about the Stakeholders' Consultation	Ms. Emadelyn M. Quinones JICA Study Team Coordinator Facilitator/Moderator
9:30AM – 9:50AM	ICE BREAKER	Ms. Felisa M. Manlulu Counterpart Coordinator Facilitator
9:50AM – 10:15AM	SNACK BREAK	
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11:00AM – 11:30NN	Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin	Mr. Makihiko Otagawa JICA Study Team Leader
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3:40PM – 4:10PM	Presentation of Workshop Outputs	Group Rapporteur
4:10PM – 4:20PM	Summary & Integration	Facilitator/Moderator
4:20PM – 4:30PM	Closing Remarks	
4:30PM	End of Session	

**WORKSHOP OUTPUTS
(May 21, 2009)**

GROUP 1

Rapporteur: Victorino Taylan - CLSU
 Members: Lovercain De Jesus – Tarlac WD
 Rolando Estacio – Concepcion WD
 Rommel G. Gragasin – Guimba WD
 May Balingit – Cabanatuan WD
 Eugenio Conde – NIA-UPRIIS
 Edna V. Galura – DPWH, Tarlac Sub-Engineering District
 Minnie Dacanay – JICA Philippines
 Gerundio Fernandez – DENR-CENRO
 Facilitator: Isidra Penaranda – NWRB

MAIN ISSUES	SUB-ISSUES
1.Management issues	<ul style="list-style-type: none"> • Poor implementation of policies • Lack of political will • Conflict between LGU and Management (political intervention) • Overlapping of mandates/functions of some agencies (issuance of clearances) • Limited government support (subsidies) • Increasing water cost • Poor maintenance of infrastructure (dilapidated service irrigation systems) • Inequitable sharing of water resources (water management) • Resistance to change (on modernization) • Inadequate access to new technologies (use of information technology to water resources management) • Poor data management • Poor IEC
2. Inadequate water supply (dry season)	<ul style="list-style-type: none"> • Depletion of groundwater
3. Watershed degradation	<ul style="list-style-type: none"> • Soil erosion • Siltation of waterways
4. Water quality	<ul style="list-style-type: none"> • Salt intrusion on freshwater
5. Flooding	

GROUP 2

Rapporteur: Ma. Luisa Fajardo – NEUST
 Members: Alex Ello – Cabiao WD
 Fernando Roque – NIA-BBMP
 John Mateo – LGU, Cabanatuan City
 Gerry Calling – Palayan City WD
 Sonny Arandilla – Muñoz WD
 Raden Santillan - Paniqui WD
 Leonarda Taclang – DENR-PENRO, NE
 Efren Rugayan – Palayan City WD
 Facilitator: Felisa M. Manlulu – NWRB

MAIN ISSUES	SUB-ISSUES
1. Poor water quality	<ul style="list-style-type: none"> • Lack/improper solid waste management • Impact on health and pollution • Industrial waste • Poultry and piggery waste, pesticides • Pollution on catchment area • Improper waste dumping • Dumping of solid waste in waterways
2. Watershed denudation	<ul style="list-style-type: none"> • Unabated influx of people to the watershed • Effects of forest denudation to water resources • Unabated timber coaching (illegal logging) in the Doña Remedios Trinidad -Gen. Tinio watershed
3. Poor implementation of laws	<ul style="list-style-type: none"> • Implementation and issuance of water permit and certifications who and how • No strict implementation of laws pertaining to illegal logging practices
4. Water losses at the water district	<ul style="list-style-type: none"> • System losses and illegal connection

GROUP 3

Rapporteur: Marcelino P. Manalo – NIA CamRIS
Members: Teodoro F. Ginoy – Peñaranda WD
Teresita L. Manzano – DENR-CENRO
Manuel E. Macaraeg – Ramos WD
Evangeline B. Sibayan - PhilRice
Elmer Mateo – Cabanatuan City Government
Facilitator: Josephine R. Billones - NWRB

MAIN ISSUES	SUB-ISSUES
1. Water governance	<ul style="list-style-type: none">• Implementation at lower level (LGU support)
2. Watershed denudation	<ul style="list-style-type: none">• Preservation of watershed area by IWRM• Siltation
3. Inadequate water supply	<ul style="list-style-type: none">• Inadequate potable water supply• Diminishing water supply for irrigation• Inequitable access to water (water allocation)• Water conflict• Conflict management
4. Water pollution (GW/SW)	<ul style="list-style-type: none">▪ Disposal of industrialwastes directly to water bodies
5. Flooding/ drought	

GROUP 4

Rapporteur: Roger Miguel – Muñoz WD
 Members: Ding Tañedo – Gerona WD
 Lito Domingo – DENR-CENRO
 Warlie Hipolito – Jaen WD
 Orlando Castro – Sta. Rosa WD
 Rudy Goduco – Cabanatuan City WD
 Rose Bote – NIA – UPRIIS
 Facilitator: Francis B. Hilarie - NWRB

MAIN ISSUES	SUB-ISSUES
1. Management Concerns	<ul style="list-style-type: none"> • Management zoning of watershed • Misuse of groundwater • Lots of policies but lack of proper action (political will) • Monitoring of water leaks, wastewater • Water conservation through proper use of water • Lack of funds • Water affordability
2. Watershed denudation	<ul style="list-style-type: none"> • Illegal logging • Forest fire • Illegal farming • Over grazing
3. Inadequacy of water supply	<ul style="list-style-type: none"> • Soil erosion • Siltation of waterways
4. Poor water quality	<ul style="list-style-type: none"> • Poor water quality monitoring • Water contamination
5. Inequitable distribution	

**WORKSHOP OUTPUTS
(May 22, 2009)**

GROUP 1

Rapporteur: Jose Dimatulac - MWSS
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 Domingo Lucas – Pladridel WD
 Manuel Mendoza Jr. – LGU-Pampanga
 Carmencita Agustin – BFAR-Reg. 3
 Felix Robles – NIA BANE-IMO
 Romeo Sunga – PFARMC
 Edilberto Mallari – Angeles City WD
 Armando Taruc – PAGASA
 Allen Galang – Mabalacat WD
 Rosendo Panganiban – NIA-Reg. 3
 Juan Miguel Fuentes – Clark Development Corp.
 Facilitator: Isidra D. Peñaranda – NWRB

MAIN ISSUES	SUB-ISSUES
1. Management issues	<ul style="list-style-type: none"> • Mismanagement of funds esp. if political intervention is present • Lack of funds <ul style="list-style-type: none"> - Limited IEC activities - Training needs affected - Lack of facilities and equipment resulting to poor communication system • Lack of coordination of authorities on policies
2. Water supply (quality and quantity)	<ul style="list-style-type: none"> • Lack of irrigation water • Overuse of groundwater <ul style="list-style-type: none"> - Saline water intrusion - Salt water intrusion • Conflict use of water source • Wastewater management <ul style="list-style-type: none"> - Sewerage treatment plan - Wastewater treatment • Sanitary facilities • Pesticides, chemicals on catchment areas • Waste disposal
3. Degradation of watershed	<ul style="list-style-type: none"> • Siltation

MAIN ISSUES	SUB-ISSUES
	<ul style="list-style-type: none"> • Erosion on riverbanks • Encroachment • Illegal logging due to the presence of informal settlers • Illegal mining
4. Climate change and related issues	<ul style="list-style-type: none"> • Flooding • Drought • Health-related problems

GROUP 2

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 Ma. Niza Castro – Plaridel WD
 Antonio Cacdac – LGU Bulacan
 Virgilio Garcia – NPC-DRWD
 Jose Algy Canlas – DILG-Reg. 3
 Jose Fronza – Trilan Waterworks
 Grace Cruz – BSU
 Jeremy Bungay – Mabalacat WD
 Olive Mercado – Trilan Waterworks
 Agustin Mendoza – NEDA-Reg. 3
 Roberto Estrella – Baliwag WD
 Facilitator: Felisa M. Manlulu - NWRB

MAIN ISSUES	SUB-ISSUES
1. Overextraction/groundwater mining	<ul style="list-style-type: none"> • Illegal groundwater extraction • Groundwater depletion • Salt water intrusion • Land subsidence
2. Watershed degradation	<ul style="list-style-type: none"> • Lahar deposition/remobilization threat • River system degradation • Denuded forest • Siltation/sedimentation • Quantity- drought/flooding
3. Political issues (governance)	<ul style="list-style-type: none"> • Need for river basin authority or commission • Policy on water impounding basins • Conflict related to Angat Reservoir • Compensation for diverted water rights • Managing the distribution (lead agency) <ul style="list-style-type: none"> – Distribution/allocation • Land ownership upstream and downstream of Bustos Dam • Conflicting land use • Lack of funds • Coordination with agencies • Enforcement of Environmental Laws and Policies
4. Poorly managed urban development	<ul style="list-style-type: none"> • Inadequate water supply • Population growth • Growing settlements in environmentally constrained areas • Wastewater disposal

MAIN ISSUES	SUB-ISSUES
	<ul style="list-style-type: none"> • Garbage disposal <ul style="list-style-type: none"> - Waste dumping in rivers and other water bodies • Illegal connections • Proper management of waste disposal • Social awareness of water users • Illegal quarrying (abuse)
5. Inadequate infra support	<ul style="list-style-type: none"> • Lack of planning in infrastructures • Establishment of real-time groundwater monitoring stations within the Pampanga River Basin
6. Climate change	<ul style="list-style-type: none"> • Global warming

GROUP 3

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 Manuel Sebial – DENR-PENRO
 Cesar Odi – DENR-RBCO
 Hermogenes de Castro – Bulacan Federation of IA
 Arthur Carlos – Calumpit WD
 Linda Pajarillaga – DENR-Reg. 3
 Roy Lozano – Guagua WD
 Arlette Guzman – DPWH-Reg. 3
 Alberto Cotaco – NIA-Tarlac
 Evelyn Galang – NEDA-Reg. 3
 Galo Antonio Violago – San Ildefonso WD
 Facilitator: Josephine R. Billones – NWRB

MAIN ISSUES	SUB-ISSUES
1. Deteriorating water quality	<ul style="list-style-type: none"> • Maputik • Domestic and industrial wastes • Polluted • Contamination of potable water supply • Sand pumping • Monitoring bacteriological testing • Salt intrusion • Toxic • Dumping areas of domestic wastes • Improper garbage disposal • Mineral contamination • Not potable • Presence of coliform bacteria
2. Inadequacy of water supply	<ul style="list-style-type: none"> • Water shortage • Aquifer depletion • Many sprouting refilling stations • Insufficient water during summer • Reduction of groundwater production • Low water pressure
3. Institutional issues	<ul style="list-style-type: none"> • Laws are not strictly imposed • Illegal settlers on river banks • Protection of the river basin • Ineffective infrastructure • Theft • Water right (illegal user) • Illegal fishing • High water tariff • Illegal quarrying

MAIN ISSUES	SUB-ISSUES
	<ul style="list-style-type: none"> • Political intervention • Insufficient financial support • Inadequate monitoring of river basin
4. Watershed/river basin degradation	
5. Floods	<ul style="list-style-type: none"> • Erosion • Lahar • Sedimentation

GROUP 4

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 Orlando M. Pineda, Sr. – MGB-Reg. 3
 Eugenio O. Diaz, Jr. – DENR-RBCO
 Angelo P. Amistoso – Luzon Urban Beltway
 Edilberto P. Santos – Calumpit WD
 Vicente Alvin C. Suba – Guagua WD
 Ofelita S. Pangan – NIA-Floridablanca
 Nenette Valdecantos – San Rafael WD
 Nomer Castaneda, Jr. – San Rafael WD
 Leonardo Manalo – LGU-Municipality of Candaba
 Sonny Dobles – Advocacy Development for Central Luzon
 Facilitator: Francis B. Hilarie – NWRB

MAIN ISSUES	SUB-ISSUES
1. Water pollution	<ul style="list-style-type: none"> • Water quality degradation of selected river/stream • Overuse of agri-chemicals • Informal settlers • Dumping of Waste
2. Flooding	<ul style="list-style-type: none"> • Fishponds along waterways • Lack of flood control structures
3. Institutional issues	<ul style="list-style-type: none"> • Poor environmental laws enforcement • Inadequate IEC • Lack of political will • No. integrated plans for water resources • No avenue for public complaint • Lack of financial resources • Conflicting policies on the management of environment • Inadequate data • Inappropriate land use
4. Forest denudation	<ul style="list-style-type: none"> • Irresponsible mining • Informal settlers
5. Scarcity of water supply	<ul style="list-style-type: none"> • Population increase
6. Inadequate research & development on appropriate technology	


APPENDIX 3

Minutes of Joint Steering Committee and Technical Working Group
Meeting on Progress Report 1 on October 19, 2009


**MINUTES OF JOINT STEERING COMMITTEE AND
TECHNICAL WORKING GROUP MEETING
ON
PROGRESS REPORT 1
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COORPORATION AGENCY**

October 19th, 2009 at Quezon City



MAKHIKO OTOGAWA
Study Team Leader
Japan International Cooperation Agency



RAMON B. ALIKPALA
Executive Director
National Water Resources Board
(Chairman of Steering Committee)

In accordance with the Implementation Arrangement for “the Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin” (hereinafter referred to as “the Study”) agreed upon between National Water Resources Board (hereinafter referred to as “NWRB”) and Japan International Cooperation Agency (hereinafter referred to as “JICA”) on November 24, 2008, the Study Team officially submitted thirty (30) hard copies and ten (10) soft copies of Progress Report 1 to NWRB on September 02, 2009.

In order to discuss the contents of the above Progress Report 1, the joint meeting of the Steering Committee (hereinafter referred to as “SC”) and Technical Working Group (hereinafter referred to as “TWG”) was held on October 06, 2009, 9:30 a.m. – 11:30 a.m. at Social Action Center of Pampanga, San Fernando City. The meeting was chaired by Atty. Nathaniel C. Santos, Deputy Executive Director, NWRB. The list of the participants to the meeting is shown in Annex.

Atty. Nathaniel C. Santos, in his opening remarks, highlighted the importance of integrated water resources management in the light of the disasters in the country brought about by two typhoons during the past several days. He expressed appreciation to JICA and to the Study Team for the conduct of the Study. For the benefit of the NWRB Board members who are part of the Steering Committee and failed to attend the meeting, he requested that the Study Team makes a separate presentation of the Progress Report 1 in the NWRB Board meeting scheduled on October 21, 2009.

Mr. Norio Matsuda, Chief Representative of JICA, gave a short message expressing his sympathy for the victims of floods and landslides brought about by typhoon Ondoy. He mentioned that the considerable flood inundation in Metro Manila and Bulacan was due to heavy rains and environmental degradation, and the Study is indeed very timely and relevant. In the light of the recent catastrophe, he hoped that ideas and efforts will be concerted in the Study for better management of Pampanga river basin that will benefit surrounding communities. On behalf of JICA, he expected that the Government of the Philippines will be able to utilize the results of the Study in formulating policies and planning projects for Pampanga river basin

The contents of the Progress Report 1 were briefly explained by Mr. Makihiko Otogawa, Team Leader for the Study, and they were accepted by the members of the SC and the TWG with some issues, concerns, observations and recommendations, the major parts of which are as described below:

- (1) Mr. Hilton Hernando, Senior Weather Specialist of Pampanga River Basin Flood Forecasting and Warning Center, PAGASA noted that if water releases from dams during typhoons as seen in the recent occurrences at Angat and Pantabangan dams were properly managed, the issues on water shortage could be hopefully alleviated.
- (2) Dir. Vicente Tuddao, Jr., Executive Director of RBCO inquired about the institutional arrangements for management of Pampanga river basin and the involvement of the LGUs in the management of the water resources. Mr. Otogawa replied that there is no definite proposals yet on this matter;

Dir. Tuddao also commented that the estuary management is deemed to have been left behind in the Study. Mr. Otogawa explained that the necessary river maintenance flow had been preliminarily examined as a point of consideration on the estuary management, and the same time, the further study on the matter is still being made.

Dir. Tuddao further commented that the Study Team’s recommendations on usage of the Candaba swamp for flood mitigation would be a good option and should continue working on. Mr. Otogawa explained that the important preconditions on the use of the swamp for flood mitigation would be addressed, namely, the preservation of the swamp as the habitat of the migratory birds during the rainy season and adaptation of the appropriate design scale for the flood mitigation that could require less house relocations.

Dir. Tuddao finally proposed the technical assistance of JICA for crafting of a river law as an offshoot for the study in order to address the uncontrolled proliferation of informal settlers along creeks and rivers that contributes to flooding.

(3) Mr. Minoru Kamoto, JICA River Management Adviser commented the following points:

- It is necessary to elaborate the relationship between the rule curve for reservoir operation of Angat Dam and the recorded frequency of shortage in water supply released from Angat Dam, because the frequency of water shortages could be variable depending on the contents of the rule curve not directly reflecting the actual natural phenomenon.
- The previous river channel improvement in Pampanga Delta Development Project-Flood Component brought out the serious problems in relocating the residents. Taking such unfavorable precedents into account, the appropriate relocation plan should be carefully examined in the project planning stage and timely executed,
- There exist the trans-basin water conveyance systems from Quezon Province and Cagayan Province to Angat and Pantabangan Dam Reservoirs in the Study Area. The serious flood damage often occur in both of Quezon and Cagayan Province, and therefore, the said existing conveyance systems should not only function as the water supply facility but also contribute to flood mitigation in the provinces.
- Many people said the excessive release of discharge from Angat Dam had caused the serious flooding even along Meycauayan River during the recent Typhoon Ondoy. However, Angat dam is not located within the catchment area of Meycauayan River, and therefore, it is virtually difficult to relate the flood damage of the river to the release of discharge from Angat dam. The Study Team is requested to clarify the actual conditions affected by the discharge released from Angat Dam.
- The river sand/gravel quarrying in the downstream channel of Angat River from Bustos Dam is deemed to cause serious damage to the structure of the dam. The construction works of river structures such as bridges as seen in Pasig-Marikina River could also possibly bring out the adverse effect to the river morphologies. From this point of view, the river law as proposed by Dir. Tudao should prescribe the necessary control of river mining and constructions works to preserve the river environments.

(4) Mr. Mario Collado, Engineer V of Bureau of Soil and Water Management (BSWM), Department of Agriculture suggested consideration on storage and recharging of the excessive basin runoff discharge into the aquifers in Pampanga and Bulacan areas for effective use of groundwater. Mr. Otagawa responded that groundwater recharging is rather difficult and does not address the serious salinity intrusion to the groundwater. The shortage of the groundwater for the present and future potential water demand cannot also be addressed solely by recharging, so the Study will look into alternative water sources from surface water.

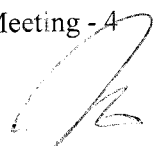
Mr. Collado also suggested that the watershed should be divided into upstream, middle-stream and downstream since the small water impounding management (SWIM) project or small farm reservoirs are best constructed at middle-stream, effectively contributing to recharging of groundwater.

(5) Mr. Gemiliano V. Ferrer, Provincial Planning Development Coordinator of Nueva Ecija recommended the projects for SWIM rather than the projects for storage dam as a solution not only to increase recharge of the groundwater but also to improve the environmental and micro-climatic condition. Mr. Otagawa informed that the Study has included the development of SWIM projects although it was not mentioned in his presentation;

(6) Ms. Candida P. Cabinta, Development Management Officer V of NCIP proposed that the indigenous people (IP), who reside in Pampanga river basin, should be involved in the activities of the Study even in the planning stage in order for them to be able to actively participate in the watershed management and to have incentives as the owner of the territory. Mr. Kitamura informed that the Study Team has the list of IPs but data is needed on its geographical locations for incorporation in the GIS.

(7) At the end of the meeting, Atty. Santos emphasized that any specific water resources management project has not been advocated in the Study yet. The stakeholders for the Study are

still at the level of understanding the issues and concerns within the study area, which would lead to actions and recommendations for the effective management of water resources within Pampanga river basin and to achieve the goals and policies of the national government. He finally requested all of the SC/TWG members to submit any other comments on the Progress Report 1 within one more week. With no other matters to discuss, the meeting was adjourned by Atty. Santos at about 11:30 am

A handwritten signature in black ink, appearing to be a stylized name, located at the bottom right of the page.

The Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin
Joint Steering Committee and Technical Working Group Meeting
Social Action Center of Pampanga (SACOP), San Fernando City, Pampanga October 6, 2009
Attendance Sheet

NAME	POSITION	OFFICE
1. Nathaniel C. Santos	Deputy Executive Director	NWRB
2. Jesse C. Felizardo		PMO-FCSEC, DPWH
3. Agustin C. Mendoza	OIC-Chief/Supervising Econ. Development Specialist	NEDA Reg. 3
4. Rosendo D. Panganiban	Senior Engineer A	NIA Reg. 3
5. Gemiliano V. Ferrer	Provincial Planning and Development Coordinator	PPDO, Nueva Ecija
6. Lorna B. Balmeo	Project Evaluation Officer IV	PPDO, Nueva Ecija
7. Perla T. Delos Reyes		Phivolcs
8. Lovercain de Jesus		Tarlac City WD
9. Daxx Llorente		SCADC
10. Candida P. Cabinta	Development Management Officer V	NCIP
11. Mario Collado	Engineer IV	BSWM, DA
12. Antonio A. Cacdac	Senior EMS	Bulacan ENRO
13. Vicente Tuddao, Jr.	Executive Director	RBCO, DENR
14. Eugenio Diaz, Jr.	Civil/Sanitary Engineer	RBCO, DENR
15. Cesar P. Odi	Forester I/Technical Staff	RBCO, DENR
16. Hilton Hernando	Senior Weather Specialist	PRFFWC, PAGASA
17. Armando P. Taruc	OIC, Pampanga River Basin Flood Forecasting and Warning Center	PRFFWC, PAGASA
18. Rollie I. Legaspi		PPDO, Bulacan
19. Elmer C. Alcanar	Project Development Officer II	PPDO, Bulacan
20. Felixberto Lansigan	Senior Forest Management Specialist	DENR - FMB
21. Arthur R. dela Cruz	Principal Engineer	NIA
22. Rosalia G. Adonis	ENRO	Pampanga ENRO
23. Walter San Diego		SCADC/CDC
24. Virgilio M. Garcia	Principal Hydrologist A	NPC, DRWD
25. Gregel B. Redublado	Department Manager, Dam and Reservoir Operation	NPC, DRFFD
26. Richard Evangelista	Planning Officer II	PPDO, Tarlac
27. Reynaldo Tabelina		PPDO, Tarlac
28. John T. Zapata	Economic Development Specialist	NEDA Reg. 3
29. Josefina N. Pineda	Project Evaluation Officer	PPDO, Pampanga
30. Norio Matsuda	Chief Representative	JICA Philippines Office
31. Naoto Kuwae	Assistant Resident Representative	JICA Philippines Office
32. Minoru Kamoto	JICA River Management Advisor	JICA-DPWH
33. Minnie Dacanay	In-house Consultant	JICA-Philippines Office
34. Makihiko Otagawa	Team Leader/IWRM	JICA Study Team
35. Tadanori Kitamura	Deputy Team Leader	JICA Study Team
36. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team
37. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team
38. Kunita Okuwa	Agriculture Irrigation Expert	JICA Study Team
39. Yayoi Yoshioka	Environmental and Social Considerations Expert	JICA Study Team
40. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
41. Jesusa B. Mallare	Water Supply and Sewerage Planning Expert	JICA Study Team
42. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
43. Eleazar Rupido	Secretary	JICA Study Team
44. Isidra D. Peñaranda	OIC, Policy and Program Division	NWRB
45. Felisa M. Manlulu	Information Officer IV	NWRB
46. Susan P. Abaño	Engineer IV	NWRB
47. Emmie L. Ruales	Engineer IV	NWRB
48. Francis B. Hilarie	Economist III	NWRB
49. Florimel R. Balbedina	Economist III	NWRB
50. Jesusa T. Roque	Engineer III	NWRB
51. Lillian P. Gacusan	Statistician II	NWRB
52. Nora M. Andrade	Administrative Assistant V	NWRB

APPENDIX 4

Report on 2nd Stakeholders' Consultation Seminar on October 9, 2009

ORGANIZATION

The Second Stakeholders' Consultation on the Japan International Cooperation Agency (JICA) - assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin" was held on October 9, 2009 at Social Action Center of Pampanga (SACOP), Ephatha Development Center, Brgy. Maimpis, City of San Fernando, Pampanga.

The National Water Resources Board (NWRB) as the overall policy and coordinating body in the water sector and lead agency in the implementation of IWRM in the country, with JICA consultants conducted the Second Stakeholders' Consultation Meeting. It is part of the on-going 2-year Study to formulate the IWRM Plan for Poverty Alleviation and Economic Development in the Pampanga River Basin, under the development study programme of JICA that started in February 2009.

The Pampanga River Basin is the fourth largest river basin in the Philippines with about eight million people who rely on water for various economic uses. The IWRM Study was commissioned in response to the need to manage the multiple uses of the basin's water resources in a sustainable manner without compromising the life-sustaining functions of vital ecosystems. The existing conditions related to water resources management shall be assessed and appropriate interventions shall be proposed within the framework of IWRM.

With the stakeholders' consultation being an integral part in the IWRM planning process, said consultation was the second of the series of other stakeholders' consultations and consensus building activities that will follow which will help refine the focus of the Study and in the end, ensure stakeholder ownership of the IWRM Plan that will be formulated.

OBJECTIVES

The one-day seminar-workshop was conducted to:

- a) Discuss the initial findings by JICA Study Team as embodied in the Progress Report – I
- b) Discuss the problems and concerns in view of the formulation of the IWRM Plan in the river basin.

ATTENDANCE

A total of fifty-six (56) participants attended the consultation. The participants represented various sectors that include central and regional government agencies, provincial and city governments and non-government organizations. List of participants is attached as Annex A. The directory of participants is attached as Annex B.

Some staff from JICA Philippines, consultants from the JICA Study Team and selected NWRB staff were also present. The list of names is attached as Annex C.

PROGRAM

The program for the consultation is attached as Annex D. Ms. Emadelyn M. Quinones, JICA Study Team Coordinator served as the emcee and moderator during the consultation while Ms. Felisa M. Manlulu, NWRB Counterpart Coordinator provided the training activities such as energizers and ice breakers.

A. OPENING CEREMONIES

The singing of the National Anthem and the invocation was led by Ms. Felisa M. Manlulu.

B. WELCOME REMARKS

Ms. Quinones welcomed the participants. She introduced each participant, the JICA Study Team as well as the NWRB counterpart staff. She thanked the participants for their presence and eagerness to participate in the Second Stakeholders' Consultation in spite of the bad weather condition. The discussion on the issues that matter in Pampanga River Basin is very timely amidst the recent experiences with the occurrence of the typhoons that beset the country.

Ms. Quinones explained that the first stakeholders' consultation conducted in May 2009 was an introduction on the IWRM as a process of conducting the study for the Pampanga River Basin where the participants were able to have a general perspective of the issues in the basin. On the other hand, the consultation for the day will deal with the issues in more detail as it is a discussion of the issues by sector.

C. PROGRAM ORIENTATION

The program orientation was a discussion on the schedule of activities, methodologies and overview about the consultation as well as the house rules. Ms. Quinones explained the workshop mechanics. There will be five sectoral groupings for the workshop based on the different interventions in the watershed/river basin and based on different stakeholder groups participation in the planning and implementation of the interventions in the water resources in Pampanga River Basin. There will be two workshops. The first workshop will be for the identification of the issues, causes of the issues and possible solutions while the second workshop will be for the elaboration of the issues, causes and

possible solution towards the identification of the need for integration of the possible solutions in the different agencies within the sector or across the sectors.

The group discussion will be led by the expert of the Study Team for the particular sector who will present the initial output of the issues and concerns as he has studied based on data and information. An NWRB staff will sit in each group to act as facilitator in the discussion and manage the time. Each group will elect a rapporteur who will report the output of the group during the plenary session.

D. PRESENTATION

Makihito Ootogawa, JICA Study Team leader, presented the initial findings of the Study with respect to the study area, socio-economic conditions, management for water allocation and distribution, flood, water quality, watershed and data/information related to water resources as well as the major issues on water resources management.

At present, frequent water shortage is occurring in the irrigation area of Angat-Maasim River Irrigation System (AMRIS) whose irrigation water supply is derived from Angat Dam that also supplies the domestic water for Metro Manila. On the other hand, there is also a serious problem with groundwater supply as there are some areas experiencing deterioration in water quality due to over extraction, saline intrusion and land subsidence such as that occurring along Bulacan, Pampanga, Angeles and Clark. Given this situation, there is a need to consider alternative water supply sources. The Study Team is looking into the five potential dams of Bayabas, Maasin, Balintingon, Gumain and Balog-Balog as additional water sources to the Pantabangan and Angat Dam.

Relative to the yearly flood problem in the basin, the concern is more on the flood damage for the mainstream of the Pampanga River as the Pampanga Delta Flood Control Works project of the DPWH which started in 1996 was suspended in 2002 because of the strong opposition from the local government due to large number of house relocations required. Since then, no other plans have been made to address the serious and frequent flooding. To this end, the Study Team is preliminarily considering the potential flood retarding effects of the Candaba swamp for flood mitigation. Its use as an artificial flood retarding basin is being studied. However the environmental issue on the preservation of the area as a habitat for the migratory birds during the rainy season is an important consideration in this aspect. A more definite study will be done later.

As regard to water quality management, the fundamental issue is the inadequacy of water monitoring data and this is one of the thrust for future water quality management work. As for watershed management, in consideration of the many unfavorable activities in the watershed such as illegal logging, encroachment into the forest lands and forest fires, the policy is to ensure the sustainable development of the country's forest based on the principles of social equity, sustainability and community participation in forest

management. He emphasized the importance of community participation since the success of some of the projects can be attributed to this aspect.

Mr. Otagawa informed that the water-related data/information gathered in the Study is planned to be disclosed to the stakeholders using the existing database system by NWRB. A definite proposal on this will be proposed later in the Study.

The identified major issues on water resources management are as follows:

- a) No compensation rule for the priority of water use during drought in AMRIS;
- b) No legal linkage between the water rights and water resources development plan;
- c) Difficulty in allocating the water rights for effective use;
- d) Inadequate data/information for setting standard minimum flow;
- e) No institutional arrangement against excessive withdrawal of groundwater and insufficient monitoring data for assessing actual groundwater abstraction condition;
- f) No specific institutional and legal arrangement for formulation and implementation of IWRM Plan;
- g) Conflict between the Water Code and other government agencies' existing rules and policies in the setting of water charges;
- h) Indefinite demarcation for roles and authority in the national and local government for flood control; and
- i) Indefinite demarcation for roles and authority of DENR and other relevant national and local government agencies for watershed management.

The major issues by sector were likewise discussed and embodied in the powerpoint presentation attached as Annex E and the Summary Report in Annex F.

E. OPEN FORUM

The open forum was the venue for validation of the initial findings on the results of the Study as embodied in the presentation made by Mr. Otagawa. The issues/queries raised during the open forum were as follows:

- Ms. Mariza O. Mandocdoc of Clark Development Corporation expressed excitement over the Study as it comes in time with the project in Clark along with the Metro Clark Association for the development of surface water. She raised her query on three points:
 - a) data presented on the present and projected water demand as to how delineation was made between groundwater and surface water and whether the basis was the capacity for the facilities or the water capacity;
 - b) basis for determining when demand is purely for surface water or purely for groundwater, having observed that the volume of surface water as presented in the Figure exceeded the total of Pantabangan and Angat Dams from which surface water is sourced;

- c) consideration given to climate change in the rainfall-runoff simulation where at present more rainfall is experienced during the rainy season

Mr. Otogawa and Mr. Kitamura clarified that the supply capacity of the facilities was not taken into consideration in the estimation for water demand. The basis for the water demand estimation that differs for every sector is as follows:

- Irrigation – irrigation area and water supply source, i.e. surface water or groundwater
- Municipal – population under the assumption that the source is groundwater
- Industrial – NWRB permitted volume for industrial water
- Livestock – number of livestock and individual water volume
- Fishery – fishery area and individual water volume or water supplied

The volume for surface water was estimated under the natural flow regime taking also into consideration the storage capacity of the Pantabangan and Angat Dan and several other potential dams. The previous 50-year rainfall record was the basis for the simulation with no consideration on climate change. The Study Team feels that it is rather difficult to incorporate climate change particularly for the low flow regime.

- Mr. Angelo Logo of NIA Region 3 noted that the Maasim and Gumain Rivers were considered as potential dam reservoirs in the presentation when in truth these are already existing reservoirs covered under the two national irrigation systems, namely the Angat-Maasim River Irrigation System and the Porac-Gumain River Irrigation System. This matter will be discussed further with the NIA office to be clarified on the existing diversion dams and the intended storage dams for the Study.

F. WORKSHOP

Participants were divided into five (5) groups representing the following sectors: 1) Flood Control and Disaster Management; 2) Irrigation, Hydropower and Fishery; 3) Municipal and Industrial Water Supply, Sanitation and Sewerage; 4) Watershed Management; and 5) Water-Related Environment.

The workshop groupings for the five sectors are attached as Annex G.

- **WORKSHOP I – Identification of Issues-Causes-Possible Solutions**

The workshop discussion dealt on the validation by the participants on the issues, causes and possible solutions as presented by the expert of the Study Team for the five identified sectors.

Considering that the analysis of the experts is based on the available information but not all information may be available, the participants have a better grasp of the issues on hand, being the ones on the ground who can see the realities of the situation. Hence, they are in a better position to know the issues that matter, its causes and best solutions based on their experience in the field.

The outputs of the different groups are as follows:

GROUP 1: Flood Control and Disaster Management

Issue	Causes	Possible Solution
Damage to lives, properties, agriculture and infrastructure (Flooding Problem)	<ul style="list-style-type: none"> • Unplanned and rapid urban expansion <ul style="list-style-type: none"> - Ponding effect of road networks 	<ul style="list-style-type: none"> • Adapt flood retarding effect of Candaba Swamp • Review and design ponding effect of road networks by DPWH • Reforestation (Tree Planting) • Execute sustainable maintenance of existing flood mitigation facilities
	<ul style="list-style-type: none"> • Increasing surface run-off in the urban built-up 	
	<ul style="list-style-type: none"> • Poor watershed vegetation cover 	
	<ul style="list-style-type: none"> • Encroachment of illegal settlers and fishponds along riverways <ul style="list-style-type: none"> - Garbage disposal in riverways • Siltation of riverways 	<ul style="list-style-type: none"> • Dredging/Channel Improvement • Relocation/Resettlement sites for the illegal settlers/encroachers • Solid Waste Management (RA 9003) • Population management program
	<ul style="list-style-type: none"> • Extremely small river channel flow capacity <ul style="list-style-type: none"> - Expansion of residential areas in potential flood hazard area 	<ul style="list-style-type: none"> • Interventions/Involvement of Local Government Unit (LGU) • Strict implementation of Land Use Plan and Geohazard Maps (by LGUs) • Control expansion of fishponds along river channels
	<ul style="list-style-type: none"> • Political accommodation intervention/non-compliance of existing laws 	
	<ul style="list-style-type: none"> • Lack of coordination with Disaster Risk Management (DRM)/Disaster Risk Reduction (DRR) 	<ul style="list-style-type: none"> • Develop website on PRB - Present situation, etc. • Institutionalize Provincial Disaster Management Office
	<ul style="list-style-type: none"> • Untimely release of dam water 	<ul style="list-style-type: none"> • Proper Dam reservoir management • Dredging of Dam reservoir

GROUP 2: Irrigation, Hydropower and Fishery

Issue	Causes	Possible Solution
Water Shortage in existing National Irrigation Systems (NISs) and Communal Irrigation Systems (CISs)	<ul style="list-style-type: none"> • Climate change 	<ul style="list-style-type: none"> • Development of mitigating measures
	<ul style="list-style-type: none"> • Limited water resource 	<ul style="list-style-type: none"> • Construct all potential dams (Laiban, Bayabas, etc.) • Efficient water management thru water saving technology • Formulation of applicable cropping calendar • Diversified cropping by planting non-rice crops & high value crops
	<ul style="list-style-type: none"> • Lack of Water Impounding Structure 	<ul style="list-style-type: none"> • More construction of Small Water Impounding Diversion Dams/small farm reservoir
	<ul style="list-style-type: none"> • Slash and Burn Farming <ul style="list-style-type: none"> - Weak Implementation of Watershed Management Laws 	<ul style="list-style-type: none"> • Attention of government agencies concerned-DENR • Plant more trees at watershed
Limited Coverage of Casecan in the North & North. East of Nueva Ecija	<ul style="list-style-type: none"> • Casecan Phase II is not yet implemented 	<ul style="list-style-type: none"> • Secure fund for the project
Water Shortage in AMRIS Reservoir	<ul style="list-style-type: none"> • Lower priority of water allocation to irrigation 	<ul style="list-style-type: none"> • 15 cms conditionally allocated to MWSS should Return to NIA-AMRIS
	<ul style="list-style-type: none"> • Increasing domestic water demand in M.M 	
	<ul style="list-style-type: none"> • Prioritization of hydro-electric power and domestic water supply 	<ul style="list-style-type: none"> • Review of laws and policies
	<ul style="list-style-type: none"> • Less regulation capacity in Bustos 	<ul style="list-style-type: none"> • Construction of additional regulation dam upstream of Bustos
	<ul style="list-style-type: none"> • No regulation for peak operation 	
	<ul style="list-style-type: none"> • Inefficiency of water use 	
	<ul style="list-style-type: none"> • Squatters within irrigation canals 	<ul style="list-style-type: none"> • Strict implementation of existing policies for squatting
Low Irrigation Efficiency in Existing NISs	<ul style="list-style-type: none"> • Degradation of canals and related facilities 	<ul style="list-style-type: none"> • Convert earth canal to cemented line canal
	<ul style="list-style-type: none"> • Lack of maintenance 	<ul style="list-style-type: none"> • Rehabilitation of existing NIS/CIS

Issue	Causes	Possible Solution
and CIsSs		<ul style="list-style-type: none"> • Dredging of water sources/ways • Adjust cropping pattern and short variety crops
Low Collection Efficiency on Irrigation Service Fees	<ul style="list-style-type: none"> • Unwillingness and incapacity of farmers to pay 	<ul style="list-style-type: none"> • Provision of incentives to farmers
	<ul style="list-style-type: none"> • Insufficient water management 	
	<ul style="list-style-type: none"> • Low yield due to calamities 	
LGUs Role in implementing Communal Irrigation Projects (CIPs)	<ul style="list-style-type: none"> • LGU's lack of training & experiences in the construction of CIPs 	<ul style="list-style-type: none"> • Strengthen LGUs capability in implementing Communal Irrigation Projects (CIPs) thru trainings and seminars, etc.
	<ul style="list-style-type: none"> • Implementation of Agriculture & Fisheries Act. 	
Frequent Flood Damages and Poor Drainage along the Chico River	<ul style="list-style-type: none"> • Insufficient flood control and drainage system 	<ul style="list-style-type: none"> • Desiltation of river bed
	<ul style="list-style-type: none"> • Lack of attention on integrated drainage system 	
	<ul style="list-style-type: none"> • Degradation of canals and related Facilities 	
Land Conversion	<ul style="list-style-type: none"> • Land use / Planning Problem 	<ul style="list-style-type: none"> • Update land use plans
	<ul style="list-style-type: none"> • Urbanization, industrialization, commercialization 	
Depletion of Groundwater Bul., Pampanga and Nueva Ecija)	<ul style="list-style-type: none"> • Increasing pump irrigation for fish ponds 	<ul style="list-style-type: none"> • Limit the use of pumps • Construction of small farm reservoir upstream to recharge underground water
	<ul style="list-style-type: none"> • Increasing pump for domestic use 	<ul style="list-style-type: none"> • Tap Candaba Swamp as reservoir for irrigation and domestic supply for future needs
	<ul style="list-style-type: none"> • Weak implementation of GW use regulation and policy 	<ul style="list-style-type: none"> • Delineate GW map (Depth) for controlling issuance of permit to deep wells and programming Shallow Tube Well (STW) implementation
Delay of Implementation of Casecan-II, Balintongan,	<ul style="list-style-type: none"> • Lack of fund 	<ul style="list-style-type: none"> • BBMP - JICA will help to finance project
	<ul style="list-style-type: none"> • Lack of project financier 	
	<ul style="list-style-type: none"> • Inflation of material cost 	

Issue	Causes	Possible Solution
Balog Balog Multipurpose Project (BBMP)	for BBMP	
	<ul style="list-style-type: none"> • Peace & order (NPA infiltrated area) 	<ul style="list-style-type: none"> • Provide livelihood program to NPA member residents in the area
Salt Intrusion at Irrigated areas	<ul style="list-style-type: none"> • Groundwater depletion 	<ul style="list-style-type: none"> • Regulate GW use
		<ul style="list-style-type: none"> • Provision of appropriate salt excluder structures to be operated during crop maintenance period
High SO ₄ ²⁻ Content of GW for Irrigation at Pampanga Area near Pinatubo	<ul style="list-style-type: none"> • Natural deposit of lahar - Pinatubo Eruption 	<ul style="list-style-type: none"> • Regulate the use of GW along Pinatubo Basin
		<ul style="list-style-type: none"> • Apply lime after cropping
Hydropower		
Inefficient Hydropower Generation in Angat Hydroelectric Power Plant (AHEP)	<ul style="list-style-type: none"> • Inefficient use of main unit in Angat HEP 	<ul style="list-style-type: none"> • Use of Optimization Program in lieu of rule curve
	<ul style="list-style-type: none"> • Conflict with MWSS 	
Conflict on schedule of peak operations between hydropower generation and irrigation need	<ul style="list-style-type: none"> • Due to some provisions of EPIRA on WESM system (AHEP is a registered WESM participant) 	<ul style="list-style-type: none"> • Exempt AHEP in the EPIRA Law
Fishery		
Water Pollution	<ul style="list-style-type: none"> • Contamination by effluents and garbage <ul style="list-style-type: none"> - Factory in the area - Piggery project in area 	<ul style="list-style-type: none"> • All factories must have efficient waste treatment facilities. • Good aquaculture practice (allowable parameters)
Flood Damage to Fishpond (Not for Fish) Loss to owners	<ul style="list-style-type: none"> • Lack of flood protection to fishery area 	<ul style="list-style-type: none"> • BFAR Rehab Program (Fingerlings of tilapia and bangus)
	<ul style="list-style-type: none"> • Less priority on Government Program 	
	<ul style="list-style-type: none"> • Fishpond flash flood 	<ul style="list-style-type: none"> • Compliance of fishpond owners to LGU's regulations • Limit the construction of fishpond
	<ul style="list-style-type: none"> • Private property 	
	<ul style="list-style-type: none"> • Illegal fishponds in dangerous areas 	

GROUP 3: Municipal and Industrial Water Supply, Sanitation and Sewerage

Issue	Causes	Possible Solution
<p>Access to safe water</p> <ul style="list-style-type: none"> - insufficient access to safe potable water supply 	<ul style="list-style-type: none"> • Improper well development <ul style="list-style-type: none"> - Low well yield - Limited aquifer capacity 	<ul style="list-style-type: none"> • Coordination with Health Office for the water site clearance prior to well construction • Good design well system
	<ul style="list-style-type: none"> • Well location near septic tank <ul style="list-style-type: none"> - Unprotected source 	<ul style="list-style-type: none"> • Sealing of septic tank
	<ul style="list-style-type: none"> • No water treatment <ul style="list-style-type: none"> - No organized group that will do water quality monitoring 	<ul style="list-style-type: none"> • Conduct bacteriological test (Frequent)
	<ul style="list-style-type: none"> • Periodic system maintenance not carried out 	<ul style="list-style-type: none"> • Creation of a local Water Quality Monitoring Team at LGU level
	<ul style="list-style-type: none"> • Groundwater contamination <ul style="list-style-type: none"> - Toxic contamination due to previous use or current use (industrial, etc) <p>CLARK</p>	<ul style="list-style-type: none"> • Study/determine extent of contamination and provide remedies/technology to eliminate contamination
	<ul style="list-style-type: none"> • Unregulated ground water extraction 	<ul style="list-style-type: none"> • Deputize LGUs (issuance of water permits)
	<ul style="list-style-type: none"> • Salt intrusion 	<ul style="list-style-type: none"> • Abandon well and proper sealing • Consider new source (SW) • Consider desalination technology (high cost)
<p>Inadequate water supply</p>	<ul style="list-style-type: none"> • Untapped surface water potential <ul style="list-style-type: none"> - Lack of budget for Feasibility Study design 	<ul style="list-style-type: none"> • Application of new technology e.g. Rainwater, harvesting/ collection system • Water reuse (Sewerage to drinking, etc) • Tap new source - bulk water supply
	<ul style="list-style-type: none"> • Not responsive Comprehensive Land Use Plans (CLUPs) (zoning ordinance) 	<ul style="list-style-type: none"> • Imposition of penalties to LGUs for non implementation • Capacity building on CLUP and zoning • CLUP to be responsive especially on the water sanitation aspect
	<ul style="list-style-type: none"> • Inadequate water 	<ul style="list-style-type: none"> • Expand service coverage

Issue	Causes	Possible Solution
	<p>distribution system or coverage</p> <ul style="list-style-type: none"> - Illegal connection 	
	<p>High unaccounted water</p> <ul style="list-style-type: none"> - Pipe leakage - Poor operation and maintenance - Pilferage 	<ul style="list-style-type: none"> • Leak detection and replacement of old pipelines • Impose sanctions/ penalties on pilferage and illegal connections
	<ul style="list-style-type: none"> • Lack of people awareness on need to save water 	<ul style="list-style-type: none"> • Information campaign and advocacy program
Lack of reliable and integrated database on water supply	<ul style="list-style-type: none"> • Fragmented information 	<ul style="list-style-type: none"> • Develop integrated water information system and identify the agency to be responsible for all info
Sustainability on operation of level 2 water systems <ul style="list-style-type: none"> - Not operational level 2 water system 	<ul style="list-style-type: none"> • Poor tariff collection (WDs, BAWASA, CDAs) - Mismanagement of the water system 	<ul style="list-style-type: none"> • Empower management of 1 - 2 system <ul style="list-style-type: none"> - Stewardship of the system - Capacity building
No level 3 Water System to some LGUs	<ul style="list-style-type: none"> • Affordability • No water supply available 	<ul style="list-style-type: none"> • Tap existing funding institution for assistance • Extend service coverage of Level 3
High occurrence of disease due to poor sanitation	<ul style="list-style-type: none"> • Unsanitary toilet facilities <ul style="list-style-type: none"> - Inadequate water supply 	<ul style="list-style-type: none"> • Low cost toilet construction for indigents/depressed areas <ul style="list-style-type: none"> - Construction of shallow wells to complement the toilet facilities • Intensified health education on advantage of sanitary toilet <ul style="list-style-type: none"> - Provision of IEC materials on water and sanitation
No sewerage system in the major cities in the basin	<ul style="list-style-type: none"> • High Investment requirements for water/sewerage facilities <ul style="list-style-type: none"> - Financial constraints - Financial affordability 	<ul style="list-style-type: none"> • Government to construct water/sewerage facilities (LGU's cannot afford) • Look for financial assistance • BOT system

GROUP 4: Watershed Management

Issue	Causes	Possible Solution
Weak reforestation	<ul style="list-style-type: none"> • Weak institutional capacity 	
	<ul style="list-style-type: none"> - Overlapping mandates 	
	<ul style="list-style-type: none"> - Poor data base/mgmt. 	<ul style="list-style-type: none"> • Update data on forest cover (actual/existing)
	<ul style="list-style-type: none"> - Inadequate technology 	<ul style="list-style-type: none"> • Capability building of Peoples Organizations (POs)
	<ul style="list-style-type: none"> - Inadequate devolution (LGUs) 	<ul style="list-style-type: none"> • Strengthening on linkages and fund sourcing
	<ul style="list-style-type: none"> - Inadequate resources 	<ul style="list-style-type: none"> • On time release of fund
	<ul style="list-style-type: none"> - Lack of physically fit field personnel 	
	<ul style="list-style-type: none"> - Pending implementation of E.O. 366 	
	<ul style="list-style-type: none"> - Non-compliance of Free Prior Informed Consent (FPIC) process (ancestral domain. areas) 	
	<ul style="list-style-type: none"> • Lack of maintenance & protection <ul style="list-style-type: none"> - Poor adaptability of reforestation species 	
	<ul style="list-style-type: none"> • Contract reforestation scheme <ul style="list-style-type: none"> - Poor performance of forest land lease contract holder 	<ul style="list-style-type: none"> • Sustained Upland Development Program by administration
	<ul style="list-style-type: none"> • Lack of incentive for private investment 	<ul style="list-style-type: none"> • M&E of Forest Land Lease Agreement (FLLA) and cancellation of non-performers

Issue	Causes	Possible Solution
Forest denudation – Pantabangan Carranglan – Angat-Ipo (Bulacan) – Mt. Arayat (Pampanga)	<ul style="list-style-type: none"> • Harvesting (illegal and legal) <ul style="list-style-type: none"> – Lack of livelihood – Uncontrolled urban migration 	<ul style="list-style-type: none"> • Sustainable agro-forestry/livelihood
	<ul style="list-style-type: none"> • Forest fires <ul style="list-style-type: none"> – Encroachment into forest lands 	<ul style="list-style-type: none"> • Demarcation of forest land • Intensive IEC campaign
– Balog-Balog O'Donnell (Tarlac) – Talavera Forest Reserve – DRT – Gen. Tinio (Nueva Ecija) Sapang Bato (Pampanga) – Peñaranda (Nueva Ecija)	<ul style="list-style-type: none"> • Conversion of forest lands <ul style="list-style-type: none"> – Slash and burn farming • Forest pests and diseases 	<ul style="list-style-type: none"> • Focus on forest protection
	<ul style="list-style-type: none"> • Weak institutional capacity 	<ul style="list-style-type: none"> • Strengthening of institutional linkages <ul style="list-style-type: none"> – Enhancement of co-management of forest land between LGU and DENR
	<ul style="list-style-type: none"> – Inadequate resources 	<ul style="list-style-type: none"> • Investment (public, private)
	<ul style="list-style-type: none"> – Political intervention 	<ul style="list-style-type: none"> • Country Development Fund allocation/support on forest development & management
	<ul style="list-style-type: none"> • Weak policies & laws 	<ul style="list-style-type: none"> • Harmonization of existing laws
	<ul style="list-style-type: none"> • Poor implementation of laws 	<ul style="list-style-type: none"> • Strict implementation of forestry laws & regulations

GROUP 5: Water-Related Environment

Issue	Causes	Possible Solution
Inadequate understanding on Water Quality Condition	<ul style="list-style-type: none"> • Inadequate monitoring Data on Water Quality Condition 	<ul style="list-style-type: none"> • Establishment of testing laboratories for LGUs/NGAs
	<ul style="list-style-type: none"> - Less capacity building for implementer (LGUs/NGAs concern) 	<ul style="list-style-type: none"> • Capacity building for regulators & additional manpower & budget
	<ul style="list-style-type: none"> - Less budget to setup monitoring stations 	<ul style="list-style-type: none"> • Establishment of monitoring station with sustainable budget & enough manpower requirement
	<ul style="list-style-type: none"> • No complete inventory of pollution source from domestic, industrial, agricultural and mining <ul style="list-style-type: none"> - Incomplete waste water discharge permission data (industries) 	<ul style="list-style-type: none"> • Mapping of all sources of pollution (industries)
	<ul style="list-style-type: none"> - Weak coordination & partnership among LGUs & national government 	<ul style="list-style-type: none"> • Strengthen coordination between LGUs & NGAs
	<ul style="list-style-type: none"> - Lack of control monitoring data 	
	<ul style="list-style-type: none"> - Weak enforcement of regulations 	<ul style="list-style-type: none"> • Strict enforcement of DENR Guidelines/ECC Conditions
	<ul style="list-style-type: none"> - No data on loading carrying capacity of a river body 	<ul style="list-style-type: none"> • Completion for the classification of rivers based on its current use
	<ul style="list-style-type: none"> - Lack of political will to implement guidelines 	
	<ul style="list-style-type: none"> - Lack of concern for the environment of LGUs: environment not a priority 	
Duplication of functions for DENR and concerned LGUs re: Apprehension/implementation		<ul style="list-style-type: none"> • By coordination, DENR and LGUs should establish sectoral responsibilities

Issue	Causes	Possible Solution
Potential Degradation of Candaba Swamp	<ul style="list-style-type: none"> • Siltation • Solid waste 	
Potential contamination of water for SW, GW, Manila Bay – Abacan River Tributaries (Porac River) – Sapang Balen – Angeles – Tributaries (Mabalacat River)	<ul style="list-style-type: none"> • Water contamination from piggeries/poultry farms (Porac, Pampanga, Bulacan, Tarlac, Nueva Ecija) 	<ul style="list-style-type: none"> • Implementation of proper treatment such as biogas, etc.
	<ul style="list-style-type: none"> • Contamination from industries/household wastes (sewage/solid waste) <ul style="list-style-type: none"> – Lack of sewerage system 	<ul style="list-style-type: none"> • Actual inventory of water bodies are to be incorporated in the land use plan • Provision of sanitary engineers for LGU to evaluate the sanitary requirements for building permit applications
	<ul style="list-style-type: none"> • Mining and quarrying operations (Pampanga/Bulacan) 	<ul style="list-style-type: none"> • Advocacy on environment concern and involvement by private sector
	<ul style="list-style-type: none"> • Agricultural waste from farm inputs 	<ul style="list-style-type: none"> • Compliance of LGUs to implement Clean Water Act on sewerage
	<ul style="list-style-type: none"> • Proliferation of human wastes from squatters along river easement 	<ul style="list-style-type: none"> • Strong & strict implementation of laws & ordinances
	<ul style="list-style-type: none"> • Weak implementation of LGUs in Solid Waste Management 	<ul style="list-style-type: none"> • Political will to implement solid waste management
Groundwater Contamination (Coastal Municipalities) Salt Water Intrusion	<ul style="list-style-type: none"> • Salt Water intrusion of coastal municipalities (Pampanga & Bulacan) <ul style="list-style-type: none"> – Over extraction of groundwater 	<ul style="list-style-type: none"> • Conduct groundwater & surface water research & assessment study
Potential degradation of ecosystem along coastal areas of Pampanga, Bulacan within Manila Bay	<ul style="list-style-type: none"> • Soil erosion coming from Upper Pampanga River & tributaries 	
	<ul style="list-style-type: none"> – Slash & burn (kaingin) in Mt. Arayat 	
	<ul style="list-style-type: none"> – Lack of awareness 	<ul style="list-style-type: none"> • IEC
	<ul style="list-style-type: none"> – Encroachment (forest and river systems) in mountainous area 	

Issue	Causes	Possible Solution
	- Inadequate livelihood programs by the government	• Livelihood alternative (e.g. livestock and dairy)
	- Timber poaching	
	- Weak enforcement of forestry laws (i.e. lack of forest guard)	• Strict implementation of laws
	- Land use conversion in Pampanga, Bulacan (mangrove & fishponds)	• Strengthen partnership (LGU – Nat'l. Government. Agencies) • To enact stricter guidelines on land use conversion

• **WORKSHOP II – Elaboration of Issues, Causes and Possible Solutions and the Need for Integration and Coordination (by Sector/Group)**

The workshop discussion dealt on the inter-relationships of the issues/concerns toward the identification of stand alone solutions against those solutions that would require integration or coordination among the different agencies within the sector or across the sectors in order to effectively and efficiently address the issues. The purpose is to assess the readiness of the participants to move toward the integration of all interventions within the Pampanga River Basin since IWRM is managing the water and related resources within the basin in an integrated manner.

The outputs of the different groups are as follows:

GROUP 1: Flood Control and Disaster Management

Issue	Causes	Possible solution	
		Stand Alone	Integration with Others
Damage to lives, properties, agriculture and infrastructure (Flooding Problem)	• Unplanned and rapid urban expansion – Ponding effect of road networks		
	• Increasing surface run-off in the built-up	• Adopt flood retarding effect of Candaba Swamp (DPWH)	• Reforestation / Tree Planting (DENR/LGUs)
	• Poor watershed vegetation	• Execute sustainable maintenance of existing flood mitigation facilities (DPWH)	• Solid Waste Management R.A 9003 (DENR/LGUs)

Issue	Causes	Possible solution	
		Stand Alone and LGUs)	Integration with Others
	<ul style="list-style-type: none"> • Encroachment of illegal settlers and fishponds along riverways <ul style="list-style-type: none"> - Garbage disposal in riverways 	<ul style="list-style-type: none"> • Review and design ponding effect of road networks (DPWH) 	<ul style="list-style-type: none"> • Relocation/ Resettlement sites for the illegal settlers/ encroachers (HUDDC/LGUs)
	<ul style="list-style-type: none"> • Siltation of riverways 	<ul style="list-style-type: none"> • Dredging Channel Improvement (DPWH) 	<ul style="list-style-type: none"> • Population management program (PopCom/ DOH/ NSO/ LGUs)
	<ul style="list-style-type: none"> • Extremely Small river channel flow capacity <ul style="list-style-type: none"> - Expansion of residential areas in potential flood hazard area 	<ul style="list-style-type: none"> • Dredging of Dam reservoir (NIA) 	<ul style="list-style-type: none"> • Strict implementation of Land Use Plan and Geohazard Maps (DENR/MGB, PhiVolcs/PAGASA, NAMRIA)
	<ul style="list-style-type: none"> • Political accommodation intervention/non-compliance of existing laws 	<ul style="list-style-type: none"> • Control expansion of fishponds along river channels (LGUs) 	<ul style="list-style-type: none"> • Interventions/ Involvement of Local Government Unit (DILG/LGUs)
	<ul style="list-style-type: none"> • Lack of coordination of DRM/DRR 	<ul style="list-style-type: none"> • Proper dam reservoir management (PAGASA, NWRB, NPC, NIA) 	<ul style="list-style-type: none"> • Develop website on PRB- Present situation, etc. (RBCO/PAGASA/ DOST)
	<ul style="list-style-type: none"> • Untimely releases of dam water 	<ul style="list-style-type: none"> • Institutionalize Provincial Disaster Management Office (LGUs) 	

GROUP 2: Irrigation, Hydropower and Fishery

Issue	Causes	Possible solution	Integration/Agency
Water Shortage in existing NISs	<ul style="list-style-type: none"> • Climate change 	<ul style="list-style-type: none"> • Development of mitigating measures 	<ul style="list-style-type: none"> • NIA

Issue	Causes	Possible solution	Integration/Agency
& CISs	<ul style="list-style-type: none"> Limited water resource 	<ul style="list-style-type: none"> Construct all potential dams (Laiban, Bayabas, etc.) 	<ul style="list-style-type: none"> MWSS
		<ul style="list-style-type: none"> Formulation of applicable cropping calendar 	<ul style="list-style-type: none"> In Coordination w/ DA, Philrice and BSWM
		<ul style="list-style-type: none"> Efficient water management thru water saving technology 	
		<ul style="list-style-type: none"> Diversified cropping by planting non-rice crops and high value crops 	
	<ul style="list-style-type: none"> Lack of water impounding structure 	<ul style="list-style-type: none"> More Construction of Small Water Impounding Diversion Dams/small farm reservoirs 	<ul style="list-style-type: none"> BSWM
	<ul style="list-style-type: none"> Slash and Burn Farming – Weak implementation of watershed management laws 	<ul style="list-style-type: none"> Attention of government agencies concerned-DENR 	<ul style="list-style-type: none"> DENR - FMB
<ul style="list-style-type: none"> Plant more trees at watershed 		<ul style="list-style-type: none"> Reforestation in coordination w/ DENR 	
Limited Coverage of Casecnan in the North & Nt. East of N.E	<ul style="list-style-type: none"> Casecnan Phase II is not yet implemented 	<ul style="list-style-type: none"> Secure funds for the project 	<ul style="list-style-type: none"> NIA-CMIPP with financing institution
Water Shortage in AMRIS	<ul style="list-style-type: none"> Lower priority of water allocation to irrigation 	<ul style="list-style-type: none"> 15 cms conditionally allocated to MWSS should return to NIA-AMRIS 	<ul style="list-style-type: none"> MWSS, NWRB & OGCC
	<ul style="list-style-type: none"> Increasing domestic water demand in M.M 		
	<ul style="list-style-type: none"> Prioritizing of hydroelectric power and domestic water supply 	<ul style="list-style-type: none"> Review of laws and policies 	<ul style="list-style-type: none"> NWRB and stakeholder of Angat Reservoir
	<ul style="list-style-type: none"> Less regulation capacity in Bustos 	<ul style="list-style-type: none"> Construction of additional regulation dam upstream of Bustos 	<ul style="list-style-type: none"> NIA

Issue	Causes	Possible solution	Integration/Agency
	<ul style="list-style-type: none"> • No regulation for peak operation 		<ul style="list-style-type: none"> • NPC, NWRB, NIA
	<ul style="list-style-type: none"> • Inefficiency of water use 		<ul style="list-style-type: none"> • Stakeholders of Angat Reservoir
	<ul style="list-style-type: none"> • Squatters within irrigation canals 	<ul style="list-style-type: none"> • Strict implementation of existing policies for squatting 	<ul style="list-style-type: none"> • LGUs
Low Irrigation Efficiency in Existing NISs and CISs	<ul style="list-style-type: none"> • Degradation of canals and related facilities 	<ul style="list-style-type: none"> • Convert earth canal to cemented line canal 	<ul style="list-style-type: none"> • NIA
	<ul style="list-style-type: none"> • Lack of maintenance 	<ul style="list-style-type: none"> • Rehabilitation of existing NIS/CIS 	<ul style="list-style-type: none"> • NIA in coordination with LGUs
		<ul style="list-style-type: none"> • Dredging of water sources/ways 	
	<ul style="list-style-type: none"> • Adjust cropping pattern and short variety crops 		
Irrigation Service Fees Low Collection Efficiency	<ul style="list-style-type: none"> • Unwillingness and incapacity of farmers to pay 	<ul style="list-style-type: none"> • Provision of Incentives to Farmers 	<ul style="list-style-type: none"> • NIA
	<ul style="list-style-type: none"> • Insufficient water management 		
	<ul style="list-style-type: none"> • Low yield due to calamities 		
LGUs Role in implementing Communal Irrigation Projects	<ul style="list-style-type: none"> • LGU's lack of training & experiences in the construction of CIPs 	<ul style="list-style-type: none"> • Strengthen LGUs capability in implementing CIPs thru trainings and seminars, etc. 	<ul style="list-style-type: none"> • NIA and LGUs
	<ul style="list-style-type: none"> • Implementation of Agriculture and Fisheries Act. 		
Frequent Flood Damages and Poor Drainage along the Chico River	<ul style="list-style-type: none"> • Insufficient flood control and drainage system 	<ul style="list-style-type: none"> • Desiltation of river bed 	<ul style="list-style-type: none"> • In coordination with DPWH
	<ul style="list-style-type: none"> • Lack of attention on integrated drainage system 		<ul style="list-style-type: none"> • NIA and DPWH
	<ul style="list-style-type: none"> • Degradation of canals and related facilities 		
Land Conversion	<ul style="list-style-type: none"> • Land use / Planning Problem 	<ul style="list-style-type: none"> • Update land use plans 	<ul style="list-style-type: none"> • Coordination with DAR, LGU'S, LMB, BSWM
	<ul style="list-style-type: none"> • Urbanization, industrialization, 		

Issue	Causes	Possible solution	Integration/Agency
	commercialization		
Depletion of Groundwater (Bulacan, Pampanga, and Nueva Ecija)	<ul style="list-style-type: none"> Increasing pump irrigation for fish ponds 	<ul style="list-style-type: none"> Limit the use of pumps Construction of small farm reservoir upstream to recharge underground water 	<ul style="list-style-type: none"> NIA BSWM
	<ul style="list-style-type: none"> Increasing pump for domestic use 	<ul style="list-style-type: none"> Tap Candaba Swamp as reservoir for irrigation and domestic supply for future needs 	<ul style="list-style-type: none"> NIA and DPWH
	<ul style="list-style-type: none"> Weak implementation of GW use regulation and policy 	<ul style="list-style-type: none"> Delineate GW map (Depth) for controlling issuance of permit to deep wells and programming shallow tube wells implementation 	<ul style="list-style-type: none"> In coordination with NWRB
Delay of Implementation of Casecan-II, Balintongon, Balog Balog Multipurpose Project (BBMP)	<ul style="list-style-type: none"> Lack of fund 	<ul style="list-style-type: none"> BBMP - JICA will help to finance project 	<ul style="list-style-type: none"> NIA, JICA and other funding institutions
	<ul style="list-style-type: none"> Lack of project financier 		
	<ul style="list-style-type: none"> Inflation of material cost for BBMP 		
	<ul style="list-style-type: none"> Peace & order (NPA infiltrated area) 	<ul style="list-style-type: none"> Provide livelihood program to NPA member residents in the area 	<ul style="list-style-type: none"> Coordinate with DTI
Salt Intrusion at Irrigated Areas	<ul style="list-style-type: none"> Groundwater depletion 	<ul style="list-style-type: none"> Regulate GW use 	<ul style="list-style-type: none"> NWRB
		<ul style="list-style-type: none"> Provision of appropriate salt excluder structures to be operated during crop maintenance period 	<ul style="list-style-type: none"> NIA
High SO ₄ ²⁻ Content of GW for Irrigation at Pampanga Area near Pinatubo	<ul style="list-style-type: none"> Natural deposit of lahar – Pinatubo Eruption 	<ul style="list-style-type: none"> Regulate the use of GW along Pinatubo Basin 	<ul style="list-style-type: none"> NWRB
		<ul style="list-style-type: none"> Apply lime after cropping 	<ul style="list-style-type: none"> NIA
Hydropower			
Inefficient Hydropower Generation in Angat HEP	<ul style="list-style-type: none"> Inefficient use of main unit in Angat HEP 	<ul style="list-style-type: none"> Use of Optimization Program in lieu of rule curve 	<ul style="list-style-type: none"> On- Going Activity NWRB (in coordination with PAGASA and
	<ul style="list-style-type: none"> Conflict with 		

Issue	Causes	Possible solution	Integration/Agency
	MWSS		Angat Reservoir stakeholders)
Conflict on schedule of peak operations between hydropower generation and irrigation need	<ul style="list-style-type: none"> • Due to some provisions of EPIRA on WESM system (AHEP is a registered WESM participant) 	<ul style="list-style-type: none"> • Exempt AHEP in the EPIRA Law 	<ul style="list-style-type: none"> • Coordinate with NPC
Fishery			
Water Pollution	<ul style="list-style-type: none"> • Contamination by effluents and garbage <ul style="list-style-type: none"> – Factory in the area – Piggery project in the area 	<ul style="list-style-type: none"> • All factories must have efficient waste treatment facilities 	<ul style="list-style-type: none"> • Coordinate with EMB –DENR
		<ul style="list-style-type: none"> • Good Aquaculture practice (allowable parameters) 	<ul style="list-style-type: none"> • BFAR
Flood Damage to Fishpond (Not for Fish) Loss to owners	<ul style="list-style-type: none"> • Lack of flood protection to fishery area 	<ul style="list-style-type: none"> • BFAR Rehab Program (Fingerlings of Tilapia and Bangus) 	<ul style="list-style-type: none"> • BFAR
	<ul style="list-style-type: none"> • Less priority on Government program 		
	<ul style="list-style-type: none"> • Fishpond flash flood 	<ul style="list-style-type: none"> • Compliance of fishpond owners to LGU's regulations • Limit the construction of fishpond 	<ul style="list-style-type: none"> • Coordinate with LGU's
	<ul style="list-style-type: none"> • Illegal private Property 		
	<ul style="list-style-type: none"> • Illegal fishponds in dangerous areas 		

GROUP 3: Municipal and Industrial Water Supply, Sanitation and Sewerage

Issue	Causes	Possible solution	Integration/Agency
Access to safe water – insufficient access to safe potable water supply	<ul style="list-style-type: none"> • Improper well development <ul style="list-style-type: none"> – Low well yield – Limited aquifer capacity 	<ul style="list-style-type: none"> • Coordination with Health Office for the water site clearance prior to well construction • Good design well system 	<ul style="list-style-type: none"> • Compliance and enforcement of existing laws (Sanitation Code, Water Code) – LGUs, NGAs, NGOs, stakeholders
	<ul style="list-style-type: none"> • Well location near septic tank 	<ul style="list-style-type: none"> • Sealing of septic tank 	

Issue	Causes	Possible solution	Integration/Agency
	<ul style="list-style-type: none"> - Unprotected source 		
	<ul style="list-style-type: none"> • No water treatment <ul style="list-style-type: none"> - No organized group that will do water quality monitoring 	<ul style="list-style-type: none"> • Conduct bacteriological test (FREQUENT) 	<ul style="list-style-type: none"> • Water quality Testing/ Monitoring is common to all (DENR, DOH, NIA)
	<ul style="list-style-type: none"> • Periodic system maintenance not carried out 	<ul style="list-style-type: none"> • Creation of a local Water Quality Monitoring Team at LGU level 	
	<ul style="list-style-type: none"> • Groundwater contamination <ul style="list-style-type: none"> - Toxic contamination due to previous use or current use (industrial, etc) CLARK 	<ul style="list-style-type: none"> • Study/determine extent of contamination and provide remedies/ technology to eliminate contamination 	
	<ul style="list-style-type: none"> • Unregulated ground water extraction 	<ul style="list-style-type: none"> • Deputize LGUs (issuance of water permits) 	<ul style="list-style-type: none"> • Monitoring and evaluation of activities/ project common to all
	<ul style="list-style-type: none"> • Salt Intrusion 	<ul style="list-style-type: none"> • Abandon well and proper sealing • Consider new source (SW) • Consider desalination technology (high cost) 	
<p>Inadequate water supply</p>	<ul style="list-style-type: none"> • Untapped surface water potential <ul style="list-style-type: none"> - Lack of budget for FS design 	<ul style="list-style-type: none"> • Application of new technology e.g. Rainwater, harvesting/ collection system • Water Reuse (Sewerage to drinking, etc) • Tap new source - bulk water supply 	<ul style="list-style-type: none"> • Conflicting use of water that affects adequate water supply (NGOs, Stakeholders, LGUs)

Issue	Causes	Possible solution	Integration/Agency
	<ul style="list-style-type: none"> • Not responsive CLUPs (zoning ordinance) 	<ul style="list-style-type: none"> • Imposition of penalties to LGUs for non implementation • Capacity building on CLUP and zoning • CLUP to be responsive especially on the water sanitation aspect 	<ul style="list-style-type: none"> • CLUP that includes watershed, water supply, sanitation, irrigation and enforcement etc. (LGUs and NGAs)
	<ul style="list-style-type: none"> • Inadequate water distribution system or coverage <ul style="list-style-type: none"> - Illegal connection 	<ul style="list-style-type: none"> • Expand service coverage 	
	<ul style="list-style-type: none"> • High unaccounted water <ul style="list-style-type: none"> - Pipe leakage - Poor operation and maintenance - Pilferage 	<ul style="list-style-type: none"> • Leak detection and replacement of old pipelines • Impose sanctions/ penalties on pilferage and illegal connections 	<ul style="list-style-type: none"> • Co - management of water resources (LGUs and NGAs)
	<ul style="list-style-type: none"> • Lack of people awareness on need to save water 	<ul style="list-style-type: none"> • Information campaign and advocacy program 	<ul style="list-style-type: none"> • IEC common to all (LGUs, Stakeholders, NGAs)
Lack of reliable and integrated database on water supply	<ul style="list-style-type: none"> • Fragmented Information 	<ul style="list-style-type: none"> • Develop integrated water info system and identify the agency to be responsible for all info 	<ul style="list-style-type: none"> • Database - integrated with other database in the sector
Sustainability on operation of level 2 water system <ul style="list-style-type: none"> - Not operational level 2 water system 	<ul style="list-style-type: none"> • Poor tariff collection (WDs, BAWASA, CDAs) <ul style="list-style-type: none"> - mismanagement of the water system 	<ul style="list-style-type: none"> • Empower management of 1 - 2 system <ul style="list-style-type: none"> - Stewardship of the system - Capacity building 	
No level 3 Water Systems to some LGUs	<ul style="list-style-type: none"> • Affordability • No water supply available 	<ul style="list-style-type: none"> • Tap existing funding institution for assistance • Extend service coverage of L - 3 	<ul style="list-style-type: none"> • Capacity building/IEC/ important to all stakeholders (DENR/ HEALTH/ PDCC/ LGU/other stakeholders)
High occurrence of disease due to	<ul style="list-style-type: none"> • Unsanitary toilet 	<ul style="list-style-type: none"> • Low cost toilet 	

Issue	Causes	Possible solution	Integration/Agency
poor sanitation	facilities – Inadequate water supply	construction for indigents/ depressed areas – Construction of shallow wells to complement the toilet facilities • Intensified health education on advantage of sanitary toilet – Provision of IEC materials on water sanitation	
No sewerage system in the major cities in the basin	• High investment requirements for water/sewerage facilities – Financial constraints – Financial affordability	• Government to construct water/sewerage facilities (LGU's cannot afford) • Look for financial assistance • BOT system	• Financial assistance is common to all for implementation of projects (NGAs, NGOs, Foreign, Private)

GROUP 4: Watershed Management

Issue	Causes	Possible solution	Integration/Agency
Weak reforestation	• Weak institutional capacity		Lead agencies have to perform its mandate. Possible areas of integration are the following: • Sharing of updated data/ information • Strengthening of inter-agency IEC campaign
	– Overlapping mandates		
	– Poor data base/mgmt	• Update data on forest cover (actual/existing)	
	– Inadequate technology	• Capability building of P.O.s	
	– Inadequate devolution	• Strengthening on linkages and fund sourcing	
	– Inadequate	• On time release of fund	

Issue	Causes	Possible solution	Integration/Agency
	resources		<ul style="list-style-type: none"> ● Policy formulation on resource accounting and payment for environmental services ● Complementation in project development and management
	<ul style="list-style-type: none"> - Lack of physically fit field personnel 		
	<ul style="list-style-type: none"> - Pending implementation of E.O. 366 		
	<ul style="list-style-type: none"> - Non-compliance of Free Prior Informed Consent as required by NCIP (Ancestral Domain areas) 		
	<ul style="list-style-type: none"> ● Lack of maintenance & protection <ul style="list-style-type: none"> - Poor adaptability of reforestation species 		
	<ul style="list-style-type: none"> ● Contract reforestation scheme <ul style="list-style-type: none"> - Poor performance of forest land lease contract holder 	<ul style="list-style-type: none"> ● Sustained Upland Development Program by administration 	
	<ul style="list-style-type: none"> ● Lack of incentive for private investment 	<ul style="list-style-type: none"> ● M&E of Forest Land Lease Agreement holders and cancellation of non performers 	
Rapid forest denudation - Pantabangan Carranglan - Angat-Ipo (Bulacan) - Mt. Arayat (Pampanga) - Balog-Balog-O'Donnell (Tarlac) - Talavera Forest Reserve - DRT - Gen. Tinio (Nueva Ecija) - Sapang Bato	<ul style="list-style-type: none"> ● Harvesting <ul style="list-style-type: none"> - Lack of livelihood - Uncontrolled urban migration 	<ul style="list-style-type: none"> ● Sustainable agro-forestry/livelihood 	
	<ul style="list-style-type: none"> ● Forest fires <ul style="list-style-type: none"> - Encroachment into forest lands ● Conversion of forest lands <ul style="list-style-type: none"> - Slash and burn farming 	<ul style="list-style-type: none"> ● Demarcation of forest land ● Intensive IEC campaign ● Focus on forest protection 	
	<ul style="list-style-type: none"> ● Forests pests and diseases 		
	<ul style="list-style-type: none"> ● Weak institutional Capacity 	<ul style="list-style-type: none"> ● Strengthening of institutional linkages - Enhancement of co- 	

Issue	Causes	Possible solution	Integration/Agency
(Pampanga) - Peñaranda (Nueva Ecija)	<ul style="list-style-type: none"> - Inadequate resources - Political intervention 	management of forest land between LGU and DENR <ul style="list-style-type: none"> • Investment (public, private) • CDF Allocation/ Support on forest development & management 	
	<ul style="list-style-type: none"> • Weak policies & laws 	<ul style="list-style-type: none"> • Harmonization of existing laws 	
	<ul style="list-style-type: none"> • Poor implementation of laws 	<ul style="list-style-type: none"> • Strict implementation of forestry laws & regulations 	

GROUP 5: Water-Related Environment

Issue	Causes	Possible Solution	Integration/Agency
Inadequate understanding on Water Quality Condition	<ul style="list-style-type: none"> • Inadequate monitoring data on water quality condition 	<ul style="list-style-type: none"> • Establishment of testing laboratories for LGUs/NGAs 	<ul style="list-style-type: none"> • Establishment of testing laboratories with Academe/ Private Sector
	<ul style="list-style-type: none"> • Less capacity building for implementer 	<ul style="list-style-type: none"> • Capacity building for regulators & additional manpower & budget 	<ul style="list-style-type: none"> • Institutionalization & strengthening of multi-partite monitoring team
	<ul style="list-style-type: none"> - Less budget to setup monitoring stations 	<ul style="list-style-type: none"> • Establishment of monitoring station with sustainable budget & enough manpower requirement 	<ul style="list-style-type: none"> • Advocacy on Environment awareness with private sector
	<ul style="list-style-type: none"> • No complete inventory of pollution source from domestic, industrial, agricultural and mining - Incomplete waste water discharge permission data (industries) 	<ul style="list-style-type: none"> • Mapping of all sources of pollution (industries) 	<ul style="list-style-type: none"> • Establishment of portal on database management and knowledge sharing • Linkages/collaboration of different data generating agencies/sectors – identify lead agency

Issue	Causes	Possible Solution	Integration/Agency
	<ul style="list-style-type: none"> - Weak coordination & partnership among LGUs & national government 	<ul style="list-style-type: none"> • Strengthen coordination between LGUs & NGAs 	<ul style="list-style-type: none"> • Strengthening of implementation of Clean Water Act and RA 9003 by DENR, LGUs and Water Service Providers
	<ul style="list-style-type: none"> - Lack of control monitoring data 		
	<ul style="list-style-type: none"> - Weak enforcement of regulations 	<ul style="list-style-type: none"> • Strict enforcement of DENR Guidelines/ECC Conditions 	
	<ul style="list-style-type: none"> - No data on loading carrying capacity of a river body 	<ul style="list-style-type: none"> • Completion for the classification of rivers based on its current use 	
	<ul style="list-style-type: none"> - Lack of political will to implement guidelines 		
	<ul style="list-style-type: none"> - Lack of concern for the environment of LGUs: environment <u>not</u> a priority 		
Duplication of functions for DENR and concerned LGUs re: Apprehension/ implementation		<ul style="list-style-type: none"> • By coordination, DENR and LGUs should establish sectoral responsibilities 	
Potential Degradation of Candaba Swamp	<ul style="list-style-type: none"> • Siltation • Solid waste 		
Potential contamination of water for SW, GW, Manila Bay	<ul style="list-style-type: none"> • Water contamination from piggeries/ poultry farms (Porac, Pampanga, Bulacan, Tarlac, Nueva Ecija) 	<ul style="list-style-type: none"> • Implementation of proper treatment such as biogas, etc. 	

Issue	Causes	Possible Solution	Integration/Agency
<ul style="list-style-type: none"> - Abacan River - Tributaries (Porac River) - Sapang Balen Angeles - Tributaries (Mabalacat River) 	<ul style="list-style-type: none"> • Contamination from industries/household wastes (sewage/solid waste) <ul style="list-style-type: none"> - Lack of sewerage system 	<ul style="list-style-type: none"> • Actual inventory of water bodies are to be incorporated in the land use plan • Provision of sanitary engineers for LGU to evaluate the sanitary requirements for building permit applications 	
	<ul style="list-style-type: none"> • Mining and quarrying operations (Pampanga/Bulacan) 	<ul style="list-style-type: none"> • Advocacy on environment concern and involvement by private sector 	
	<ul style="list-style-type: none"> • Agricultural waste from farm inputs 	<ul style="list-style-type: none"> • Compliance of LGUs to implement Clean Water Act on sewerage 	
	<ul style="list-style-type: none"> • Proliferation of human wastes from squatters along river easement 	<ul style="list-style-type: none"> • Strong & strict implementation of laws & ordinances 	
	<ul style="list-style-type: none"> • Weak implementation of LGUs in solid waste management 	<ul style="list-style-type: none"> • Political will to implement solid waste management 	
Groundwater Contamination (Coastal Municipalities) Salt Water Intrusion	<ul style="list-style-type: none"> • Salt Water intrusion of coastal municipalities (Pampanga & Bulacan) <ul style="list-style-type: none"> - Over extraction of groundwater 	<ul style="list-style-type: none"> • Conduct groundwater & surface water research & assessment study 	
Potential degradation of ecosystem along coastal areas of Pampanga, Bulacan within Manila Bay	<ul style="list-style-type: none"> • Soil erosion coming from Upper Pampanga River & tributaries 		<ul style="list-style-type: none"> • Strong coordination with all sectors
	<ul style="list-style-type: none"> - Slash & burn (kaingin) in Mt. Arayat 		
	<ul style="list-style-type: none"> - Lack of awareness 	<ul style="list-style-type: none"> • IEC 	
	<ul style="list-style-type: none"> - Encroachment (forest and river systems) in 		

Issue	Causes	Possible Solution	Integration/Agency
	mountainous area		
	- Inadequate livelihood programs by the government	• Livelihood alternative (e.g. livestock and dairy)	
	- Timber poaching		
	- Weak enforcement of forestry laws (i.e. lack of forest guard)	• Strict implementation of laws	
	- Land use conversion in Pampanga, Bulacan (mangrove & fishponds)	• Strengthen partnership (LGU – Nat’l. Gov’t. Agencies) • To enact stricter guidelines on land use conversion	

G. RECAP AND INTEGRATION

Ms. Quinones made a recap on the activities for the day. From the initial results of the Study, it was realized that there are still many data gaps and she sought the assistance of the participants in addressing these data gaps to be able to come up with a good analysis of the actual situation in the Pampanga River Basin. From the outputs of the workshops it was gathered that the initial solutions identified by the experts of the Study Team are insufficient to address the issues and concerns in the basin. There are additional issues and solutions from the perspective of the participants based on their experiences in the field. It can be said that the involvement of the participants in the identification of these issues, causes and solutions is the start of the ownership of the Plan that the Study Team will come up with.

In terms of the identification of possible areas of integration which is the basic tenet of IWRM, it was realized that the endeavors individually as agencies can be expanded towards cooperation with other agencies in addressing issues that cut across sectors. The understanding of the problems is no longer confined within one’s sector but from the bigger context of the entire Pampanga River Basin where the concerns of one sector with another and the relationships of the issues and the causes are considered. There is now a better understanding of the evolution process of IWRM which is considerably a big leap in accomplishing the purpose of the Study and the very purpose of the consultation workshop.

As more workshops are expected to be conducted until the end of the Study, Ms. Quinones expressed hope that the same participants to be part of these series of consultation meetings.

H. CLOSING REMARKS

NWRB Deputy Executive Director Atty. Nathaniel Santos delivered the closing remarks. He thanked the participants for attending the second stakeholder consultation meeting and congratulated them for the productive workshop. He saw from the workshop that the participants were all very familiar with the issues and concerns on water. He highlighted the importance of an integrated management of water resources in the light of the recent disasters experienced brought about by two typhoons during the past several days. He cautioned on the risk of quick solutions as an answer to address problems that does not consider the effects on other sectors. The approach has to be integrated so as not to create problems to other sectors and to ensure the support of the sectors concerned. It is for this reason that the stakeholders' consultation meetings are being conducted for the Study and he hoped that participation will be sustained in future consultations.

He also reiterated the importance of the participants as stakeholders and to develop in them a sense of ownership in the IWRM Plan that will be formulated under the Study for the implementation of the recommendations that will be proposed, will rest on each and everyone after the completion of the Study.

A photo shoot capped the day's program (Annex H).

Annex A

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4. Kunita OKUWA - JICA Study Team
5. Yukihiro MIZUTANI – JICA Study Team
6. Yayoi YOSHIOKA – JICA Study Team
7. Jesusa MALLARE - JICA Study Team
8. Emadelyn QUINONES - JICA Study Team
9. Francis FUNA - JICA Study Team, GIS Engineer
10. Eleazar RUPIDO - JICA Study Team, Secretary
11. Gladys Ida Alburo – JICA Study Team, Encoder

NWRB

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2. Isidra D. Peñaranda
3. Felisa M. Manlulu
4. Susan P. Abaño
5. Francis B. Hilarie
6. Florimel R. Balbedina
7. Jesusa T. Roque
8. Lilian P. Gacusan
9. Nora M. Andrade

Annex D

2nd Stakeholders' Consultation on JICA-assisted Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin

Program of Activities October 9, 2009

TIME	ACTIVITIES	RESOURCE PERSON
8:00AM – 8:30AM	REGISTRATION	Secretariat
8:30AM – 8:45AM	Opening Ceremonies Invocation <ul style="list-style-type: none"> • National Anthem • Introduction of Participants/Study Team • Welcome 	
8:45AM – 9:00AM	Program Orientation: Overview of the Stakeholders' Consultation, Objectives, Schedule of Activities, Methodologies, Expected Outputs	Ms. Emadelyn M. Quinones JICA Study Team Coordinator Facilitator/Moderator
9:00AM – 10:00AM	Presentation on Initial Findings by JICA Study Team (*WORKING SNACK)	Mr. Makihiko Otagawa JICA Study Team Leader
10:00AM – 10:10AM	ICE BREAKER	Ms. Felisa M. Manlulu Counterpart Coordinator Facilitator
10:10AM – 12:10NN	WORKSHOP I – Identification of Issues-Cause-Possible Solutions	Facilitator/Moderator
12:10NN – 1:00PM	LUNCH BREAK	
1:00PM – 1:10PM	ENERGIZER	Facilitator
1:10PM – 2:10PM	Group Presentation/Open Forum I	Facilitator/Moderator
2:10PM – 3:30PM	WORKSHOP II – (1) Elaboration of Issues-Cause-Possible Solutions (2) Need for Integration and Coordination (*WORKING SNACK)	Facilitator/Moderator
3:30PM – 3:40PM	ENERGIZER	Facilitator
3:40PM – 4:30PM	Group Presentation/Open Forum II	Facilitator/Moderator
4:30PM – 4:45PM	Recap & Integration	Facilitator/Moderator
4:45PM – 4:50PM	Closing Remarks	Mr. Nathaniel C. Santos Deputy Executive Director NWRB
4:50PM – 5:00PM	End of Activity/Photo Op	

WORKSHOP GROUPINGS

GROUP 1: Flood Control and Disaster Management

Expert: Makihito Otogawa

Rapporteur: Agustin C. Mendoza – NEDA Region 3

Members: John Zapata – NEDA Reg. 3
Raul Agustin – Bulacan PDMC
Hilton Hernando – PAGASA PRFFWC
Isabelita M. Manalo – DPWH MPE-PMO
Arlette C. Guzman – DPWH Reg. 3
Daryl M. Sanchez – Pampanga PDCC
Minnie Dacanay – JICA Philippines
Richard Evangelista – Tarlac PPDO

Facilitator: Francis Hilarie – NWRB

GROUP 2: Irrigation, Hydropower and Fishery

Expert: Kunita Okuwa and Tadanori Kitamura

Rapporteur: Virgilio M. Garcia – NPC Head Office

Members: Ruel C. Vicmundo – Bulacan OPA
Josefina M. Pineda – Pampanga PPDO
Rosendo D. Panganiban – NIA Reg. 3
Benjamín A. Capian – Tarlac OPA
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Ofelia A. Pangan – NIA Pampanga PIMO
Mario B. Collado – BSWM
Manolito B. Vela – Nueva Ecija OPA
Regidor D. De Guzman – Pampanga OPA
Angelo A. Logo – NIA Reg. 3
Alberto C. Cotaco – NIA Tarlac PIMO
Arthur V. Dela Cruz – NIA C.O.

Facilitator: Jesusa T. Roque – NWRB

GROUP 3: Municipal and Industrial Water Supply, Sanitation and Sewerage

Expert: Jesusa Mallare

Rapporteur: Evangeline Dacanay – MWSS

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Rocky M. Dungca – City of San Fernando Water District
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Facilitator: Susan P. Abaño – NWRB

GROUP 4: WATERSHED MANAGEMENT

Expert: Emadelyn Quinones

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Leonarda C. Taclang –DENR PENRO Nueva Ecija

Facilitator: Felisa M. Manlulu – NWRB

GROUP 5: WATER-RELATED ENVIRONMENT

Expert: Yayoi Yoshioka

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Facilitator: Isidra D. Peñaranda – NWRB

GROUP PICTURE



APPENDIX 5

Report on 2nd Technical Working Group Meeting on November 4, 2009

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
2nd Technical Working Group Meeting
Club Royale, Malolos City, Bulacan
November 4, 2009

Highlights:

1. The meeting was called to order at approximately 9:45 am with Engr. Isidra D. Peñaranda, OIC of the NWRB Policy and Program Division, presiding. The meeting was held to update the TWG members on the Progress Report I and to have the sharing of information with the different agencies. The list of attendees is shown in Annex 1.
2. Mr. Otagawa, Study Team Leader, presented the IWRM study flow and timelines including, in parallel, the schedule of TWG/SC meetings and stakeholder consultations. He explained that Progress Report 1, which focused on the conditions obtaining in Pampanga RB, was completed in October. The Study is in progress with the identification of sectoral goals and needs; evaluation of on-going, proposed and potential projects; and formulation of the IWRM technical guideline. These will be covered by the Interim Progress Report, to be submitted in early December. The next phase of the work in 2010 will be devoted to the selection of the optimum scenario for IWRM from among so many alternatives and the preparation of corresponding Investment Plan, along with the recommendation for institutional set-up.
3. Mr. Kitamura, the Deputy Team Leader/Hydrologist presented the analysis of the basin's pollution load in relation to water quality. Based on preliminary estimates, domestic and industrial sources together contribute 67% while fishponds contribute 27% of the total biological oxygen demand (BOD) load in 2008. The share from livestock and cultivation is minimal at 5% and 1%, respectively. Presently, the Study area contributes about 54,000 tons BOD load per year into Manila Bay. In the absence of any intervention, this may increase to 120,000 tons/year (121%) in 2025. He finally concludes that annual average, the surface water quality of Pampanga River is still acceptable as an alternative source of drinking water supply with some treatment but not San Fernando River.
4. Engr. Peñaranda of NWRB presented Japan's experience in IWRM. She zeroed in on the country's institutional, legal and operational frameworks for river management, water rights regulation, and supply-demand management. She also showed the diverse mix of structural and non-structural approaches and strategies for water resources development and management of the water-related issues and challenges that are unique to Japan's experience.
5. Mr. Hilton Hernando of PAG-ASA presented the operation features of the agency's Flood Forecasting and Warning System, a non-structural measure to manage the risks from flooding in Pampanga River Basin. He also discussed the present programs, activities and initiatives of the agency's hydro-meteorological center in the basin, particularly the Community-based Flood Mitigation and Management Program. A unique feature of this program is the School Hydrological Information Network (SHINE), where a number of high schools in Bulacan are partners with the provincial government in operating rainfall

observation stations-cum-information dissemination centers to forewarn the public about flood events.

6. An open forum followed each presentation, during which the following points were clarified:

- Pollution Load Estimates

- Future domestic pollution load estimates considered the projected change in the basin's population as well as the use of sanitation facilities.
- There is only one sewerage treatment facility in the basin, which is operated by Clark Water Corporation. Presently it serves some of the residential, commercial and industrial locators in Clark Special Economic Zone. There are immediate plans to expand the facility in order to fully serve the constituents of Clark and possibly the entire cities of Angeles and San Fernando, Pampanga. Cabanatuan City also has plans to connect the urban center to a central sewerage system.
- The same methodology employed by a JICA study for estimating pollution load in Meycauyan-Marilao-Obando river systems is basically followed in this analysis.
- There is really a need to establish more/appropriate monitoring stations upstream, midstream and downstream of the river systems and improve the system of periodic data gathering to get accurate information on the status of surface water quality, not only in Pampanga, San Fernando and Angat Rivers but including other water bodies as well.
- The use of biological indicators to monitor water quality, as advanced countries do, is not yet practiced in the Philippines.
- Pollution load estimates used only one parameter, i.e., BOD. There are other physio-chemical parameters to indicate status of water quality besides BOD, including DO, TSS, TDS and heavy metals. Bacteriological contamination is indicated by the presence of fecal and total coliform.
- Fishponds are the second highest contributor of BOD load in the basin. Thus, the delta area, where most of the fishponds are located, would probably need more stringent regulation.
- Livestock is preliminarily considered a non-point source because there is inadequate data on inventory of livestock farms. According to DENR, only about 10% of livestock farms operating in the area have ECC. By the Study Team's reckoning, only 22% of the livestock farms listed with the DTI have effluent discharge permits. DENR requires that livestock farms should have at least a primary treatment facility.
- The Study Team will need the help of LGUs in making a complete inventory of the livestock farms and production levels, as well as information on the livestock farms that have cleaner production technologies such as waste-to-biogas production.
- The DENR hinted at the possibility of developing CDM projects among the big livestock farms.

- Flood Management

- The study is coming up with a list of all potential flood control projects, which will be tackled in the Interim Report. Some options include the continuation of the Pampanga Delta Proj. Phase 2 and Phase 3, the enhancement of Candaba Swamp as a retarding basin, the flood control project for eastern Pinatubo areas and the community-based flood warning system of PAGASA.
- Flood Forecasting and Warning System
 - In the case of Angat and Pantabangan dams, there are two systems in simultaneous operation, which are specifically designed for Flood Forecasting and Warning System for Dam Operations. One is the direct warning from the dam operator; the other is the public warning from PAGASA. The dual warning system is meant to adequately forewarn the communities immediately downstream of the dam of impending water release when the water level at the dam reaches critical level.
 - The NPC operator in Angat Dam, for example issues the flood warning through 17 fixed warning stations covering all barangays and municipalities downstream of the dam. At the same time it issues dam discharge information to PAG-ASA, which in turn will forecast and disseminate the possible extent of downstream flooding. The information will be relayed to affected communities through these stations. The NIA operates the Pantabangan FFWS in the same manner.
 - There are two recipients for the dam discharge data: one is the regional station in San Fernando; the other is the data information center in Diliman, QC. These recipients receive the information simultaneously, distributed by the San Rafael repeater station.
 - There are on-going discussions about integrating Ipo Dam with the FFWS for Angat Dam, which hopefully will be covered by the JICA-funded FFWS Rehabilitation Project in 2011. This is now necessary owing to the growing number of settlements downstream of Ipo Dam.
 - The warning systems (sirens) are installed only in the stations downstream of the dams. What the PAGASA operates are telemetering stations that could predict the expected time of arrival of flood based on rainfall and water level.
 - As to the flow of communication, the PAGASA is mandated to feed information 24/7 directly to the Office of Civil Defense (OCD) and the Provincial Disaster Coordinating Councils (PDCC) of Bulacan, Pampanga and N. Ecija.
 - In case of power failure, the Pampanga River Basin FFWC has a 800-li capacity generator, which can support the system for up to two weeks in case of power outages. The stations, on the other hand, are solar powered and can provide alternative power supply even if it rains non-stop for six days.
 - Besides the FFWS, other non-structural measures should be considered such as resettlement and other ways to retard the flow of surface run-off from the watershed. That's the whole essence of IWRM or Integrated River Basin Management (IRBM) or Integrated Coastal Management (ICM) for that matter.
 - The IPs reside in the dam areas. They should be given adequate attention in designing flood mitigation measures, possibly through resettlement.
 - Floods are dynamic by nature; this is why Flood Hazard Maps need updating every 2-3 years.

- There are other inexpensive community-based flood warning and climate adaptation initiatives in other parts of the country such as the Project Ice Cream and those in Leyte and Bataan, for example, which make use of indigenous materials, such as Nescafe glasses.
 - The Bulacan model costs only Php200,000.00 and could easily be replicated in Pampanga and N. Ecija. But the LGUs and the communities should be actively involved.
7. Mr. Otagawa requested the TWG members to provide the following information in the next TWG meeting:
- Flood damages (no. of persons injured; no. of houses damaged, etc.) caused by typhoons Ondoy and Pepeng in the study area; and
 - Opinion or view on flood mitigation based on experience from Ondoy and Pepeng which can be integrated in the flood mitigation measure for IWRM.
8. Next TWG Meeting:
- The next TWG meeting will be on November 25, to be held in Tarlac. NWRB will make arrangements for the venue in coordination with the provincial government.
 - The agenda for the next meeting include the presentation on the contents of the Interim Report, BSWM presentation on SWIM projects and submission of data on flood damages in the study area.
9. With no other matters to discuss, the meeting was adjourned by Engr. Peñaranda at about 2:00 pm.

Annex

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin
2nd Technical Working Group Meeting
Club Royale, Malolos City, Bulacan
November 4, 2009**

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24. Tadanori Kitamura	Deputy Team Leader/ Water Res. Devt. & Mgt. Planning	JICA Study Team		
25. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team		
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APPENDIX 6

Report on 3rd Technical Working Group Meeting on November 25, 2009

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
3rd Technical Working Group Meeting
La Maja Rica Hotel and Restaurant, Tarlac City
November 25, 2009

Highlights:

1. The meeting was called to order at approximately 9:45 am with Engr. Isidra D. Peñaranda, OIC of the NWRB Policy and Program Division, presiding. The meeting was held to discuss the progress on the Interim Report which is the next output of the JICA Study Team. The list of attendees is shown in Annex.
2. Mr. Otagawa, Study Team Leader presented the study schedule and major activities in the 2nd field survey conducted from September to December 2009. For the past 10 months since the project started in February 2009, Progress Report I has been submitted and the completion of the Interim Report is underway for its submission in January 2009. The major updates from Progress Report 1 as well as the results of the analysis and evaluation carried out for the Study are compiled in the Interim Report. Phase 1 of the project will end in March 2010 and the project will resume with Phase 2 to start in July 2010 after the conduct of the general elections until the completion of the project in February 2011^a. During the period there will be several meetings for the Steering Committee, Technical Working Group and Stakeholders' consultation. Apart from these, several Focused Group meetings are also proposed to be conducted for discussions on sectoral concerns.

He also briefed the TWG members on the major topics on the Interim Report, as follows: a) principal tasks, objectives and sector goals of IWRM for Pampanga River Basin; b) principal issues and problems of IWRM in the study area; c) issues/problems on water allocation, municipal water supply, flood management, watershed management and water quality management derived from the 2nd stakeholders' consultation meeting; and d) evaluation procedure of on-going, proposed and conceptual projects.

The principal task (vision), objectives (mission) and sector goals were formulated using the Medium Term Philippine Development Plan 2004-2010 (MTPDP), Central Luzon Regional Physical Framework Plan and the IWRM Plan Framework in the Philippines as references. These will be the basis for the plan formulation of the IWRM for Pampanga River Basin toward poverty alleviation and economic development. With consideration on the sectoral issues/problems gathered from the concerned agencies during the field surveys and the stakeholders' consultation meetings, several projects will be proposed towards the achievement of the sectoral goals.

On-going, proposed and conceptual projects will be evaluated from the viewpoint of technical & financial viability, equity and rationality, quantitative and qualitative improvement, impact of natural and social environment, duplication of scope with other projects, potential conflict among stakeholders and necessity of adjustment for prioritization in the implementation of the project. This is the first part of the screening and a second screening will be done also in the second phase.

^a The information by Mr. Otagawa is incorrect, and should be revised to "the Phase 1 of the Project will end in December 2009 and the project will resume with Phase 2 to start in January 2010".

3. Queries/observations/recommendations gathered from the presentation of Mr. Otogawa are as follows:

- Engr. Peñaranda raised the following:
 - She inquired whether the data presented on the Level I, II and III water supply sources in Pampanga River Basin include other sources such as river systems. As per definition of Level I adopted by the Study Team from the water supply report provided by the Provincial Mayor's Office and included in the Interim Report, it was clarified that Level I includes safe and unsafe sources like rivers and river systems are considered as point sources;
 - She inquired on the data on sewerage coverage within the Pampanga River Basin as to whether it was classified by type of sanitation toilet to which Mr. Kitamura replied that almost all of the sanitation toilets are the conventional ones;
 - She suggested to provide the data on the service coverage by type of water service providers operating within Pampanga River Basin to have information on the different small water service providers in the study area that fill in the gap in the provision of water supply. Perhaps the information may be available from the LGUs or the water districts.
- Engr. Guzman of DPWH Reg. 3 raised the following:
 - She inquired on whether the illegal quarrying concerns can be included among the various issues on flood mitigation in the study area since in the Abacan River and downstream portions of the Pampanga River Channel there are some illegal activities. According to Mr. Otogawa, the Study Team did not have an in-depth study on the matter. Upon learning from Engr. Guzman that quarrying activities should have a permit from the DENR since the agency has designated places for quarrying activities, the issue may be considered in the new projects that will be proposed.
 - It was noted that the Sapang River should be Sapang Balen Creek that emanates from Clark going downstream to the Abacan River.
- Mr. Mizutani, the organizational/institutional expert requested clarification from Engr. Peñaranda regarding the role of the different entities in the committee that resolves water allocation conflicts from Angat Reservoir during drought. Engr. Peñaranda explained that the TWG in the allocation of water for the Angat Reservoir during drought is similar with the committee in Japan during drought or low flow. NIA is not the operator of Angat but the NPC as the owner of the Angat Reservoir. NIA is a stakeholder as a user of water for irrigation use and MWSS is a permittee as the holder of the water right for the Angat Reservoir for domestic water supply provided to the 2 concessionaires, MWCI and MWSI. For Bulacan, the Provincial Government is the holder of the water right for municipal water use for the province of Bulacan. The NWRB is the regulator as well as the Chair of the TWG. It is an

arbitrator during droughts in the allocation of water but generally it is a regulator since it regulates the use of water through the water permit for any source and use.

4. Mr. Mizutani presented the Draft Technical Guideline for the IWRM Plan Formulation. It covered the method of coordination with stakeholders, procedure and schedule of IWRM Plan formulation, method of evaluating water-related projects, criteria for decision making (prioritizing and selecting projects), institutional and organizational arrangement and scheduling for implementation. He explained that unlike the National IWRM Plan Framework which is a directive for national agencies, local governments and some RBOs to prepare its own IWRM Plan, the Technical Guideline is being prepared as a guide for planners and TWG members in the collaboration for the preparation of the IWRM Plan for the Pampanga River Basin. This can be considered as a reference for future formulation of IWRM Plan in other river basins.

He presented the vision and goals for the Pampanga River Basin for 2025 for validation by the TWG members, an important step in the IWRM Plan formulation procedure. The vision is “Achieve Poverty Alleviation and Economic Growth”. With respect to the long-term plans, he clarified that the Study Team has no capacity to prepare long-term plans for the different sectors. The existing and on-going project plans and programs which have been made by the national sector agencies and LGUs are to be adopted as the core projects and programs of the long-term plan for respective sectors. Conceptual plans, which are directional concept to achieve goals up to the target year in which the existing projects are not sufficient, will be additionally proposed by the Study Team for the sectors of which the long-term plans are not available up to the target year. This includes existing potential projects.

Evaluation and selection procedure for the project plans is the task of the Study Team and Steering Committee in collaboration with the TWG, respectively. The results of the technical evaluation for each sectoral project will be presented by the Study Team during the course of the Study. The prioritization method being considered is the Goal-Achievement Matrix (GAM) which is being used as decision criteria for prioritization of projects by NEDA Reg. III. It is similar to the multiple objective analysis widely used in dam planning, regional planning and some sector project planning.

Relative to institutional and organizational arrangements, there are 2 issues. One is with respect to the key issues on water resources management and coordination in the basin which are related to the improvement of the Water Code and the capacity strengthening of NWRB while the other one relates to whether the establishment of river basin organization (RBO) for Pampanga River Basin is necessary or not for the equitable and sustainable development and environmental conservation where the capacity strengthening of sector agencies such as DENR, NIA, DPWH, etc is an option.

5. Comments/observations gathered from the above presentation of Mr. Mizutani are as follows:
 - Engr. Peñaranda noted that the vision of the Pampanga River Basin is the vision of the region as embodied in the MTPDP and Central Luzon Regional Development Plan (CLRDP) and not for Pampanga River Basin alone. In this regard, Mr. Mizutani requested Mr. Zapata of NEDA Region III to validate the region’s vision in the existing CLRDP and give its comment. Mr. Zapata will revisit the CLRDP to

see if an updated vision intended for the next edition of the CLRDP can be presented in the next TWG meeting;

- Mr. Mizutani requested Mr. Zapata to provide him with information on the actual application of GAM on its projects since he has not seen one. It seems that NEDA is the only agency familiar with the method;
6. Mr. Mizutani presented also the role of RBO in IWRM. He noted that there are several RBOs in the country but there is no existing RBO for the Pampanga River Basin. He classified the existing RBOs into 6 types as follows:
- Type 1 & 2: Body for integrated area development and management such as Laguna Lake Development Authority (LLDA);
 - Type 3 & 4: Coordination body for advocating IWRM and monitoring watershed environment such as Upper Pampanga River Basin (UPRB) Coordinating Council and Bohol IWRM Board;
 - Type 5: NGO for multi-sector collaboration through net working;
 - Type 6: National agency to manage the water resources with limited functions such as Murray-Darling Basin Authority in Australia

He mentioned that in Australia there is water trading market system and this enhance the effective and equitable allocation of water resources. In his opinion, this system may have a chance to resolve some of the issues discussed for the Angat Dam operation.

The concept of IWRM was also discussed. The IWRM mission is of three types namely, (1) the type of “Essential IWRM” that aims to manage surface water and groundwater for water use as well as water quantity and water quality; (2) the type of “IWRM with Three Elements” of water use, water environment and flood control integrated together; and (3) the type of “Extremely Broad IWRM” that aims to integrate water, social and economic development. The mission of IWRM that covers the three elements of water use, flood control and water environment is applied to Pampanga River Basin.

The specific role of RBO envisaged in the Pampanga River Basin will be studied and clarified during the course of the Study taking into consideration the prevailing conditions in 2025 and the present governance policy of the Central Luzon where creation of RBO or other organizational structure is not being envisaged by NEDA Region III because the existing Regional Development Council (RDC) is functioning well as a coordinating organization and clearing house for major projects and programs. Capacity strengthening of national and regional line agencies as well as local governments is expected to keep the existing structure basically unchanged.

Mr. Mizutani was interested to elicit from the TWG members their views on the type of IWRM expected for the Pampanga River Basin, kind of institutional arrangement necessary for the basin, type of RBO expected for the basin and present policy in Region III. Considering that these concerns cannot be addressed within the duration of the meeting, he requested the TWG members to review the materials provided in the kit and give their comments for the enhancement of the report.

7. Comments/observations/recommendations gathered from the above presentation of Mr. Mizutani are as follows:

- Mr. De Jesus of Tarlac City WD (TCWD) raised the following in response to the views being elicited by Mr. Mizutani:
 - Options for the types of IWRM for Pampanga river basin are the “IWRM with Three Elements” or the “Extremely Broad IWRM” considering that the Study involves poverty alleviation and economic development. However, the question on the type of “Extremely Broad IWRM” is how broad the IWRM is. Nevertheless, it may be better to create a unique IWRM with functions appropriate for Pampanga river basin if the functions in the choices for IWRM are not prescriptive.
 - The creation of RBOs should be decided according to the result of the Study. It is not for the TWG to decide whether to create an RBO or not since the need will naturally come out from the study.
- With reference to the Protected Area Management Board (PAMB) mentioned by Engr. Balmeo of the N.E. PPDO relative to the discussion on the UPRB Coordinating Council, Ms. Quinones, Water Env./ Watershed Mgt. Expert of the Study Team informed that the PAMB is a multi-sectoral Board usually chaired by the DENR Regional Director with representations from national agencies and LGUs for all protected areas covered under the NIPAS Act. The PAMB existing within Pampanga River Basin are for Carranglan-Pantabangan and Talavera watersheds but PAMB cannot function as a RBO since the two are very different. PAMB is more on the management of the protected areas and basically the major concern is bio-diversity conservation.
- Engr. Peñaranda raised the following:
 - The discussion on the institutional arrangement is for the identification of the proper body that will manage the Pampanga River Basin as well as monitor the implementation of the projects and the IWRM Plan. For NWRB the Study for the Pampanga River Basin is a pilot for IWRM implementation and localization in the country;
 - The RBO or whatever organization that will be formed will not implement projects. Basically, the role of the RBO is to coordinate within the river basin and serve as a clearing house to ensure integration since the different agencies have the mandate to implement projects, such as NIA for irrigation, DPWH for flood control, etc. As soon as the IWRM Plan is formulated, it will be a guide to the RBO for the prioritization of the projects that will be implemented;
 - There should be an in-depth study on the existing RBOs in the country as to its functions and operation. In the creation of an RBO, there should be a clear delineation of roles and responsibilities of national agencies like NWRB in the institutional arrangement for the RBO and the manner of its creation should be defined as to whether through a law or an Executive Order;
 - Mr. Mizutani should clarify the basic structure and functions of the RDC and assess whether or not it can cover the IWRM requirements. This clarification would be necessary in consideration of the recommendation from the

representative of the Nueva Ecija PPDO during the previous meetings and the stand of the Regional Director of NEDA Reg. III to build on the existing RDC within the region for the institutional arrangement for the basin. It is also recommended to look at the RDC as an integrated committee and not with sectoral concerns.

- Mr. Kitamura was concerned on whether water management will be a function of the RBO that will be created in consideration of the current situation in the Angat Reservoir;
 - Mr. Zapata of NEDA raised the following:
 - He informed that the RDC is composed of all provincial governors, city mayors and regional directors of identified line agencies where NEDA Reg. III is the Secretariat. There are 4 sectoral committees in the RDC, namely the Sectoral Committee on Development Administration, Infrastructure Development, Economic Development and Social Development. One of its functions is to evaluate project proposals that need RDC endorsement for possible funding of multilateral or bilateral agencies. It does not implement projects as the specific project proponent is the one that implements the project. It is also the RDC who formulated the Regional Development Plan as required for integration in the Medium-Term Philippine Development Plan.
 - He agrees with Mr. de Jesus of TCWD in the opinion that it is not for the TWG to decide whether to create an RBO or not but it is the result of the study that will define if there is a need for the creation of the RBO. While it is true that the creation of another organization to implement projects for Pampanga River Basin for IWRM is not encouraged, the Study Team is not prevented from creating a RBO if after the completion of the Study it is deemed the right organization to implement the specific projects being identified in the river basin.
8. Mr. Orogawa expressed appreciation for the information provided to the Study Team by some members of the TWG related to the recent experience with Ondoy and Pepeng as very few information are available in the study area compared to Metro Manila. The information will be compiled and may be reported in the next TWG meeting. He encouraged other members who may still have some report on the flood damage to provide them the information. Engr. Peñaranda informed Mr. Orogawa that the representative from the Nueva Ecija PPDO will email their report for Nueva Ecija.
9. Engr. Peñaranda informed that Nov. 19-25 is declared as Climate Change Consciousness Week and RA 9729 or Climate Change Act has been signed sometime in Sept. 2009. Most agencies are already mainstreaming climate change adaptation strategies and mitigation in their respective offices. Executive Order 774 reorganized the Presidential Task Force on Climate Change headed by the Office of Sec. Heherson Alvarez which is implementing measures on climate change adaptation and mitigation. The DPWH in particular as the lead agency in one of the Task Groups have prototype models for rainwater collection and NWRB as the lead agency in water recycling is also gathering information on institutions doing water recycling, reuse and conservation. The DENR also have an on-going initiative through the GTZ project for the formulation of the National

Strategy on Climate Change Adaptation where different sectors are represented. Another activity of DENR with NEDA is the MDGF 1656: Strengthening the Philippines' Institutional Capacity to Adapt to Climate Change. With the identification of the implementation of IWRM as the climate change adaptation strategy, the Study is consistent with climate change adaptation.

10. Agreements reached are as follows:

- The next TWG meeting will be on Jan 27, 2010 in Pampanga for there will not be a TWG meeting in December as the Study Team will be going back to Japan for the Christmas holidays by Dec. 14. The agenda in the next meeting will be a discussion on the Interim Report as well as the presentation of BSWM on small water impounding (SWIM) projects, if the member is already available;
- The comments on Draft Technical Guideline for IWRM Plan as well as on the RBO role in the IWRM Framework will be submitted to Mr. Otogawa at his email address: otogawa@ctii.co.jp
- NEDA is required to review the regional goals and visions based on existing plans and proposed goals and strategies within Pampanga River Basin and to provide information on the GAM with respect to what projects it was used, how it was used and what was the result with copy of actual evaluation, if available;
- TWG members are required to revisit respective agency's plans and programs to see if it is consistent with the proposal of JICA on the IWRM Plan Framework specifically on the goals, visions as well as objectives. Any member who may want to present their agency's programs and projects may do so.

11. With no other matters to discuss, the meeting was adjourned at about 1:30 pm.

Annex

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
3rd Technical Working Group Meeting
La Maja Rica Hotel and Restaurant, Tarlac City
November 25, 2009

Attendance Sheet

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
1. Isidra D. Peñaranda	OIC, Policy and Program Division	NWRB	920-2724	idp_nwrp@yahoo.com
2. Rosita P. Pariña	Engineer II	DENR-PAWB	925-8950	
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4. Arthur R. Dela Cruz	Section Chief	NIA-C.O.	928-4130	
5. Alfredo T. Aguilar	Sr. WRF Technician	NIA-Tarlac PIMO	(045) 982-1064	
6. Antonio A. Cacdac	Senior EMS	Bulacan ENRO	(044) 791-8163	tonycacdac@yahoo.com
7. Armando P. Taruc	Chief, PRFFWC	PRFFWC, PAGASA	(045) 455-1701	
8. John T. Zapata	EDS II	NEDA - III	(045) 961-3902	johnzapata@yahoo.com
9. Reynaldo T. Tabelina	POI	PPDO Tarlac	(045) 982-1234	
10. Rosalia G. Adonis	OIC ENRO	Pampanga ENRO	(045) 861-3061	sallie083164@yahoo.com
11. Edgardo Pineda		Pampanga ENRO	(045) 861-3061	
12. Lorna B. Balmeo	PEO IV	PPDO- NE	0920-2951118	
13. Jaycel Villegas	PO II	PPDO- NE	0906-7197911	
14. Carmencita S. Agustin	Fish Health Officer	BFAR - III	(045) 455-0878	carmencitaagustin@yahoo.com
15. Erlinda Pajarillaga	SFMS	DENR - 3	0919-8616110	
16. Ma. Theresa L. Lalu	Sr. Forest Mgt. Specialist	DENR - III	(045) 961-4238	terelalu@yahoo.com
17. Lovercain de Jesus	Sr. Water Utility Management Officer	Tarlac WD	0929-1911366	lovercain_101@yahoo.com
18. Evangeline Dacanay	Project Mgt. Officer A	MWSS	9202439	
19. Makihiko Otogawa	Team Leader/ IWRM	JICA Study Team		
20. Tadanori Kitamura	Deputy Team Leader/ Water Res. Devt. & Mgt. Planning	JICA Study Team		
21. Yukihiko Mizutani	Organization Institution Expert	JICA Study Team		
22. Emadelyn M. Quiñones	Water Env./ Watershed Mgt. Expert	JICA Study Team		lynnx_1st@yahoo.com
23. Francis Joseph M. Funa	GIS Engineer	JICA Study Team		
24. Eleazar Rupido	Secretary	JICA Study		

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
		Team		
25. Gladys Ida S. Alburo	Encoder	JICA Study Team		
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28. Josephine Abellana	Adm. Asst. I	NWRB	920-2724	jaa.0725@yahoo.com

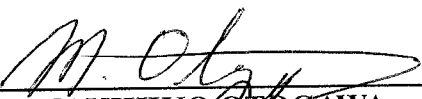
APPENDIX 7

Minutes of Joint Steering Committee and Technical Working Group
Meeting on Interim Report on February 17, 2009

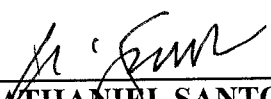
**MINUTES OF JOINT STEERING COMMITTEE AND
TECHNICAL WORKING GROUP MEETING
ON
INTERIM REPORT
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COOPERATION AGENCY**

February 17 in Quezon City




MAKIHICO OOGAWA
Study Team Leader
Japan International Cooperation Agency



NATHANIEL SANTOS
Deputy Executive Director
National Water Resources Board
(Chairman of Steering Committee)

1. The meeting was called to order at approximately 9:00 am with NWRB Officer-in-Charge Atty. Nathaniel C. Santos presiding. The meeting was held to present the contents of the Interim Report and the web page being prepared for the Study to the Steering Committee (SC) and Technical Working Group (TWG) members. The list of attendees is shown in Annex.
2. Atty. Nathaniel C. Santos, in his opening remarks, expressed gratitude to JICA and the JICA Study Team for the conduct of the Study amid the El Niño being experienced by the country at present, especially in the study area of Pampanga River Basin. The expected extended dry spell that will result to a very abnormal inflow of water in Angat Dam will affect Metro Manila, Pampanga and Bulacan. He noted that during the previous meeting, the country was experiencing excess water with the onset of typhoon Ondoy and presently the situation with the El Niño is the lack of water. This is a problem that can be addressed by proper water resources management. Therefore the NWRB, the national government as well as the stakeholders who are affected with the situation is looking forward to the recommendations of the Study.
3. Mr. Masashi Nagaishi, Deputy Resident Representative of JICA Philippines Office, gave a short message expressing his appreciation for the assistance extended by the members of the Steering Committee and Technical Working Group to the Study Team in the completion of the Phase I of the Study. Phase II will be for the formulation of the IWRM Plan, of which an Investment Plan will be prepared for the projects that will be selected from among the many alternative projects that will be evaluated and where recommendations for an institutional arrangement will be presented. The NWRB as the government agency in charge of the allocation of water rights and water resources management may need further capacity building in its new role as may be identified in the Study. There may be a need to establish a river basin organization for the Pampanga River Basin to take charge of the equitable and sustainable development of the ecosystem and operation and maintenance of river facilities.

The Study is very important to Pampanga River Basin as the IWRM Plan will greatly affect its socio-economic development and environmental sustainability. The endeavor supports the task and vision in the Medium Term Philippine Development Plan towards poverty alleviation in the countryside. The Study could be seen as comprehensive in its approach as it gathers inputs from policies and guidelines from national government agencies such as NEDA, DENR, DPWH, NIA and DOH as well as Provincial Development Plans of concerned LGUs. It is participatory in its approach as consultation is done on a monthly basis to update all concerned of issues and plans of action. On behalf of JICA, he expressed his full support to the Study and hoped that the best projects will be identified that will mainly achieve goals and objectives.



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4. The contents of the Interim Report were briefly explained by Mr. Makihiko Otogawa, Team Leader for the Study. The issues, concerns, observations and recommendations raised on the presentation are as follows:

- The Chairman raised the following:
 - He inquired whether there are any other water allocation problems in other parts of the study area apart from the allocation issue in Angat Dam. Mr. Otogawa informed that the TASMORIS irrigation area in Tarlac is also suffering from some water shortage although not as serious as that in AMRIS area. For municipal water supply the issues are saline intrusion and land subsidence so alternative water sources for municipal water is being considered by the Study Team. Mr. Kitamura added that irrigation water is also lacking in Gumain area and the construction of a reservoir may improve the situation but the irrigation area is too big. For municipal water, the main problem is water quality especially in the areas of Bulacan and Pampanga. On the other hand, the source of water for the Bulacan Bulk Water Supply Project is also a problem since it is mainly from Angat Dam. Likewise, the source of surface water for Pampanga is a problem as groundwater is inadequate;
 - He inquired whether the issue on the overlapping powers of different agencies/entities such as NWRB, local governments, PAMB, water districts and indigenous groups to regulate the use of water resources in a particular area has been taken up by the Study Team since this has an impact on how water should be managed. If not, he asked if a recommendation can be expected. Mr. Otogawa responded that the Study only identified the water resource regulators and the water users. The Study Team would try to come up with a recommendation on this matter; and
 - He raised concern on the slide depicting the excess of water use right over dam supply capacity case of Angat Dam as it appeared that the NWRB had allowed/granted water rights more than the capacity of the dam. Mr. Otogawa explained that the matter has been discussed and clarified by Mr. Kitamura several times with the NWRB staff but still some of the aspects are not so clear. In this regard, he requested for the Study Team to have a meeting with him to discuss the water allocation in Angat Dam in more detail.
- Mr. Llorente of SCADC requested clarification on the issue of the deterioration of surface water quality in Abacan River and Sapang Balen River in and around Angeles City and the extent of its impact to Angeles City or the study area. Mr. Otogawa explained that the issue was raised by the stakeholders during the consultation meeting but it is not a major problem to the Pampanga River Basin as a whole. However, as it is a problem to the people who live around Angeles City, it is being considered also in the Study. Mr. Kitamura noted that there is actually no monitoring data available to substantiate the deterioration issue raised by the

*Atc*₃

stakeholders, nevertheless, the pollution load analysis conducted by the Study Team in the report may be of reference on the matter.

- Mr. Pascual of NIA-UPRIIS inquired in the light of the occurrence of El Niño as to whether the Study Team has a recommendation on the mitigation of El Niño, especially in Angat and Magat Dams which are already operating below the rule curve. Mr. Otagawa replied that climate change related to drought is rather difficult compared to climate change related to flood so there are no definite conclusions yet as it is still under study. He requested for additional time to consider the issue.
- Ms. Mendoza of PAWB requested clarification on the classified forestlands mentioned in the presentation. She commented that if this refers to the land classification, the national park or protected area is another classification and should not be part of classified forestlands. It has a separate classification based on the Constitution so it has to be clear.
- Mr. Javier of FMB raised the following:
 - He noted that the Study team has identified only two broad classification of lands compared to the four categories under the Constitution. While protected areas have a separate classification under the Constitution, it may encroach on forestlands. He shared that there is an on-going activity by the DENR on the final forest line delineation that will set the boundaries between forestlands and alienable and disposable lands. He suggested including this in the Study to complete the forestland delineation to be able to determine which protected areas are encroaching within forestlands. Data are available at DENR Reg. 3 and FMB;
 - On the matter of RBO, he suggested to be very concrete on the powers that will be vested to the river basin authority, as to whether it will be clothed with police power or just a coordinating body. A review can be made on the LLDA case wherein its authority includes police power and the former RBO for Agno River Basin. The lessons learned can be incorporated in the interventions later; and
 - He requested to study further the issue on the duplication of functions by DENR and LGUs cited in the presentation through the review of the provisions of the Local Government Code and the succeeding issuances of DENR, taking into consideration areas of complementation, co-management and actual devolution since what has been assessed as duplication of function may actually be a function devolved to the LGUs. In certain areas where the LGUs cannot do the function by itself, there is such as thing as co-management and the direction of the DENR Central Officer is to decentralize and devolve more functions to the LGUs but with enough safeguards.

- Mr. David of DPWH-PMO-FCSEC commented that the prioritization of the sector projects will lead to the core problem in the river basin. Hence he was interested to know the initial results. Mr. Otogawa informed that prioritization has not been done yet. It will be undertaken in June, after the election period.
- Ms. Mercado of NEDA Reg. III made a clarification regarding its position where the creation of RBO in the region is not being envisaged. He explained that the issue is not the turf but the possible overlapping of functions of the RBO and the existing RDC and the operational needs in the implementation of the river basin projects. He informed that the Congress in the recent past is against the creation of a new development authority particularly if such creation will require legislated budget. If the existing organization will be utilized, problems concerning budget for the sustainability of its operation can be avoided. Hence the proposal is to make the RDC or a committee under the RDC as the RBO because the RDC is the best organization to address inter-provincial concerns. While a local RBO may also be created, on top of this organization will still be the committee under the RDC. He offered the services of their office to work with the Team to discuss the matter. There are already initial thoughts on the composition of the committee under the RDC that will focus its attention on IWRM projects.

In addition, he proposed for the undertaking in the future of a study similar to the Study on IWRM for Pampanga River Basin for the Agno River Basin to cover the river basins in the region in order for the work of coordinating various projects and interventions in the river basin will be easily done by the committee that will be created under the RDC.

Atty. Santos commented that if the direction is for the RBO to tap the existing organization of the RDC, it is very important that there is an expression of interest from the existing RDC.

- Mr. Nagaishi of JICA raised the following:
 - He requested clarification on the demarcation between group A and group B projects mentioned in the alternative IWRM scenarios of the presentation. Mr. Otogawa explained that Group A projects are the projects that are necessary to be undertaken continuously irregardless of the result of prioritization for implementation, such as the projects for human needs, rehabilitation and maintenance and preservation of ecosystems. On the other hand, Group B projects refer to pipeline projects where there is an option to undertake it or not; and
 - He inquired for the reason in the increase of volume of inflow for 2001 for the Angat Dam as shown in the graphical presentation to which Mr. Otogawa responded that it is due to the construction of the Umiray River Transbasin for the supplemental water supply in Angat Dam.

- Mr. Kamoto of JICA-DPWH raised the following:
 - He raised the idea of having a seasonal water right similar to that in Japan in response to the issue on the changing water use right allocated for Angat Dam. Mr. Otagawa is amenable to the idea although it is technically very difficult to apply to the whole country. The Study Team will consult with the NWRB staff on how to better address the problem;
 - He commented that the resource to fund the RBO/RDC is a major consideration for sustainability; and
 - He suggested for the planning period to be 6-12 years instead of 15 years as he observed that in the Philippines the long-term and medium term plan is usually 6 years.

- Mr. Tuddao of RBCO raised the following:
 - He requested validation of his understanding that the issues/problems on water quality management as presented were raised during the stakeholders' consultations. In connection with this, Mr. Otagawa affirmed that these issues were gathered during the consultations and that the Study Team had validated these issues;
 - He shared that the RBCO is now working with UNDP-Partnership for Environmental Management for the Seas of East Asia (UNDP-PEMSEA) and it has considered the Pampanga River Basin as part of a bigger catchment basin that affects Manila Bay. It came out with an assessment that the major problems affecting Manila Bay are water quality, governance and the need for the restoration of the ecosystem.

As to water quality, the report showed that the river basins of Laguna, Pasig and Pampanga are providing a lot of pollution loading so he suggested for the Study Team to look into this as it relates to the outputs of the Study.

With respect to governance, he shared that at present the existing RBO governing the river management for the Manila Bay catchment basin is an existing council or committee being chaired by the DENR Secretary with members from the Secretaries of the various national government agencies, private sector, academe and stakeholders.

- He raised concern on how climate change adaptation and mitigation can be incorporated in the process for the identification of major issues as well as in the intervention and proposed projects under the Study; and
- He raised concern on whether there was an initial information to the RDC regarding the Study prior to or during its implementation. Mr.

Mercado of NEDA Region III responded that the concept of the river basin emanated from the Water Summit initiated by RDC in 2005, the concept being one of the outputs that was approved and endorsed by the RDC. Mr. Tuddao said that he will keep track of this model for Pampanga River Basin as this is a different case from other river basins that constitute two RDCs. The Study may be referred to other river basins in the country.

- Ms. Dacanay of JICA commented that since the RDC is the one that reviews and approves plans and projects and an Investment Plan will be formulated for the Study, having the committee that may be created to be under the RDC is an important consideration. She inquired as to who will chair the committee. Mr. Mercado of NEDA said that the governor is being considered to chair the committee under the umbrella of the RDC.
5. The web page that is being developed in consultation with NWRB for the Study was presented by Engr. Funa, the GIS Expert of the Study Team. He explained briefly the key features of the website. The purpose of the web page is to facilitate information sharing and coordination among the individuals and agencies involved in the Study. It will be administered by NWRB, whose server will be used as host with a link displayed on the NWRB's website to access the web page. Possible users of the web page are a) NWRB as the administrator; b) SC, TWG members and JICA Study Team; c) stakeholders and other agencies or individuals who are involved in the Study but are not members of the SC, TWG or JICA Study Team; and d) public.
6. The issues, concerns, observations and recommendations raised on the presentation are as follows:
- The Chairman inquired on the expected date when the website will be running. Mr. Funa explained that at present the google map feature is still under development because it is dependent on the server which is still under coordination with NWRB. As soon as the google map features has been tested, the website can run already.
 - As an alternative to sending messages via email, Mr. Llorente inquired on the possibility for the site visitors to post their comments similar to the "shoutout" feature of the Facebook. This would mean that the messages will be made visible to anyone browsing the site. Mr. Funa answered that this is a matter still to be explored.
 - Mr. Kamoto raised concern on who will be in-charge to take over once the Study is finished. He also suggested to link the web page with the JICA archives so there can be access to the previous and current JICA studies.
 - Mr. Felizardo of DPWH-FCSEC raised the possibility of overlaying thematic maps, simulation of models and proposed structures in the google map. According to Engr. Funa this is actually the goal but from the documentations of google, it seems that google itself is having problems



with overlaying of multiple layers. It can handle only stand alone programs but it will be verified once the server is ready.

- Mr. Hernando of PRFFWC, PAGASA noted that only one account will be made for each agency. He inquired on the possibility of having more than one account per agency citing the case of their office which is a different office although under PAGASA Central office. It has updated daily information that can be available for public viewing. Mr. Funa will consider the suggestion but will study the effect of having multiple users per agency.
7. The SC/TWG members are given a month for the submission of any other comments before the Study Team finalizes the Interim Report.
 8. With no other matters to discuss, the meeting was adjourned by Atty. Santos at about 11:30 am

**The Study on Integrated Water Resources Management for Poverty Alleviation
and Economic Development in the Pampanga River Basin**
Third Joint Steering Committee and Technical Working Group Meeting
Sulo Hotel, Quezon City
February 3, 2010

Attendance Sheet

NAME	POSITION	OFFICE
1. Nathaniel C. Santos	Officer-in-Charge	NWRB
2. Vicente Tuddao	Executive Director	RBCO
3. Remigio Mercado	Regional Director	NEDA Reg. III
4. Resito David	Project Director	PMO-FCSEC, DPWH
5. Jesse C. Felizardo	Engineer IV	PMO-FCSEC, DPWH
6. Agustin C. Mendoza	OIC-Chief/Supervising Econ. Development Specialist	NEDA Reg. III
7. John T. Zapata	Economic Development Specialist II	NEDA Reg. III
8. Rosendo D. Panganiban	Senior Engineer A	NIA Reg.III
9. Irineo G. Pascual	Principal Engineer	NIA-UPRIIS
10. Julita V. Santiago	Supervising Engineer A	NIA-UPRIIS
11. Lorna Balmeo	Project Evaluation Officer IV	PPDO – N.E.
12. Jaycel Villegas	PO II	PPDO – N.E.
13. Arlette C. Guzman	Engineer II	DPWH Region III
14. Marlynn M. Mendoza	Chief EMS	PAWB
15. Lovercain de Jesus	SWUMO	Tarlac City WD
16. Dax Llorente	TA	SCADC
17. Rosalia G. Adonis	OIC, ENRO	Provincial Govt. of Pampanga
18. Jesus A. Javier		FMB
19. Cesar P. Odi	Forester I/Technical Staff	RBCO, DENR
20. Hilton Hernando	Senior Weather Specialist	PRFFWC, PAGASA
21. Edgar Basilio	Sr. Economic Development Specialist	NEDA Central Office
22. Natalie Victorino		DOF
23. Arthur R. dela Cruz	Principal Engineer	NIA
24. Ma. Theresa L. Lalu	OIC, FRD	DENR Region III
25. Erlinda Pajarillaga	SFMS	DENR Region III
26. Richard Evangelista	Planning Officer II	PPDO Tarlac
27. Rey Tabelina	Planning Officer I	PPDO Tarlac
28. Evangeline Dacanay	PMO - A	MWSS
29. Masashi Nagaishi	Deputy Resident Representative	JICA Philippines Office
30. Naoto Kuwae	Assistant Resident Representative	JICA Philippines Office
31. Minoru Kamoto	JICA River Management Advisor	JICA DPWH
32. Minnie Dacanay	In-house consultant	JICA Philippines Office
33. Makihiko Otagawa	Team Leader/IWRM	JICA Study Team
34. Tadanori Kitamura	Deputy Team Leader/ Water Resources Development and Management Planning	JICA Study Team

NAME	POSITION	OFFICE
35. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team
36. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
37. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
38. Eleazar Rupido	Secretary	JICA Study Team
39. Gladys Ida S. Alburo	Encoder	JICA Study Team
40. Susan P. Abaño	Engineer IV	NWRB
41. Felisa M. Manlulu	Information Officer IV	NWRB
42. Emmie L. Ruales	Engineer IV	NWRB
43. Francis B. Hilarie	Economist III	NWRB
44. Florimel R. Balbedina	Economist III	NWRB
45. Josephine R. Billones	Engineer II	NWRB
46. Josephine Abellana	Administrative Assistant I	NWRB

APPENDIX 8

Report on 4th Technical Working Group Meeting on February 24, 2010

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin
4th Technical Working Group Meeting**
La Parilla Hotel and Restaurant, Cabanatuan City, Nueva Ecija
February 24, 2010

Highlights:

1. The meeting was called to order at approximately 9:45 am with Engr. Susan Abaño, Deputy Team Leader of the NWRB Counterpart Staff, presiding. The meeting was held to discuss the proposed guidelines for the formulation of the IWRM Plan for Pampanga River Basin, plan for water resources development, allocation and distribution and the preliminary option for river basin organization. The list of attendees is shown in Annex.
2. Mr. Otogawa, Study Team Leader presented the proposed guideline for the formulation of the IWRM Plan for Pampanga River Basin. As the Study Team had just finished Phase I of the Study, the preparation of the guideline is the initial activity for the planning process under Phase II of the Study. The objective of the guideline is to establish the standard procedures for the formulation of IWRM Plan for Pampanga River Basin and to serve as a reference to other river basins in the Philippines. As Mr. Otogawa pointed out, the guideline that is being developed for Pampanga River Basin may not necessarily be the guideline for other river basins. Nevertheless, the guideline will be useful for the formulation of IWRM Plan for other river basins.

The guideline basically consist of the framework of plan, method of selection of alternative IWRM Plans, method of evaluation of projects and method of coordination with stakeholders. The guideline shall be used in the formulation of the IWRM Plan.

As he had discussed during the recently conducted Joint Steering Committee (SC) and Technical Working Group (TWG) meeting, a total of 79 on-going, proposed and conceptual projects have already been identified covering the sectors for irrigation/fishery, municipal water supply, flood management, watershed management and water-related environment. These projects will be classified into two groups, Group A to be regularly implemented every year and Group B to be implemented during specific years. Likewise, the alternative combination of the projects for specific objectives will be identified and the optimum combination among the alternatives selected.

The six points for evaluation of the project are viability and its contribution towards enhanced livelihood, improved quality of life, decentralized development, sustained ecosystem and empowered people. There will be a scoring system for every point of evaluation and based on the scoring, the priority projects for implementation shall be proposed.

The IWRM Plan shall therefore consists of the prioritized projects/programs, project implementation plan, investment plan, set of targets for water resources development by 2015, 2020 and 2025 as well as the institutional set-up plan for IWRM in Pampanga River Basin.

Mr. Otogawa presented the list of the 79 projects. He requested the members to review the list and inform the Study Team of any project/s that has to be deleted or included in the list in the next Stakeholders' Consultation meeting on March 11, 2010.

3. Mr. Kitamura, the Deputy Team Leader presented the plan for water resources development, allocation and distribution with a focus on the water supply in Angat-Umiray system. He explained that since there is no sector on water resources development, allocation and distribution, the purpose of the plan is to support the achievement of the goals of each of the water-related sectors, especially for agriculture and municipal water supply.

The issues and problems as well as the projects and plans related to water resources development, allocation and distribution were discussed. The identified issues and problems were sustainable water resources for municipal water supply, inadequate reliability of water supply in Angat-Umiray system, securing necessary water sources for expansion of large irrigation system and expected increase of conflict among water users, especially between municipal and irrigation water users.

The issue relative to the Angat-Umiray system has been discussed individually with the related agencies like NIA, MWSS and NPC except for the Provincial Government of Bulacan. Possible options within and outside the Pampanga River Basin has been considered for the recovery of the reliability of water supply. These options include the construction of Bayabas Dam, construction of Balintingon Dam, upgrading of efficiency of AMRIS and reduction of MWSS water demand from Ipo Dam by other sources such as Laiban Dam. The initial recommendation is a combination of the upgrading of the efficiency of AMRIS and the construction of the Laiban Dam. The construction of Bayabas Dam is recommended in case the Laiban Dam is not implemented or there is an expected delay in its implementation.

The preliminary recommendations for a next step after the present study relative to water resources development, allocation and distribution in Angat-Umiray system are the F/S level study on recovery of reliability of water supply in Angat-Umiray system and capacity development project on water allocation and distribution. The other conceptual projects such as Extended Bulacan Bulk Water Supply Project and Pampanga Bulk Water Supply Project are also recommended to be considered for further study.

4. Mr. Mizutani, the organizational/institutional expert, discussed the options for river basin organization (RBO) for the Pampanga River Basin IWRM. He mentioned that there are five types of RBO, namely the 1) integrated area development body; 2) inter-agency coordination body; 3) body for advocating IWRM; 4) national agency for IWRM and 5) national agency for facilities O & M. Taking into consideration the functions of these different types of RBO, Types 1 and 2 are not presumed viable at present while Types 3, 4 or 5 may be viable although Type 3 may be the more appropriate one but further study is still needed.

The preliminary options being considered for the IWRM Plan for Pampanga River Basin are: (1) empowering the capacity of existing agencies and organizations concerned such as NWRB/DENR for maintenance and management of IWRM Plan and water rights regulation, DENR and LGUs for watershed, forest and water quality management and DPWH and LGUs for operation, maintenance and management of flood control and river

facilities; and (2) creating a RBO to be either under RBCO/DENR as a line organization, a River Basin Committee to be under RDC Region 3 or an independent River Basin Council. These options are still for discussion.

5. Comments/recommendations gathered from the above presentations are as follows:

- Engr. Pascual of NIA-UPRIIS inquired on the prioritization and funding entity for the implementation of the projects presented by Mr. Kitamura as the projects for the construction of Bayabas and Balintingon Dams will augment the supply from Angat River for irrigation and municipal water supply that will enable an increase in their potential service area especially in Bulacan and some parts of UPRIIS. He took note of the Casecanan project which was not mentioned in the presentation. Mr. Kitamura explained that the prioritization of the project will be based on the result of the evaluation in accordance with the criteria that was set. The merits of each project will be evaluated to determine the order of preference. Relative to the Casecanan project, he said that the project was considered in the agricultural sector projects. It was not mentioned in his presentation as it covers only projects for water resources development.

With regard to financing, the Chair explained that from the list of priority projects that will be included in the IWRM Plan that will be developed, funding institutions will be the one to select the project/s it may want to pursue.

- Mr. Ferrer of N.E. Provincial Government commented on what has been stated in the Interim Report that during the meeting in Pampanga, he proposed for the construction of SWIM projects. He clarified that he was not proposing for SWIM projects but rather he was proposing for small water impounding projects (SWIP) upstream of Pampanga River Basins, which are practically water holes or ponds ranging from 100 square meters to one hectare. There is a difference between the two. As Mr. Collado explained, Mr. Ferrer was referring to small farm reservoirs (SFR) where runoff water is collected through depression areas whereas SWIM projects entail the construction of structures such as small dams. Both SFR and SWIM fall under the general term of small-scale irrigation project.

Realizing the value of SWIP as a source of water for irrigation, the Study Team may propose an implementation schedule on the undertaking of the project/program.

- Ms. Mendoza of PAWB suggested to first look at the existing natural wetlands before undertaking projects such as coming up with small ponds in consideration of the possible erosion it may cause if there will be a number of these. She can provide the Study Team with the list of wetlands in Region 3. However, Mr. Ferrer commented that wetlands normally are at the lowest elevation of a certain place whereas the area being considered is at the upper elevation or upstream areas so perhaps this is another approach.
- The Chair inquired of any other possible sources of water for MWSS in case Laiban Dam project does not push through. She was looking into the possibility of including the option of MWSS for tapping Wawa River and Laguna Lake which are sources outside of Pampanga River Basin. Mr. Kitamura responded that the information presented was gathered from MWSS. Nevertheless, if there are options outside the Basin, apart from Laiban Dam, such as Wawa River and Laguna Lake, it may be

considered but it is necessary to get the information first. Although the Laiban Dam is the most promising alternative source for now and he noted that if sources outside of Pampanga River Basin will be relied on, there will be a need for MWSS to reduce its water demand from Ipo Dam.

- Ms. Dacanay of MWSS raised concern on the possible effect on the tariff of sourcing water outside the Pampanga River Basin since the water currently being supplied by the two concessionaires are derived from Angat and Ipo Dam free of charge. Hence, if other sources of water will be developed, this would mean an increase on the current tariff.
- Mr. Diaz of RBCO inquired on whether there are any recommendation from the Study Team for a comprehensive protection and rehabilitation of the watershed, especially in the upstream of Balintingon, Bayabas or Pantabangan Dam to address the problem on erosion. Ms. Quinones, the water environment/watershed management expert, replied that there are eleven on-going projects on watershed. Based on the recently conducted Focus Group Discussion (FGD) on watershed management with the different concerned agencies, six other conceptual projects are being proposed, one of which is an Upland Development Program (UDP) which has been piloted in Mindanao, specifically for the control of erosion in highly vulnerable areas, especially in those with slopes higher than 30%. There is no such project yet in the basin. This is different from the on-going programs of DENR for UDP and efforts of other entities like NIA, NPC, LGUs and some private sector which are basically for reforestation and does not address the upland agricultural problems and erosion problems in the watershed. The initiative in Mindanao is under the auspices of the DA in coordination with the LGUs and the DENR and is being implemented within CBFM areas.
- Mr. Collado of BSWM raised the following:
 - He suggested to include among the proposed and conceptual projects the construction of new small water impounding projects (SWIP) as their office have been receiving suggested sites for construction from LGUs. Mr. Kitamura informed that from the list of projects, there were at least three projects identified. These are the on-going rehabilitation of small water impounding projects (BSWM), proposed construction of priority small scale irrigation systems/SWIP (DA) and the conceptual project for new construction of small scale irrigation project (BSWM/LGUs). These are numbers 8, 20 and 25 in the list.
 - He suggested to consider the role of the watershed for the primary watershed areas in introducing agro-forestry activities in the areas since tree cutting in primary watersheds are sometimes restricted. Ms. Quinones responded that it is part of the consideration of the project and that there is a conceptual proposal to enhance the current watershed projects to consider possible selective log bans in some areas where extraction may be allowed on a sustainable basis. Four of the six conceptual projects being proposed definitely will include component on appropriate farming systems to be adopted in an agro-forestry activity.
- Mr. De Jesus of Tarlac City Water District raised the following:

- He raised concern on the options for the river basin organization for the Pampanga River Basin IWRM. Option 2, a river basin committee under the RDC, was his personal choice considering that every project at the macro level passes to the RDC. However, he also felt that Type 2, an inter-agency coordination body, may also be considered since the functions as described in the presentation are suited for Pampanga River Basin.
 - He inquired on which would come first between the IWRM Plan and the creation of the River Basin Committee. Mr. Otagawa responded that since institutional set-up is part of the IWRM Plan, both are done at the same time.
 - Ms. David of NEDA informed that the option of creating a river basin committee under the RDC has been discussed by Mr. Mizutani in their office and it was the opinion of Mr. Mizutani that the RDC has its weakness, being just a coordinating and monitoring body and not an implementing agency. So this is the problem under consideration with this option. Mr. Mizutani said it is a matter still to be discussed in the FGD for the institutional set-up.
6. The Chair reminded the members of the one-month period given to them for the submission of their comments on the Interim Report as agreed upon during the Joint SC and TWG meeting held last February 3, 2010 in Sulo Hotel. She requested for the comments to be submitted before the end of the month as the JICA Study Team leaves for a work break in Japan by first week of April.
 7. The next TWG meeting will be held on March 26, 2010 (Friday) at Pampanga.
 8. There having no other matters to discussed, the meeting was adjourned at around 12 noon.

Annex

The Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin 4th Technical Working Group Meeting

La Parilla Hotel and Restaurant, Cabanatuan City, Nueva Ecija

February 24, 2010

Attendance Sheet

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
1. Susan P. Abaño	Engineer IV	NWRB	920-2724	
2. Gemiliano V. Ferrer	PPDC	N.E. Prov. Govt.	09202951104	
3. Lorna Balmeo	PEO IV	N.E. PPDO	09202951118	
4. Jaycel Villegas	PO III	N.E. PPDO	09232784001	jaycelgarcia@yahoo.com
5. Virgilio M. Garcia	OIC, FFWS	NPC-DRFFD	924-5226	vmgarcia@napocor.gov.ph
6. Edgardo Pineda	CDA I	Pampanga ENRO	(045)861-3602	
7. Arlette C. Guzman	Engineer II	DPWH- III	(045) 455-0648	arletteguzman59@yahoo.com
8. Arthur R. Dela	Section Chief	NIA-C.O.	928-4130	

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
Cruz				
9. Mario Collado	Agri. IV	BSWM	923-0454	
10. Antonio A. Cacdac	Senior EMS	Bulacan ENRO	(044) 791-8163	tonycacdac@yahoo.com
11. Romeo F. Dayao	W.O. I	PRFFWC, PAGASA	(045) 455-1701	PRFFWC_FFD@yahoo.com
12. Ma. Theresa G. Viola	Senior SAO	NEDA - III	(045) 961-3773	tetchie_viola@yahoo.com
13. Rowena David		NEDA - III		
14. Reynaldo T. Tabelina	POI	PPDO Tarlac	(045) 982-1234	
15. Marlynn M. Mendoza	Chief, EMS	PAWB	455-0878	mmmendozaapawb@yahoo.com
16. Roberto dela Cruz		NIA Reg, 3	(044)673-0630	robert_1229@yahoo.com
17. Eugenio Diaz, Jr.	C.E./S.E.	RBCO-DENR	925-2450	eugene2066@yahoo.com
18. Julita V. Santiago	Supvg. Engr. A	NIA-UPRIIS	(044) 463-1347 09165269865	jvs0518@yahoo.com
19. Irineo Pascual	Principal Engr.	NIA-UPRIIS	(044) 463-1347	
20. Hedgie Nicolas		NIA-UPRIIS		
21. Jermaine Malubay		NIA-UPRIIS	09279581740	
22. Carmencita S. Agustin	Fish Health Officer	BFAR - III	(045) 455-0878	carmencitaagustin@yahoo.com
23. Erlinda Pajarillaga	SFMS	DENR - 3	0919-8616110	lindapajarillaga@yahoo.com
24. Edralin Domingo		Tarlac City WD		
25. Lovercain de Jesus	Div. Mgr.	Tarlac City WD	0929-1911366	lovercain_101@yahoo.com
26. Evangeline Dacanay	Project Mgt. Officer A	MWSS	9202439	evabo0774@yahoo.com
27. Makihiko Otagawa	Team Leader/ IWRM	JICA Study Team		
28. Tadanori Kitamura	Deputy Team Leader/ Water Res. Devt. & Mgt. Planning	JICA Study Team		
29. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team		
30. Kunita Okuwa	Agriculture/ Irrigation Expert	JICA Study Team		
31. Emadelyn M. Quiñones	Water Env./ Watershed Mgt. Expert	JICA Study Team		lynnx_1st@yahoo.com
32. Jesusa Mallare	Water Supply and Sewerage Planning Expert	JICA Study Team		
33. Francis Joseph M. Funa	GIS Engineer	JICA Study Team		
34. Gladys Ida S. Alburo	Encoder	JICA Study Team		
35. Felisa M. Manlulu	Information Systems Analyst IV	NWRB	920-2724	
36. Francis B. Hilarie	Economist III	NWRB	920-2724	franzhilarie@yahoo.com

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
37. Josephine Billones	Engineer II	NWRB	920-2724	
38. Florimel Balbedina	Economist III	NWRB	920-2724	melrbalbedina@yahoo.com
39. Charina Gonzales	Systems Analyst III	NWRB	920-2724	
40. Josephine Abellana	Adm. Asst. I	NWRB	920-2724	jaa_0725@yahoo.com

APPENDIX 9

Report on 3rd Stakeholders' Consultation Seminar on March 11, 2010

ORGANIZATION

The Third Stakeholders' Consultation on the Japan International Cooperation Agency (JICA) - assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin" was held on March 11, 2010 at Century Resort Hotel, Balibago, Angeles City, Pampanga.

The National Water Resources Board (NWRB) as the overall policy and coordinating body in the water sector and lead agency in the implementation of IWRM in the country, with JICA consultants conducted the Third Stakeholders' Consultation as part of the on-going 2-year Study to formulate the IWRM Plan for Poverty Alleviation and Economic Development in the Pampanga River Basin, under the development study programme of JICA which started in February 2009.

The Pampanga River Basin is the fourth largest river basin in the Philippines with about eight million people who rely on water for various economic uses. The IWRM Study was commissioned in response to the need to manage the multiple uses of the basin's water resources in a sustainable manner without compromising the life-sustaining functions of vital ecosystems. The existing conditions related to water resources management shall be assessed and appropriate interventions shall be proposed within the framework of IWRM.

With stakeholder consultation being an integral part in the IWRM planning process, said consultation was the third of the series of stakeholder consultations held for the Study. The First Stakeholders' Consultation was held in May 2009 for the discussion of objectives, methodologies, schedules and all other initial arrangements for execution of the Study as described in the Inception Report while the Second Stakeholders' Consultation was held in October 2009 to deliberate and discuss among stakeholders the main findings by the JICA Study Team as embodied in the Progress Report No. 1.

Other stakeholders' consultations and consensus building activities will follow which will help refine the focus of the Study and in the end, ensure stakeholder ownership of the IWRM Plan that will be formulated.

OBJECTIVES

The one-day consultation-workshop was conducted to:

- a) Discuss the contents of the Interim Report, results of preliminary study on River Basin Organization (RBO) for execution of IWRM in Pampanga River Basin and status of the web-page being developed for the Study; and
- b) Review and validate with the stakeholders the following:
 - Issues of IWRM for Pampanga River Basin which were preliminarily identified during the previous stakeholder consultation;

- Visions, objectives and sector goals of IWRM Plan for Pampanga River basin; and
- The water-related programs and projects which should be implemented as part of IWRM in Pampanga River Basin.

ATTENDANCE

A total of sixty-seven (67) participants attended the consultation. The participants represented various sectors that include central and regional government agencies, provincial and city governments, non-government organizations and academe. List of participants is attached as Annex A. The directory of participants is attached as Annex B.

The names of the consultants from the JICA Study Team and selected NWRB staff that were present is attached as Annex C.

PROGRAM

The program for the seminar is attached as Annex D. Ms. Emadelyn M. Quiñones, the Water Environment/Watershed Management Expert and JICA Study Team Coordinator served as the emcee and moderator during the consultation while Ms. Felisa M. Manlulu, NWRB Counterpart Coordinator provided the activities for the energizer.

A. OPENING CEREMONIES

The singing of the National Anthem and the invocation was led by Ms. Felisa M. Manlulu while the introduction of participants and members of the JICA Study Team and NWRB Counterpart staff was made by Ms. Quiñones.

B. WELCOME REMARKS

Engr. Peñaranda, OIC of the NWRB Policy and Program Division welcomed the participants on behalf of the newly appointed NWRB Executive Director, Vicente S. Paragas and Deputy Executive Director Nathaniel C. Santos. She expressed appreciation for the overwhelming attendance of the participants to the Third Stakeholders' Consultation for the presentation of the Interim Report. She recalled the two other stakeholders' consultations previously conducted that were for the presentations of the Inception Report and the Progress Report. She reiterated that the Study is spearheaded by NWRB but the owner of the IWRM Plan that will be developed are the participants, being

the stakeholders and beneficiaries of the Plan so the cooperation and sense of ownership of everyone is encouraged for the good of the project. NWRB on its part has expectations from the Study that the projects that will be proposed will be able to address the problems related to the extreme weather condition being experienced by the country such as flooding, water shortage and other primary sectoral concerns in the Pampanga River Basin.

She mentioned that there are two activities being celebrated for the month of March. The first is the celebration of the National Women's Month with the theme "Babae, Tagumpay Ka Ng Bayan!" which gives due recognition on the role of women. In IWRM, the role of women in the provision, management and safeguarding of water is also being recognized, being one of the four guiding principles in integrated water resources management. The second celebration is for World Water Day which is celebrated every 22nd of March. This year the theme is about giving equal importance to water quality alongside those of water quantity. Water quality and water quantity issues are also present in the Study area.

She looked forward to the inputs, feedbacks and recommendations that will be gathered from the discussion that will ensue for the day.

C. PROGRAM ORIENTATION

The program orientation was a discussion on the overview of the stakeholders' consultation, objectives, schedule of activities, methodologies and expected outputs. Ms. Quiñones explained the workshop mechanics. There will be five sectoral groupings for the workshop. There will be two workshops. The first workshop will be for the review of key issues/concerns and goals by sector while the second workshop will be for the review of on-going, proposed and conceptual water-related projects. The discussion materials are included in the kit.

The group discussion will be led by the expert of the Study Team for the particular sector who will present the data and information to be reviewed. An NWRB Counterpart staff will sit in each group to act as facilitator in the discussion. Each group will elect a rapporteur who will report the output of the group during the plenary session.

D. PRESENTATION

- Mr. Otagawa, Study Team Leader presented the contents of the overall study and the Interim Report. The Phase I which is composed of the analysis of basic data and evaluation of potentials and constraints was completed in December 2009 with the Interim Report submitted in January 2010. The Study is currently in Phase II which is the IWRM planning stage for the preparation of guideline and formulation of the IWRM Plan. He informed that the Study will have a break from April to July 2010 coinciding with the conduct of the national elections in the country.

He discussed the principal issues and problems raised by the stakeholders during the 2nd stakeholders' consultation meeting on IWRM in the Study area relative to water

allocation in Angat-Umiray system, municipal water supply, flood management, watershed management and water quality management and the preliminary study on the guideline for the IWRM Plan formulation.

The IWRM Plan shall consist of the prioritized projects/programs, project implementation plan, investment plan, set of targets for water resources development by 2015, 2020 and 2025 as well as the institutional set-up plan for IWRM in Pampanga River Basin. A total of seventy-nine (79) on-going, proposed and conceptual projects have been identified for the different sectors (irrigation/fishery, water supply, sanitation and sewerage, flood management, watershed management and water-related environment) divided into Group A and Group B. Group A are the projects to be regularly implemented every year while Group B are the projects to be implemented during specific years. For projects under Group B, some alternative studies will also be considered for water resources development, flood mitigation and reforestation. All projects will be prioritized for implementation in the short term (2011-2016), mid-term (2016-2020) and long term (2021-2025) and an investment plan formulated. By the end of the Study period, a proposal on the targets of water resources development for the different sectors shall have been developed as well as the institutional set-up for the operation, implementation and management of the proposed projects.

The Powerpoint presentation is attached as Annex E.

- Mr. Mizutani, the organizational/institutional expert, discussed the options for river basin organization (RBO) for the Pampanga River Basin IWRM. He mentioned that there are five types of RBO with each having different functions, namely the 1) integrated area development body; 2) inter-agency coordination body; 3) body for advocating IWRM; 4) national agency for IWRM and 5) national agency for facilities O & M. Types 1, 2 and 3 are found in the Philippines while Types 4 and 5 are practiced in Australia and Japan, respectively.

The specific role of RBO envisaged in the Pampanga River Basin will be studied taking into consideration the present water governance policy of NEDA Region III where creation of RBO or other organizational structure is not being envisaged as the existing Regional Development Council (RDC) is functioning well as a project coordinating organization and where capacity strengthening of national and regional line agencies as well as local governments is recognized keeping the existing structure basically unchanged.

The preliminary options being considered for the IWRM Plan for Pampanga River Basin are: (1) empowering the capacity of existing agencies and organizations concerned such as NWRB/DENR for maintenance and management of IWRM Plan and water rights regulation, DENR and LGUs for watershed, forest and water quality management and DPWH and LGUs for operation, maintenance and management of flood control and river facilities; and (2) creating a RBO to be either

under RBCO/DENR as a line organization, a River Basin Committee to be under RDC Region III or an independent River Basin Council. These options are still for discussion during the upcoming Focus Group meeting scheduled for March 17, 2010.

The Powerpoint presentation is attached as Annex F.

- Engr. Funa, the GIS Expert, presented web page that is being developed in consultation with NWRB for the Study. He explained the key features of the web page which is basically a tool for information sharing and coordination among the individuals and agencies involved in the Study. It will be integrated to the NWRB's website through a link and currently some problems have been encountered in the uploading of the website in the NWRB's server so it is in the process of debugging and recoding before it can go live.

The Powerpoint presentation is attached as Annex G.

E. OPEN FORUM I

The open forum was the venue for the participants to raise questions and further clarification on the matters discussed during the presentations. The issues/queries raised during the open forums were as follows:

- Referring to the advantages and disadvantages of the different RBO options presented by Mr. Mizutani, Mr. Llorente of SCADC observed that all options have a disadvantage of weak technical capacity at fieldwork. In this regard, he inquired on the reason for this and the possibility of having an option for an RBO that can have a technical capacity at fieldwork. Mr. Mizutani responded that all options presented are only coordinating and not implementing organizations and as such the actual operation and maintenance is done by existing line agencies or local governments who also lack the technical capacity and staff to do the functions proposed for IWRM Plan implementation. Although the creation of an organization with a strong technical capacity may be proposed, it is not being envisaged for now because it will be very costly. Hence, the choices for the creation of RBO are only for the 3 options presented but the technical capacity problem has to be resolved.
- Mr. Bolinao of Palayan City Government raised three concerns:
 - In the light of the recent experiences of the country with El Niño and La Niña phenomena, he inquired of any recommendation from the Study for an immediately implementable project for national government agencies and local government units for a mitigation/adaptation measure that will address climate change. Mr. Otogawa replied that the Study Team will propose an implementation schedule for the programs/projects that will be identified according to the short term, mid-term and long term plan of implementation. For the short term projects that will be identified as urgent, it will be strongly

recommended to the concerned agencies for immediate implementation. This may include projects for water resources development to cope with the present water shortage and other priority projects that may be identified by the stakeholders during the workshop proper.

- He raised concern on fishpond encroachment being one of the identified issues on flood mitigation in the study area since fisheries is considered to be one of the economic programs of the people within the basin with Central Luzon being one of the biggest producer of tilapia and other inland fishes. In this respect and considering that the title of the Study calls for poverty alleviation and economic development, he inquired on the particular projects or programs towards these objectives that will address issues such as this. Mr. Otogawa responded that in the evaluation of projects and programs related to IWRM, these concerns will be addressed since the advantages and disadvantages of every program will be considered for the prioritization of projects.
 - He suggested coming up with programs similar to the small water impounding projects of BSWM to which Ms. Quinones informed that it has already been considered in the Study.
- Ms. Manalo of DPWH Reg. III commented the following:
 - She made additional comment to the concern raised by Mr. Bolinao that considering that the project is a Study, the interest would be the plans and programs in terms of non-structural measures (capacity building) rather than structural measures.
 - She reiterated the concern of their Office regarding the unregulated quarrying activities in Central Luzon especially in the upstream stretch of the Pampanga River, which has not been identified among the issues on flood mitigation in the Study area. Quarrying per se is a good activity if it is regulated since it raises revenues; however it impairs the structural ability of existing structures if unregulated.
 - She acknowledged the flaws and technical incapability of other LGUs especially along the stretch of Pampanga River since most often than not only the provincial governments have the necessary capability for the implementation of structural measures, especially on engineering activities. However, she explained that it is expected as these LGUs alongside the Pampanga River Basin stretch are mostly Class C or D municipalities. To address this issue, she suggested incorporating information and advocacy as part of the Study Plan. She informed that the PRFFWC, PAGASA invested on flood warning along major strategic points of the Pampanga River Basin such that information generated will be useful in forewarning LGUs of any untoward event as far as flooding is concerned.

Mr. Otagawa apologized for having not included the unregulated quarrying among the issues on flood mitigation despite the issue having been raised during the 3rd TWG Meeting. He would like to clarify the details on the matter during the workshop and to elicit opinion on programs or projects to cope with unfavorable quarrying activities. Regarding the capacity building of LGUs for IWRM, he was amenable to the idea and may consider the matter for there is a need to make a clear demarcation between the jurisdiction of line agencies or central government and that of the LGUs. On the aspect of IEC for flood mitigating measure, he informed that it was already considered particularly for the community based flood forecasting and warning. The Study Team considered the experience on community based flood forecasting under the support of PAGASA in Bulacan to be quite effective for future flood mitigation works. He was also interested to know more on the cleanup program of LGUs on river channel during the workshop so more of this kind of activity could be recommended in the Study.

- Engr. Castro of DOH Reg. III requested clarification on the status of the sewerage treatment plants mentioned on the on-going water supply and sewerage projects within Pampanga River Basin in view of the current problem on disposal of sewage at bodies of water and being not aware of any sewerage treatment plant that has been constructed in Region III. Engr. Mallare, the Water Supply and Sewerage Planning Expert, responded that the list of on-going water supply and sanitation projects presented was gathered from the Development Plans of the four provinces within Pampanga River Basin. The status of the water supply and sanitation for each of the cities and municipalities of the four provinces can be seen in the handouts. However, there is no specific project mentioned for sewerage in the Development Plans although there is one existing centralized sewerage system in Clark. There is also one on-going project in Cabanatuan City but to date the wastewater treatment plant has not been constructed due to budgetary constraint.
- Mr. Felizardo of DPWH-PMO-FCSEC proposed for the conduct of a study for Angat or Pantabangan Dam that will look into the capacity of the flood control structures downstream of the dam in an eventuality that will call for the excessive release of water by dam operators so as to avoid what happened to San Roque Dam where the capacity of downstream rivers of the dam was not sufficient to hold the water released by the dam operator. Mr. Otagawa responded that the matter may be studied although he believes that the operation of the dam is governed by the operation rule curve and in such eventualities, the excessive release of water by the dam operator was done to secure the safety of the dam even if it may be over the downstream channel capacity.

F. WORKSHOP

Participants were divided into five (5) groups representing the following sectors: (1) Flood and Sediment Disaster Management; (2) Agriculture/Irrigation and Fishery; (3)

Water Supply, Sanitation and Sewerage; (4) Watershed Management; and (5) Water-Related Environmental Management.

The workshop groupings for the five sectors are attached as Annex H.

- **WORKSHOP I – Review of Key Issues and Concerns in Pampanga River Basin by Sector and Review of Sector Goals**

The workshop discussion dealt on the review of the key issues and concerns per sector that were identified in the Second Stakeholders' Consultation as it relates to the sector goals. The consultant together with the facilitator explained one by one the issues in his/her sector for the participants to supplement the significant issues, eliminate the trifle issues or modify the statement of the issue. At the end of the session, the participants came up with a consensus on the most critical issues in the sector that need to be addressed.

- **WORKSHOP II – Review of On-going, Proposed and Conceptual Programs/Projects Identified by JICA Study Team By Sector**

The workshop discussion dealt on the review of the seventy-nine (70) on-going, proposed and conceptual programs/projects preliminarily identified by the JICA Study Team. The on-going and/or proposed projects are those currently undertaken and proposed by the government agencies while the conceptual programs/projects are those newly worked out by the JICA Study Team.

The consultant together with the facilitator explained the programs and projects he/she has identified in his sector for the participants to assess whether these programs/projects will address the issues identified and to be able to propose some more measures or programs for addressing the issues, if still necessary. The participants also validated the information presented by the consultant on the identified projects and provided additional information on the description of some identified projects.

The matrix of issues, goals, measures and programs reviewed by the participants per sector is attached as Annex I. The modifications made by the different groups on the matrix as a result of the workshops are presented in Annex J. Modifications made are reflected in italics and underlined.

H. OPEN FORUM II

The open forum was the venue for the participants to raise questions and further clarification on the group presentations of the workshop outputs. The issues/queries raised during the open forum were as follows:

- Mr. Garcia of NPC reacted to the phrase used by Group I: Flood and Disaster Management on the issue of “untimely release of dam water”. Considering that dam operators usually release water from the dam only in the event that the dam capacity is already full, he contended that it is the proper time to release water and in this regard there is no such term. Mr. Llorente explained that the group was actually referring the untimely release of water from the perspective of the people who are affected by the release of water and not on the perspective of the dam operator. The concern is the lack of information dissemination to the people in the low-lying areas of the eventual release of dam water which makes it untimely for them such that a countermeasure would be capacity building and the development of flood monitoring and dissemination system. It was agreed to rephrase the issue to “inadequate information on the timing of the release of dam owners”.
- Mr. Bolinao raised the following concerns to Group IV: Watershed Management:
 - Regarding the issue on duplication of function by DENR and LGUs, he pointed out the necessity of having a delineation of functions since watersheds encompass several provinces that involves several LGUs and regions;
 - He noted the risks associated with the promotion of eco-tourism program for livelihood development such as the danger of forest fire from cigarette butts and the risks associated with upland farming such as the slash and burn or kaingin system;
 - He mentioned the previous program on the Sloping Agricultural Land Technology (SALT) by the DAR, DENR and DA which is effective for the sustainability of the forest and for soil erosion but whose application has been overlooked nowadays;
 - He shared that the provision of livelihood to sustain the forest can be made through nursery development among the people in the community and the integration of fruit bearing trees into the forest tree.

Ms. Martinez of DENR-PAWD Region III explained that the information presented by the group was the result of the previous consultations and FGD conducted, nevertheless the comments and inputs provided by Mr. Bolinao was noted. She acknowledged the effects of slash and burn cultivation on the degradation of forests but there are ways and means by which it can be avoided. Regarding eco-tourism, she informed that eco-tourism development is lodged within protected areas and the SALT is still being practiced up to now.

Ms. Quiñones added that all measures and programs being proposed are provided with corresponding safety nets. For eco-tourism, it is a guided tour for the protection of the bio-diversity. As to the conceptual project on upland development program (UDP) being proposed, she explained that unlike the on-going UDP which is reforestation (one time contracting), this program is agricultural production with

forestation. It is UDP as it is being done in Mindanao which is basically anchored on sustainable upland agriculture and sustainable technologies including SALT and its variants. The strategy is agro-forestry but it incorporates soil erosion mechanisms appropriate for the agro-climatic condition in the area.

I. RECAP AND SUMMARY

Ms. Quiñones made a recap on the workshop that transpired. The outputs of the different groups that was presented and validated by the rest of the participants would be considered by the Study Team as the framework by which the IWRM Plan will be developed. All projects will be screened and prioritized based on the set of criteria for prioritization to determine the projects for the short, medium and long term plans.

She expressed appreciation for all the inputs and additional information that was gathered by the Study Team. As more data are still needed to substantiate the IWRM framework, especially on the conceptual projects being proposed, it is hoped that the participants will continue to provide the necessary information. All recommendations will be taken into consideration and hopefully doable and realistic targets will be formulated until 2025. In behalf of the Study Team, she thanked the participants.

J. CLOSING REMARKS

Engr. Peñaranda delivered the closing remarks. In behalf of NWRB, she thanked everyone for their active participation. From the inputs and recommendations gathered, it can be said that the objectives of the stakeholders' consultation were achieved. It was a job well done. As more consultations and coordination are expected until the end of the Study, she requested for the continued support of the participants and expressed hope that the same faces will be attending the succeeding consultations for continuity.

Annex A

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3. Takeshi Ikematsu - JICA Study Team
4. Kunita Okuwa - JICA Study Team
5. Yukihiro Mizutani – JICA Study Team
6. Jesusa Mallare - JICA Study Team
7. Emadelyn Quiniñes - JICA Study Team
8. Francis Funa - JICA Study Team
9. Eleazar Rupido - JICA Study Team, Secretary
10. Gladys Ida Albuero – JICA Study Team, Encoder

NWRB

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2. Felisa M. Manlulu
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5. Francis B. Hilarie
6. Florimel R. Balbedina
7. Jesusa T. Roque
8. Charina Gonzales

Annex D

3rd Stakeholders' Consultation on JICA-assisted Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin Program of Activities March 11, 2010

Century Resort Hotel, Balibago, Angeles City, Pampanga

TIME	ACTIVITIES	RESOURCE PERSON
8:00AM – 8:30AM	Registration	Secretariat
8:30AM – 8:45AM	Opening Ceremonies Invocation <ul style="list-style-type: none"> • National Anthem • Introduction of Participants/Study Team • Welcome Speech 	
8:45AM – 9:00AM	Program Orientation: Overview of the Stakeholders' Consultation, Objectives, Schedule of Activities, Methodologies, Expected Outputs	Ms. Emadelyn M. Quiñones Member of JICA Study Team Facilitator/Moderator
9:00AM – 9:40AM	Presentation on Results of Last Stakeholder Meetings and Contents of Interim Report for the Study	Mr. Makihiko Otogawa Leader of JICA Study Team
9:40AM – 10:00AM	Presentation on Results of Preliminary Study on River Basin Organization (RBO)	Mr. Yukihiro Mizutani Member of JICA Study Team
10:00AM – 10:10AM	Presentation on the Web-pages for the Study	Francis Joseph Funa Member of JICA Study Team
10:10AM – 10:20AM	Ice Breaker	Ms. Felisa M. Manlulu Counterpart Coordinator, Facilitator
10:20AM-11:20AM	Open Forum	Facilitator/Moderator
11:20AM – 12:20PM	Workshop I <ul style="list-style-type: none"> • Review of Issues and Problems in Pampanga River Basin Identified in Various Meeting and Described in Interim Report (I/R) • Review of Objectives and Sector Goals of IWRM for Pampanga 	Facilitator/Moderator
12:20NN – 1:20PM	Lunch Break	
1:20PM – 2:30PM	Workshop II <ul style="list-style-type: none"> • Review of On-going, Proposed and Conceptual Water-related Projects 	

	Identified by JICA Study Team	
2:30PM – 3:30PM	Group Presentation/Open Forum I	Facilitator/Moderator
3:30PM – 3:40PM	Energizer	Facilitator
3:40PM – 3:50PM	Recap & Summary	Facilitator/Moderator
3:50PM – 4:00PM	Closing Remarks	Mr. Nathaniel C. Santos Deputy Executive Director NWRB
4:00PM – 4:10PM	End of Activity/Photo Op	

WORKSHOP GROUPINGS

GROUP 1: Flood and Sediment Disaster Management

- Expert: Makihito Otogawa
- Rapporteur: Daxx Llorente - SCADC
- Members: John Zapata – NEDA-R3
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GROUP 2: Agriculture/Irrigation and Fishery

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GROUP 5: Water-Related Environmental Management

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Frank Daño – Tarlac City Planning and Development Office
Reynaldo Garcia – EMB
Renato Tayag – ADCL

Facilitators: Isidra D. Peñaranda and Josephine Billones - NWRB

Annex I

Issues, Goals, Measures and Programs Flood and Sediment Disaster Management

Sector Goal: To mitigate the chronic flood damage

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<p>1. Insufficient Structural Capacity for Flood Mitigation</p> <ul style="list-style-type: none"> • Siltation of river ways • Extremely small river channel flow capacity due to expansion of residential areas in potential flood hazard area 	<p>1.1 Flood mitigation by the new structural measures such as</p> <ul style="list-style-type: none"> • River channel improvement • Construction of flood diversion channel, and • Construction of flood retarding basin <p>1.2 Rehabilitation of the existing flood mitigation structures</p>	<p>(1) Development of New Structural Measures for Pasac River Basin</p> <ul style="list-style-type: none"> • Pinatubo Hazard Urgent Project (PHUMP) Phase III Part I • Flood Control Measures in Mt. Pinatubo Devastated Area-Focus on Pasac Delta • Bacolor Comprehensive Rehabilitation Master Plan <p>(2) Development for New Structural Measures for Pampanga River Basin</p> <ul style="list-style-type: none"> • Pampanga Delta Development Project (PDDP) Flood Component Phase II • Pampanga Delta Development Project (PDDP) Flood Component Phase III • Construction of Flood Retarding Basin in Candaba Swamp <p>(3) Maintenance and Rehabilitation Projects for Existing Flood Mitigation Structures</p>
<p>2. Increment of Flood Damage Potential</p> <ul style="list-style-type: none"> • Increasing surface run-off in the urban built-up • Poor watershed vegetation cover • Unplanned and rapid urban expansion 	<p>2.1 Flood mitigation by the new non-structural measures such as:</p> <ul style="list-style-type: none"> • Watershed management by reforestation, hillside-works, and sabo works. • Development of flood forecasting and warning system • Development of flood 	<p>(1) Development of New Non-structural Measures for Pasac River Basin</p> <ul style="list-style-type: none"> • Pinatubo Hazard Urgent Project (PHUMP) Phase III Part II

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<ul style="list-style-type: none"> • Encroachment of illegal settlers and fishponds along river ways 	hazard map <ul style="list-style-type: none"> • Land Zoning • Capacity building 	
3. Inadequate Information and Knowledge relevant to Flood Mitigation <ul style="list-style-type: none"> • Inadequate information on the real-time flood information • Inadequate information on flood hazard area • Untimely release of dam water • Garbage disposal in river ways 	3.1 Capacity Building 3.2 Development of Flood Monitoring and Dissemination System	(1) Capacity Building/Development of Flood Forecasting and Warning System <ul style="list-style-type: none"> • Flood Forecasting and Warning System Capacity Building Project upon Dam Release in the Project • Community Based Flood Early Warning System • Information Education Campaign (IEC) for Clean-up Drive of Waterways
4. Weakness in Institutional-set up <ul style="list-style-type: none"> • Lack of coordination with Disaster Risk Management (DRM)/Disaster Risk Reduction (DRR) • Political accommodation intervention/non-compliance of existing laws 	4.1 Strengthening of Institutional Set-up	(1) Setup of Institutional Setup Plan <ul style="list-style-type: none"> • Establishment of organizations setup for IWRM of Pampanga river basin

Issues, Goals, Measures and Programs Agriculture/Irrigation and Fishery

- Sector Goals:** (1) Rehabilitate and develop the irrigation system
 (2) Enhance the new agricultural technology on water management
 (3) Sustainable fishery under the integrated water resource management

Issues and Problems/ Causes	Countermeasures	Projects and Plans
Irrigation Development		
1. Waters shortage in existing NISs and CISs <ul style="list-style-type: none"> • Climate change • Limited water resource • Lack of Water Impounding Structure • Slash and Burn Farming in the catchment area 	1.1 New construction, extension and rehabilitation of NISs and CISs under NIA 1.2 New construction of SWIPs and small scale irrigation projects under BSWM 1.3 Development of new CISs under Agrarian Reform Program	(1) Development and rehabilitation of new NISs and CISs under NIA <ul style="list-style-type: none"> • AI-G-03: Repair, Rehabilitation of Existing Groundwater Irrigation Systems, Establishment of Groundwater Pump Project • AI-G-04: Balikatan Sagip Patubig Program • AI-G-05: Repair, Rehabilitation, Restoration & Preventive Maintenance of Existing National & Communal Irrigation Facilities • AI-G-06: Restoration/Rehabilitation of Existing NIA Assisted Irrigation System • AI-P-08: Central Luzon Groundwater Irrigation Systems Reactivation Project • AI-G-02: Along-along Creek Irrigation Project • AI-P-10: Upper Tabuating SRIP • AI-P-09: Gumain Reservoir Project (2) Development of new small irrigation system under BSWN <ul style="list-style-type: none"> • AI-G-08: Rehabilitation of Small Water Impounding Projects / Diversion Dams • AI-P-12: Construction of priority small scale irrigation systems /Small Water Impounding Projects (SWIP), Small Diversion Dam Projects (SDD) • AI-C-01: New construction of small scale irrigation projects (3) Development of CISs under Agrarian Reform Program <ul style="list-style-type: none"> • AI-G-09: Comprehensive Agrarian Reform Program, Irrigation Component

Issues and Problems/ Causes	Countermeasures	Projects and Plans
2. Delay of Implementation of Casecnan-II, Balintingon, Balog Balog Project <ul style="list-style-type: none"> • Lack of fund • Lack of project financier • Inflation of material cost • Peace & order (NPA infiltrated area) 	2.1 Promotion and necessary budgetary arrangement	(1) Promotion and necessary budgetary arrangement of new projects <ul style="list-style-type: none"> • AI-P-04: Casecnan Multi-purpose Power & Irrigation Project, Phase 2 • AI-P-01: Balintingon Reservoir Multipurpose Project (BRMP) • AI-P-02: Balog-Balog Multipurpose Project Phase 2
3. Land Conversion <ul style="list-style-type: none"> • Land use/Planning Problem • Urbanization, industrialization, commercialization 		
Irrigation Management		
4. Water Shortage in AMRIS <ul style="list-style-type: none"> • Lower priority of water allocation to irrigation • Increasing domestic water demand in Metro .Manila • Prioritization of hydro-electric power and domestic water supply • Less regulation capacity in Bustos • No regulation for peak operation • Inefficiency of water use • Squatters within irrigation canals 	4.1 Water Resources Development and Capacity Building on Water Allocation 4.2 Rehabilitation and improvement of irrigation facilities of AMRIS to improve efficiency 4.3 Introduction of water saving irrigation technology 4.4 Capacity development of IAs	(1) Water Resources Development and Capacity Building on Water Allocation <ul style="list-style-type: none"> • IS-C-02: Project for Recovery of Reliability of Water Supply in Angat-Umiray System • IS-C-04: Capacity Development of NWRB and Relevant Agencies on Water Allocation and Distribution (2) Rehabilitation and improvement of irrigation facilities <ul style="list-style-type: none"> • Rehabilitation of NISs and CISs under the on-going NIA regular programs • AI-P-11: Rehabilitation of AMRIS under JICA project • AI-G-07: Rehabilitation of AMRIS under Participatory Irrigation Development Project, • APL1-Infrastructure Development • AI-C-02: Introduction of water saving irrigation technology • AI-C-03: Upgrading and improvement of irrigation facilities and water management of AMRIS (3) Rehabilitation and improvement of irrigation facilities <ul style="list-style-type: none"> • AI-P-07: Appropriate Irrigation Technologies for Enhanced Agricultural Production • AI-C-02: Introduction of Water Saving Irrigation Technology • AI-C-04: Improvement of Monitoring System and Capacity Development for Proper Water Management in NISs and CISs

Issues and Problems/ Causes	Countermeasures	Projects and Plans
5. Low Irrigation Efficiency in Existing NISs and CISs <ul style="list-style-type: none"> Degradation of canals and related facilities Lack of maintenance 	5.1 Rehabilitation and Improvement of Irrigation facilities	(1) Rehabilitation of Existing NISs and CISs <ul style="list-style-type: none"> AI-P-03: Rehabilitation of Polac Gumain RIS under Sector Loan on Rehabilitation of Irrigation Facilities AI-G-08: Rehabilitation of Small Water Impounding Projects / Diversion Dams AI-G-03: Repair, Rehabilitation of Existing Groundwater Irrigation Systems, Establishment of Groundwater Pump Project AI-G-04: Balikatan Sagip Patubig Program AI-G-05: Repair, Rehabilitation, Restoration & Preventive Maintenance of Existing National & Communal Irrigation Facilities AI-G-06: Restoration/Rehabilitation of Existing NIA Assisted Irrigation System AI-P-05: Procurement of Pumps, Drilling Rigs & Related Equipment AI-P-06: Irrigation Water Resources Augmentation Pump Establishment Project AI-P-08: Central Luzon Groundwater Irrigation Systems Reactivation Project (2) Introduction of water saving irrigation Technology <ul style="list-style-type: none"> AI-P-07: Appropriate Irrigation Technologies for Enhanced Agricultural Production AI-C-02: Introduction of Water Saving Irrigation Technology AI-C-04: Improvement of monitoring system and capacity development for proper water management in NISs and CISs (3) Capacity development of LGUs <ul style="list-style-type: none"> AI-C-04: Improvement of monitoring system and capacity development for proper water management in NISs and CISs
6. Low collection efficiency on irrigation service fees due <ul style="list-style-type: none"> Unwillingness and incapacity of farmers to pay Insufficient water management Low yield due to calamities 	5.2 Introduction and capacity enhancement on water saving irrigation technology	
7. LGUs role in implementing CIPs <ul style="list-style-type: none"> LGU's lack of training & experiences in the construction of CIPs Implementation of Agriculture & Fisheries Act 	5.3 Capacity development of IAs 5.4 Capacity development of LGUs	
Other Constraints (Flood, Groundwater and Water Quality)		
8. Frequent flood damages and poor drainage in the existing agricultural land <ul style="list-style-type: none"> Insufficient flood control and drainage system Lack of attention on integrated drainage system Degradation of canals 	8.1 Flood mitigation by structural measures	(1) Flood mitigation
	8.2 Rehabilitation and improvement of drainage system	(2) Rehabilitation and improvement of drainage facilities under NIA Programs <ul style="list-style-type: none"> AI-G-05: Repair, Rehabilitation, Restoration & Preventive Maintenance of Existing National & Communal

Issues and Problems/ Causes	Countermeasures	Projects and Plans
and related facilities		Irrigation Facilities <ul style="list-style-type: none"> AI-G-04: Balikatan Sagip Patubig Program AI-G-06: Restoration/Rehabilitation of Existing NIA Assisted Irrigation System
9. Flood Damage to fishpond, <ul style="list-style-type: none"> Lack of flood protection to fishery area Less priority on Government Program Fishpond flash flood Private property Illegal fishponds in dangerous areas 	9.1 Flood mitigation by structural measures 9.2 Aquaculture fisheries development	(1) Flood mitigation <ul style="list-style-type: none"> FL-P-01: Flood Control Measures in Mt.Pinatubo Devastated Area-Focus on Pasc Delta FL-C-01: Pampanga Delta Development Project Flood Component with Usage of Candaba Swamp as Flood Retarding Basin (2) Regular Aquaculture Fisheries Programs <ul style="list-style-type: none"> AF G-01: Aquaculture Fisheries Development Programs AF G-02: Comprehensive Regulatory Services Support Projects and Activities
10. Depletion of Groundwater in Bulacan, Pampanga and Nueva Ecija <ul style="list-style-type: none"> Increasing pump irrigation for fish ponds Increasing pump for domestic use Weak implementation of GW use regulation and policy 	10.1 Bulk Water Supply Projects 10.2 Sustainable GW development and management	(1) Bulk Water Supply Projects <ul style="list-style-type: none"> MW-P-02: Sumag River Diversion Project MW-P-03: Bulacan Treated Bulk Water Supply Project MW-C-05: Extended Bulacan Bulk Water Supply Project MW-C-06: Pampanga Bulk Water Supply Project (2) Institutional Development for sustainable GW development and management <ul style="list-style-type: none"> IS-C-01: Establishment of Comprehensive Groundwater Monitoring System in Pampanga River Basin
11. Salt Intrusion at Irrigated areas <ul style="list-style-type: none"> Groundwater depletion 		
12. High SO₄²⁻ Content of GW for Irrigation due to Pinatubo Eruption	12.1 Water quality management	(1) Water Quality Monitoring Program <ul style="list-style-type: none"> WQ-G-01: Water Quality Monitoring Program (WQMP) WQ-G-02: Ecological Solid Waste Management Program (ESWMP) WQ-G-03: Industrial Pollution Control Program (IPCP) etc.
13. Water Pollution due to contamination by effluents and garbage from factories and piggery projects.		

Issues, Goals, Measures and Programs Water Supply, Sanitation and Sewerage

- Sector Goals:** (1) Increase access to the safe drinking water
 (2) Ensure adequate water supply capacity
 (3) Provide sewerage system with sewage treatment plants to highly urbanized cities

Issues and Problems	Cause	Necessary Measures	Project & Plans	Type	Project Proponent
1. Insufficient access to safe water	Unsanitary toilet facilities	Provide 100% sanitary toilet facilities.	Sanitation Dev. Plan 1992-2010 Additional sanitary facilities towards 2025	On-going Conceptual	City/Municipal government
	System operation and maintenance of water systems not properly carried out	Consistent Efficient system operation and maintenance	Establish periodic O&M monitoring schedule and capacity development	Conceptual	Water District/City/ Municipal government
	Improper well development	Quality checked design and well supervised construction	Capacity development of the implementing agency in relation to sanitation	Conceptual	City/Municipal government
	Salt Intrusion on ground water, Over extraction of ground water	Development of Bulk Water Supply in Bulacan	Bulacan Treated Bulk Water Supply Project	Proposed	MWSS
			Extended Bulacan Bulk Water Supply Project	Conceptual	Bulacan MWSS
			Pampanga Bulk Water Supply Project	Conceptual	Pampanga (?)
	2. Inadequate water supply/ sustainable sources	Other level 1 sources have low to no yield during dry season. Level 1 source ratio to user not adequate.	Develop new water systems in both urban and rural areas	Water Supply Development Plan (1992-2010)	On-going
Additional Level 3, 2, 1 facilities				Conceptual	Water District/City/ Municipal government

Issues and Problems	Cause	Necessary Measures	Project & Plans	Type	Project Proponent
	Increase in water demand due to increase in population. Groundwater availability is at risk level in some identified	Development of Bulk Water Supply in Bulacan	Bulacan Treated Bulk Water Supply Project	Proposed	MWSS
			Extended Bulacan Bulk Water Supply Project	Conceptual	Bulacan MWSS
	cities and municipalities.	Development of Bulk Water Supply in Pampanga	Pampanga Bulk Water Supply Project	Conceptual	Pampanga (?)
	High water loss due to pipe leakages, excessive water usage specially for users with flat tariff rate and illegal taps	Carry out immediate water repairs, provide water meters, and perform periodic maintenance	Establish periodic O&M monitoring schedule and capacity development	Conceptual	Water District/City/Municipal Government
3. Increasing pollution load in water bodies	Absence of sewerage system, sewage treatment plant	Provide appropriate sustainable sewage treatment facilities in highly urbanized cities as per Clean Water Act	Cabanatuan Sewerage System	On-going	City Government
			Clark Sewerage System	On-going	Clark Water Corporation
			Sewerage system for the Highly Urbanized Cities	Conceptual	City Government

Issues, Goals, Measures and Programs Watershed Management

Sector Goals: (1) To intensify protection of vulnerable and ecologically sensitive areas
(2) To increase the forest cover of critically denuded and urban areas

Issues/Concerns		Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent	Related Sector
40	1. Watershed degradation	(1) Intensify protection of vulnerable and ecologically sensitive areas	1-1 Forest protection and law enforcement	WS-G-01	Forest Protection and Law Enforcement Program (FPLEP)	On-going	DENR-FMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
	2. Inadequate institutional capability		1-2 Institutional strengthening	WS-G-07	NIA-UPRIIS Watershed Mgt. Program	On-going	NIA-UPRIIS	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
	3. Inadequate public awareness		1-3 Public awareness plan	WS-G-08	NPC's Watershed Management Program	On-going	NPC	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
	4. Forest fires		1-4 Fire-management equipment and logistics support		(Enhancement of fire management under the three programs above)			
	5. Illegal land use and conversion		1-5.1. Livelihood development		(Enhancement of livelihood development and agro-forestry under the three programs above)			
				WS-C-04	Eco-tourism Program	Conceptual	DOT-DENR-LGU	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
			1-5.2. Resettlement of forest occupants		(Component of NPC's WM Program)			
6. Soil erosion	1-6. Sustainable upland farming systems	WS-C-01	Upland Development Program (UDP)	Conceptual	DA-DENR-LGU	Municipal Water Supply, Hydropower, Irrigation,		

Issues/Concerns		Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent	Related Sector
			and technologies					Flood & Disaster Mgt.
	7. Absence of harmonized PA Mgt. Plans		1-7. Harmonization of PA Plans with CLUP, FLUP, RMF and ADSDPP	WS-C-02	Protected Area Management Program (PAMP)	Conceptual	DENR-PAWCZMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
2. Weak reforestation	1. Poor performance of reforestation projects	(2) Increase the forest cover of critically denuded upland and urban areas	2-1. Rationalize/ strengthen CBFM in tenured areas	WS-G-02:	Community-based Forest Management Program (CBFMP)	On-going	MWSS	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
				WS-G-03	Integrated Agro-forestry Development Program (CBFM-CARP)	On-going	MWSS	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
				WS-G-04	Coastal Resource Management Program (CRMP)	On-going	NIA	Agriculture and Fisheries
				WS-G-05	Protected Area Community Based Resource Management Program (CBFM-PACBRMA)	On-going	DENR-PAWCZMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
				WS-P-01	Program for Forest Management (PROFORM)	Proposed	DENR-FMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
				WS-P-02	Pampanga River Basin Rehabilitation Project (PRBRP)	Proposed	DENR-FMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
	2. Inadequate institutional capability		2-2 Institutional strengthening		(Enhancement under the above six programs)			
	3. Inadequate devolution		2-3.1. Agro-forestry	WS-G-09	Integrated Social Forestry (LGU WM Initiatives)	On-going	LGUs	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
		2-3.2. Urban greening	WS-C-03	Urban Greening	Conceptual	LGUs	Municipal Water Supply,	

Issues/Concerns		Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent	Related Sector
	4. Lack of incentive for private investment in forestry				Program (LGU WM Initiative)			Hydropower, Irrigation, Flood & Disaster Mgt.
			2-4.1 Adopt-a-Mountain Scheme	WS-G-10	Private-sector WM Initiatives	On-going	Private companies, NGOs	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
			2-4.2 Selective log ban	WS-G-06	Private Forest Plantation Development Program (PFDP)	On-going	DENR-FMS 3	Municipal Water Supply, Hydropower, Irrigation, Flood & Disaster Mgt.
			2-4.3 Development of timber and non-timber forest product processing zone					
			2-4.4 Tax holidays and other incentive systems					

Issues, Goals, Measures and Programs Water-Related Environmental Management

Sector Goals: (1) Strengthen WQ monitoring, data management, regulatory, coordination and public awareness mechanisms
(2) Reduce pollution load from various sources in key areas

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Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
1. Inadequate water quality data generation and management	1. Poor WQ monitoring and data generation system	(1) Strengthen water quality monitoring, data management, regulatory, coordination and public awareness mechanisms	Rationalize sampling locations, monitoring frequency, key parameters, river classification, standards, designation of WQMA	WQ-G-01	Water Quality Monitoring	On-going	DENR-EMB 3
	2. Inadequate inventory of pollution sources		Complete Inventory of pollution sources				
	3. Inadequate institutional capability		Upgrade capability of DENR-EMB and clientele				
	4. Poor data management		Upgrade data storage/use (management information system)				
2. Contamination of surface, ground and coastal waters	1. Weak regulatory enforcement/ inter-agency coordination	(2) Reduce	Strengthen regulatory/ coordination mechanisms among DENR-EMB, LGUs and clientele	WQ-G-02	Ecological Solid Waste	On-going	LGUs
	2. Inadequate public awareness		Public Awareness Plan/IEC				
	3. Poor solid waste		Optimize access to existing				

Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
	management	pollution load in key areas of Pampanga River Basin (Pampanga River downstream, Abacan-SanFernando River downstream, Pasac River downstream; Angat River downstream, Candaba Swamp; and Manila Bay)	SLF; Implement ESWMP		Management Program (ESWMP)		
	4. Absence of sewerage treatment and sanitation facilities		Sewerage treatment facilities in key cities and highly urbanizing municipalities: Angeles City, San Fernando, Malolos, Mabalacat, Cabanatuan, Tarlac; Basic sanitation facilities in all LGUs		(See related Water Supply and Sanitation Sector projects)	On-going/ Proposed	Water Districts/LGUs
	5. Industrial and livestock wastes		Clean production technologies	WQ-G-03	Industrial Pollution Control Program: Revised Industrial Eco-watch (RIES), Philippine Environmental Partnership Program (PEPP) and Cleaner Production Technologies	On-going	Private Industries
			Carbon sequestration projects	WQ-P-01	Clean Development Mechanism (CDM)	Conceptual	Private Industries
	6. Pollution from commercial fishponds		Fishpond management	WQ-G-04	Fisheries Resource Management for Improved and Sustainable Harvest (F.I.S.H.) Program	On-going	PAO, Bulacan & Pampanga, Science City of Muñoz, academe and PAC
	7. Siltation of rivers		Upland erosion control (Watershed management); River improvement works		(See related Upland Development Program under Watershed	Conceptual	DENR-FMS 3/DPWH

Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
					Management Sector and River Improvement Plans under Flood Mitigation Sector)		
	8. Illegal settlements along river easements		Resettlement and river clean-up	WQ-G-05	Sagip-Ilog Project	On-going	LGUs

Workshop Output: Flood and Sediment Disaster Management

Sector Goal: To mitigate the chronic flood damage

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<p>1. Inadequate Information and Knowledge relevant to Flood Mitigation</p> <ul style="list-style-type: none"> Inadequate information on the real-time flood information Inadequate information on flood hazard area <u>Inadequate information on the release of dam water</u> Garbage disposal in river ways 	<p>1.1 Capacity Building 1.2 Development of Flood Monitoring and Dissemination System 1.3 <u>Integration of IWRM study to the elementary & high school curriculum</u></p>	<p>(1) Capacity Building/ Development of Flood Forecasting and Warning System</p> <ul style="list-style-type: none"> Flood Forecasting and Warning System Capacity Building Project upon Dam Release in the Project Community Based Flood Early Warning System Information Education Campaign (IEC) for Clean-up Drive of Waterways <u>Coordination with DepEd to determine the necessary action and production of the IWRM School material</u> <u>Establishment of evacuation centers</u>
<p>2. Weakness in Institutional-set up</p> <ul style="list-style-type: none"> Lack of coordination with Disaster Risk Management (DRM)/Disaster Risk Reduction (DRR) Political accommodation intervention/non-compliance of existing laws 	<p>2.1 Strengthening of Institutional Set-up</p>	<p>(1) Setup of Institutional Setup Plan</p> <ul style="list-style-type: none"> Establishment of organizations setup for IWRM of Pampanga river basin <p>(2) <u>Reactivation of Pampanga River Control System/Or creation of an RBO</u></p>
<p>3. Insufficient Structural Capacity for Flood Mitigation</p> <ul style="list-style-type: none"> Siltation of river ways Extremely small river channel flow capacity due to 	<p>3.1 Flood mitigation by the new structural measures such as</p> <ul style="list-style-type: none"> River channel improvement Construction of flood diversion channel, and 	<p>(1) Development of New Structural Measures for Pasac River Basin</p> <ul style="list-style-type: none"> Pinatubo Hazard Urgent Project (PHUMP) Phase III Part I Flood Control

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<p>expansion of residential areas in potential flood hazard area</p>	<ul style="list-style-type: none"> • Construction of flood retarding basin <p>3.2 <u>Modification/ Maintenance/ Rehabilitation of the existing flood mitigation structures</u></p>	<p>Measures in Mt. Pinatubo Devastated Area-Focus on Pasac Delta</p> <ul style="list-style-type: none"> • Bacolor Comprehensive Rehabilitation Master Plan <p>(2) Development for New Structural Measures for Pampanga River Basin</p> <ul style="list-style-type: none"> • Pampanga Delta Development Project (PDDP) Flood Component Phase II • Pampanga Delta Development Project (PDDP) Flood Component Phase III • Construction of Flood Retarding Basin in Candaba Swamp <i>in Pampanga and San Antonio Swamp in Nueva Ecija</i> <p>(3) Maintenance and Rehabilitation Projects for Existing Flood Mitigation Structures</p> <p>(4) <u>Re-evaluation of priority projects by DPWH in relation to flood control</u></p>
<p>4. Increment of Flood Damage Potential</p> <ul style="list-style-type: none"> • Increasing surface run-off in the urban built-up • Poor watershed vegetation cover • Unplanned and rapid urban expansion • Encroachment of illegal settlers and fishponds along river ways • <u>Unregulated quarrying</u> 	<p>4.1 Flood mitigation by the new non-structural measures such as:</p> <ul style="list-style-type: none"> • Watershed management by reforestation, hillside-works, and sabo works. • Development of flood forecasting and warning system • Development of flood hazard map • Land Zoning • Capacity building • <u>Updating the design of the existing flood control structures in relation to dam activities</u> 	<p>(1) Development of New Non-structural Measures for Pasac River Basin</p> <ul style="list-style-type: none"> • Pinatubo Hazard Urgent Project (PHUMP) Phase III Part II

Issues and Problems/ Causes	Countermeasures	Projects and Plans
2. Delay of Implementation of Casecnan-II, Balintingon, Balog Balog Project <ul style="list-style-type: none"> Lack of fund Lack of project financier Inflation of material cost Peace & order (NPA infiltrated area) 	2.1 Promotion and necessary budgetary arrangement	(1) Promotion and necessary budgetary arrangement of new projects <ul style="list-style-type: none"> AI-P-04: Casecnan Multi-purpose Power & Irrigation Project, Phase 2 AI-P-01: Balintingon Reservoir Multipurpose Project (BRMP) AI-P-02: Balog-Balog Multipurpose Project Phase 2
3. Land Conversion <ul style="list-style-type: none"> Land use/Planning Problem Urbanization, industrialization, commercialization 	3.1 <u>Political will on permits</u> 3.2 <u>Review of local code / AFMA</u>	(1) <u>Update LGUs Comprehensive Land Use Planning. (CLUP)</u>
Irrigation Management		
4. Water Shortage in AMRIS <ul style="list-style-type: none"> Lower priority of water allocation to irrigation Increasing domestic water demand in Metro .Manila Prioritization of hydro- electric power and domestic water supply Less regulation capacity in Bustos No regulation for peak operation Inefficiency of water use Squatters within irrigation canals <u>Climate change - Political intervention in the implementation of NIPAS law.</u> <u>Water conflict among water uses</u> 	4.1 Water Resources Development and Capacity Building on Water Allocation 4.2 Rehabilitation and improvement of irrigation facilities of AMRIS to improve efficiency 4.3 Introduction of water saving irrigation technology 4.4 Capacity development of IAs 4.5 <u>Demonstration of varietal adaptation for flood prone and drought prone areas</u> 4.6 <u>Adjustment of cropping pattern</u>	(1) Water Resources Development and Capacity Building on Water Allocation <ul style="list-style-type: none"> IS-C-02: Project for Recovery of Reliability of Water Supply in Angat-Umiray System IS-C-04: Capacity Development of NWRB and Relevant Agencies on Water Allocation and Distribution (2) Rehabilitation and improvement of irrigation facilities <ul style="list-style-type: none"> Rehabilitation of NISs and CISs under the on-going NIA regular programs AI-P-11: Rehabilitation of AMRIS under JICA project AI-G-07: Rehabilitation of AMRIS under Participatory Irrigation Development Project, APL1- Infrastructure Development AI-C-02: Introduction of water saving irrigation technology AI-C-03: Upgrading and improvement of irrigation facilities and water management of AMRIS (3) Rehabilitation and improvement of irrigation facilities <ul style="list-style-type: none"> AI-P-07: Appropriate Irrigation Technologies for Enhanced Agricultural Production AI-C-02: Introduction of Water Saving Irrigation Technology AI-C-04: Improvement of Monitoring System and Capacity Development for Proper Water Management in NISs and

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<ul style="list-style-type: none"> <u>Lack of control Structure and measuring devices in the irrigation facilities</u> 	<p>4.7 <u>Conduct training on water mgt. and</u> how to manage available water</p> <ul style="list-style-type: none"> ➤ <u>water conservation technology</u> ➤ <u>Rotation/scheduling of delivery of water for irrigation</u> 	<p>CISs</p> <p>(4) <u>Massive reforestation along Sierra Madre and other watershed areas.</u></p> <p>(5) <u>Strict implementation of NIPAS law by concerned LGUs and agencies.</u></p>
<p>5. Low Irrigation Efficiency in Existing NISs and CISs</p> <ul style="list-style-type: none"> Degradation of canals and related facilities Lack of maintenance <u>Lack of knowledge on proper water management for irrigation</u> 	<p>5.1 Rehabilitation & improvement of irrigation facilities</p> <p>5.2 Introduction and capacity enhancement on water saving irrigation technology</p>	<p>(1) Rehabilitation of Existing NISs and CISs</p> <ul style="list-style-type: none"> AI-P-03: Rehabilitation of Polac Gumain RIS under Sector Loan on Rehabilitation of Irrigation Facilities AI-G-08: Rehabilitation of Small Water Impounding Projects / Diversion Dams AI-G-03: Repair, Rehabilitation of Existing Groundwater Irrigation Systems, Establishment of Groundwater Pump Project AI-G-04: Balikatan Sagip Patubig Program AI-G-05: Repair, Rehabilitation, Restoration & Preventive Maintenance of Existing National & Communal Irrigation Facilities AI-G-06: Restoration/Rehabilitation of Existing NIA Assisted Irrigation System AI-P-05: Procurement of Pumps, Drilling Rigs & Related Equipment AI-P-06: Irrigation Water Resources Augmentation Pump Establishment Project AI-P-08: Central Luzon Groundwater Irrigation Systems Reactivation Project
<p>6. Low collection efficiency on irrigation service fees due</p> <ul style="list-style-type: none"> Unwillingness and incapacity of farmers to pay Insufficient water management Low yield due to calamities 	<p>5.3 Capacity development of IAs</p> <p>5.4 Capacity development of LGUs</p>	
<p>7. LGUs role in implementing CIPs</p> <ul style="list-style-type: none"> LGU's lack of training & experiences in the construction of CIPs Implementation of Agriculture & Fisheries Act 	<p>5.5 <u>Review of Local Code and Agricultural and Fisheries</u></p>	<p>(2) Introduction of water saving irrigation Technology</p> <ul style="list-style-type: none"> AI-P-07: Appropriate Irrigation Technologies for Enhanced Agricultural Production AI-C-02: Introduction of Water Saving Irrigation Technology (<u>on-going project of NIA/PHILRICE</u>) AI-C-04: Improvement of monitoring system and capacity development for

Issues and Problems/ Causes	Countermeasures	Projects and Plans
	<u>Modernization Act.</u>	proper water management in NISs and CISs (3) Capacity development of LGUs <ul style="list-style-type: none"> AI-C-04: Improvement of monitoring system and capacity development for proper water management in NISs and CISs
Other Constraints (Flood, Groundwater and Water Quality)		
8. Frequent flood damages and poor drainage <i>in the existing agricultural land</i> <ul style="list-style-type: none"> Insufficient flood control and drainage system Lack of attention on integrated drainage system Degradation of canals and related facilities 	8.1 Flood mitigation by structural measures 8.2 Rehabilitation and improvement of drainage system	(1) Flood mitigation (2) Rehabilitation and improvement of drainage facilities under NIA Programs <ul style="list-style-type: none"> AI-G-05: Repair, Rehabilitation, Restoration & Preventive Maintenance of Existing National & Communal Irrigation Facilities AI-G-04: Balikatan Sagip Patubig Program AI-G-06: Restoration/Rehabilitation of Existing NIA Assisted Irrigation System
9. Flood Damage to fishpond, <ul style="list-style-type: none"> Lack of flood protection to fishery area Less priority on Government Program Fishpond flash flood Private property Illegal fishponds in dangerous areas 	9.1 Flood mitigation by structural measures 9.2 Aquaculture fisheries development	(1) Flood mitigation <ul style="list-style-type: none"> FL-P-01: Flood Control Measures in Mt.Pinatubo Devastated Area-Focus on Pasc Delta FL-C-01: Pampanga Delta Development Project Flood Component with Usage of Candaba Swamp as Flood Retarding Basin (2) Regular Aquaculture Fisheries Programs <ul style="list-style-type: none"> Aquaculture Fisheries Development Programs Comprehensive Regulatory Services Support Projects and Activities
10. Depletion of Groundwater in Bulacan, Pampanga and Nueva Ecija <ul style="list-style-type: none"> Increasing pump irrigation for fish ponds Increasing pump for domestic use Weak implementation of GW use regulation and policy 	10.1 Bulk Water Supply Projects 10.2 Sustainable GW development and management	(1) Bulk Water Supply Projects <ul style="list-style-type: none"> MW-P-02: Sumag River Diversion Project MW-P-03: Bulacan Treated Bulk Water Supply Project MW-C-05: Extended Bulacan Bulk Water Supply Project MW-C-06: Pampanga Bulk Water Supply Project (2) Institutional Development for sustainable GW development and management <ul style="list-style-type: none"> IS-C-01: Establishment of Comprehensive Groundwater

Issues and Problems/ Causes	Countermeasures	Projects and Plans
<ul style="list-style-type: none"> <i>Lack of inventory of irrigation facilities using pumps</i> 	10.3 <i>Data base of ground water users (STW,DW,Domestic and Industrial)</i>	Monitoring System in Pampanga River Basin
11. Salt Intrusion at Irrigated areas <ul style="list-style-type: none"> Groundwater depletion 		
12. High SO₄² Content of GW for Irrigation due to Pinatubo Eruption	12.1 <i>Water quality management</i>	(1) Water Quality Monitoring Program <ul style="list-style-type: none"> WQ-G-01: Water Quality Monitoring Program (WQMP) WQ-G-02: Ecological Solid Waste Management Program (ESWMP) WQ-G-03: Industrial Pollution Control Program (IPCP) etc.
13. Water Pollution due to contamination by effluents and garbage from factories and piggery projects.		

Workshop Output: Water Supply, Sanitation and Sewerage

- Sector Goals:** (1) Increase to access to the safe drinking water
 (2) Ensure adequate water supply capacity
 (3) Provide sewerage system with sewage treatment plants to highly urbanized cities

Issues and Problems	Cause	Necessary Measures *	Project & Plans	Type	Project Proponent
1 <u>Water Contamination</u> (Insufficient access to safe water)	Unsanitary toilet facilities	Provide 100% sanitary toilet facilities.	Sanitation Dev. Plan 1992-2010	On-going	City/Municipal government
			Additional sanitary facilities towards 2025	Conceptual	
	System operation and maintenance of water systems not properly carried out	Consistent Efficient system operation and maintenance	Establish periodic O&M monitoring schedule and capacity development	Conceptual	Water District/City/Municipal government
	Improper well development	Quality checked design and well supervised construction, <u>strict implementation of well design</u>	Capacity development of the implementing agency in relation to sanitation	Conceptual	City/Municipal government
	Salt Intrusion on ground water, Over extraction of ground water	<u>Development of new water supply sources</u> - <u>strict regulation of groundwater use,</u> - <u>monitoring of groundwater extraction</u>	Bulacan Treated Bulk Water Supply Project	Proposed	MWSS
			Extended Bulacan Bulk Water Supply Project	Conceptual	Bulacan MWSS
			Pampanga Bulk Water Supply Project	Conceptual	Pampanga (?)
2 Inadequate water supply sources	- <u>rapid increase in water demand due to increase in population</u> - <u>decrease or no yield at level 1 source</u> - <u>inadequate level 1 source</u>	<u>develop new water systems in both urban and rural areas</u> <u>expansion/upgrading/improvement of existing water source</u> <u>acquisition of high tech grant from funding institution</u>	Water Supply Development Plan (1992-2010)	On-going	Water District/City/Municipal government
			Additional Level 3, 2, 1 facilities	Conceptual	Water District/City/Municipal government
			Bulacan Treated Bulk Water Supply Project	Proposed	MWSS (?)

Issues and Problems	Cause	Necessary Measures *	Project & Plans	Type	Project Proponent
	<i>- limited high tech/modern equipment for source development</i>	<i>Development of Bulk Water Supply</i>	Extended Bulacan Bulk Water Supply Project	Conceptual	Bulacan MWSS
			Pampanga Bulk Water Supply Project	Conceptual	Pampanga (?)
	High water loss due to pipe leakages, excessive water usage specially for users with flat tariff rate and illegal taps	Carry out immediate water repairs, provide water meters, and perform periodic maintenance <i>strict implementation/enforcement of law on pilferages</i>	Establish periodic O&M monitoring schedule and capacity development	Conceptual	Water District/City/Municipal Government
3 Increasing pollution load in water bodies	Absence of sewerage system, sewage treatment plant	Provide appropriate sustainable sewage treatment facilities in highly urbanized cities as per Clean Water Act	Cabanatuan Sewerage System Clark Sewerage System Sewerage system for the Highly Urbanized Cities	On-going On-going Conceptual	City Government Clark Water Corporation City Government

* includes capacity development

Workshop Output: Watershed Management

Sector Goals: (1) To intensify protection of vulnerable and ecologically sensitive areas
 (2) To increase the forest cover of critically denuded and urban areas

Issues/Concerns		Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent
55	1. Watershed degradation	(1) Intensify <u>management</u> , protection <u>and maintenance</u> of vulnerable and ecologically sensitive areas	1-1 Forest protection and law enforcement	WS-G-01	Forest Protection and Law Enforcement Program (FPLEP) - <u>deputation of individual as special deputized environment natural resources officer*</u>	On-going	DENR-FMS 3
	2. Inadequate institutional capability		1-2 Institutional strengthening <u>and capability building</u>	WS-G-07	NIA-UPRIIS Watershed Mgt. Program	On-going	NIA-UPRIIS
	3. Inadequate public awareness		1-3 Public awareness plan	WS-G-08	NPC's Watershed Management Program	On-going	NPC
	4. Forest fires		1-4 Fire-management equipment and logistics support		(Enhancement of fire management under the three programs above) - <u>preparation of forest fire control management plan</u> - <u>plan integration into the CLUP and FLUP</u>		
	5. Illegal land use and conversion		1-5.1. Livelihood development		(Enhancement of livelihood development and agro-forestry under the three programs above)		
				WS-C-04	Eco-tourism Program (<u>Capability building on tour guiding, catering and small entrepreneur</u>)	Conceptual	DOT-DENR-LGU
					(Component of NPC's WM Program)		
	6. <u>Rapid soil erosion</u>		1-6. Sustainable upland farming systems and	WS-C-01	Upland Development Program (UDP)	Conceptual	DA-DENR-LGU

Issues/Concerns	Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent	
		technologies					
				<u>Upland Development Program (UDP)</u>	<i>On-going</i>	<u>DENR</u>	
	7. Absence of harmonized PA Mgt. Plans	1-7. Harmonization of PA Plans with CLUP, FLUP, RMF and ADSDPP	WS-C-02	Protected Area Management Program (PAMP) <u>Management zoning</u> <u>Establishment of IPAF</u>	Conceptual	DENR-PAWCZMS 3	
	<u>8. Poverty</u>						
	<u>9. Political interference</u>						
	<u>10. Insufficient funds for project implementation</u>						
2. Weak reforestation of	1. Poor performance of reforestation projects	(2) Increase the forest cover of critically denuded upland and urban areas	2-1. Rationalize/ strengthen CBFM in tenured areas	WS-G-02:	Community-based Forest Management Program (CBFMP)	On-going	MWSS
				WS-G-03	Integrated Agro-forestry Development Program (CBFM-CARP)	On-going	MWSS
				WS-G-04	Coastal Resource Management Program (CRMP)	On-going	NIA
				WS-G-05	Protected Area Community Based Resource Management Program (CBFM-PACBRMA)	On-going	DENR-PAWCZMS 3
				WS-P-01	Program for Forest Management (PROFORM)	Proposed	DENR-FMS 3
				WS-P-02	Pampanga River Basin Rehabilitation Project (PRBRP)	Proposed	DENR-FMS 3
	2. Inadequate institutional capability		2-2 Institutional strengthening		(Enhancement under the above six programs)		
	3. Inadequate devolution		2-3.1. Agro-forestry	WS-G-09	Integrated Social Forestry (LGU WM Initiatives)	On-going	LGUs
			2-3.2. Urban greening	WS-C-03	Urban Greening Program (LGU WM Initiative)	Conceptual	LGUs
	4. Lack of		2-4.1 Adopt-a-Mountain	WS-G-10	Private-sector WM Initiatives	On-going	Private companies,

Issues/Concerns		Goals	Measures (Strategies)	Code	Programs, Project & Plans	Type	Project Proponent
	incentive for private investment in forestry		Scheme				NGOs
			2-4.2 Selective log ban	WS-G-06	Private Forest Plantation Development Program (PFDP)	On-going	DENR-FMS 3
			2-4.3 Development of timber and non-timber forest product processing zone				
			2-4.4 Tax holidays and other incentive systems				

Workshop Output: Water-Related Environmental Management

Sector Goals: (1) Strengthen WQ monitoring, data management, regulatory, coordination and public awareness mechanisms
 (2) Reduce pollution load from various sources in key areas

Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
1. Inadequate water quality data generation and management	1. Poor WQ monitoring and data generation system	(1) Strengthen water quality monitoring, data management, regulatory, coordination and public awareness mechanisms <i>(a) additional frequency, additional sampling stations)</i>	Rationalize sampling locations, monitoring frequency, key parameters <i>(to include heavy metal parameter)</i> , river classification, standards, designation of WQMA	WQ-G-01	<i>Regular Water Quality Monitoring Activity</i>	On-going	DENR-EMB 3
	2. Inadequate inventory of pollution sources		Complete Inventory of pollution sources				
	3. Inadequate institutional capability		Upgrade capability of DENR-EMB and clientele				
	4. Poor data management		Upgrade data storage/use (management information system)				
2. Contamination of surface, ground and coastal waters	1. Weak regulatory enforcement/ inter-agency coordination	<i>(b) needs media/brochures</i>	Strengthen regulatory /coordination mechanisms among DENR-EMB, LGUs and clientele				
	2. Inadequate		Public Awareness Plan/IEC				

Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
	public awareness						
	3. Poor solid waste management	(2)Reduce pollution load in key areas of Pampanga River Basin (Pampanga River downstream, Abacan-SanFernando River downstream, Pasac River downstream; Angat River downstream, Candaba Swamp; and Manila Bay) <i>To include <u>Quitangil, Sapang Balen, Bamban and Sacobia River</u></i>	Optimize access to existing SLF; Implement ESWMP	WQ-G-02	Ecological Solid Waste Management Program (ESWMP) <u>RA 9003</u>	On-going	LGUs
	3. Absence of sewerage treatment and sanitation facilities		Sewerage treatment facilities in key cities and highly urbanizing municipalities: Angeles City, San Fernando, Malolos, Mabalacat, Cabanatuan, Tarlac; Basic sanitation facilities in all LGUs		(See related Water Supply and Sanitation Sector projects)	On-going/ Proposed	Water Districts/LGUs
	4. Industrial, livestock and <u>agricultural</u> wastes		Clean production technologies <i>by providing <u>anti-pollution device (e.g. methane gas production, biogas)</u></i>	WQ-G-03	Industrial Pollution Control Program: Revised Industrial Eco-watch (RIES), Philippine Environmental Partnership Program (PEPP) and Cleaner Production Technologies	On-going	Private Industries

Issues and Concerns		Goals	Measures(Strategies)	Code	Programs, Projects & Plans	Type	Project Proponent
			Carbon sequestration projects	WQ-P-01	Clean Development Mechanism (CDM)	Conceptual	Private Industries
	4. Pollution from commercial fishponds		Fishpond management	WQ-G-04	Fisheries Resource Management for Improved and Sustainable Harvest (F.I.S.H.) Program	On-going	PAO, Bulacan & Pampanga, Science City NunoZ, academe and PAC
	5. Siltation of rivers		Upland erosion control (Watershed management); River improvement works		(See related Upland Development Program under Watershed Management Sector and River Improvement Plans under Flood Mitigation Sector)	Conceptual	DENR-FMS 3/ DPWH
	6. Illegal settlements along river easements		Resettlement and river clean-up	WQ-G-05	Sagip-Ilog Project	On-going	LGUs

APPENDIX 10

Report on 5th Technical Working Group Meeting on March 26, 2010

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
5th Technical Working Group Meeting
Social Action Center of Pampanga (SACOP), City of San Fernando, Pampanga
March 26, 2010

Highlights:

1. The meeting was called to order at approximately 9:00 am with Engr. Emmie L. Ruales, Chief of the NWRB Policy Formulation Section, presiding. The meeting was held to present the outline of Progress Report No. 2, initial framework plan for the water supply, sanitation and sewerage sector, preliminary study on legal and institutional arrangements for IWRM and the proposed vision statement on IWRM for Pampanga River Basin. The list of attendees is shown in Annex.
2. Mr. Ootogawa, Study Team Leader presented the outline of Progress Report No. 2 which is being prepared based on the results of discussion during the recently conducted Steering Committee/TWG meetings, FGD and stakeholders' consultation meeting. The problems and issues on IWRM in the basin covering the sectors of agriculture/irrigation, municipal water supply, sanitation and sewerage; flood and sediment disaster management; watershed management and water-related environmental management as well as the programs and projects initially presented in the Interim Report were validated through these consultation/meetings. Basically the report will contain the result of the study on Guideline for formulation of the IWRM Plan for Pampanga River basin, alternative plans for IWRM and project evaluation. The report is due for submission in July.

The objectives of the proposed Guideline for IWRM Plan formulation are to furnish the definite procedures and methodologies for the formulation of the IWRM Plan for Pampanga River Basin and to serve as a tool for consensus building on the proposed IWRM Plan as well as a reference and/or standards for formulation of IWRM Plan for other river basins.

The study on alternative plans for IWRM is almost finished and it includes alternative plans for the recovery of reliability of water supply in Angat-Umiray system and for the mitigation of flood damage along Pampanga River. The next step will be the inter-sector evaluation/prioritizing of projects after which the formulation of IWRM Plan and Institutional set-up plan will follow. Mr. Ootogawa informed that as a result of the comments/suggestions gathered from the various consultations conducted, there had been revisions made on the criteria for evaluation of projects, specifically with respect to the criteria on the viability of the projects and for the enhanced livelihood. Adaptation to climate change was included in the viability aspect while the points of evaluation for enhanced livelihood were completely changed. Likewise, from the 79 projects previously identified in the Interim Report it has increased to 84 projects (37 on-going, 17 proposed and 30 conceptual).

3. Ms. Mallare, the Water Supply and Sewerage Planning Expert, presented the initial Framework Plan for water supply, sanitation and sewerage sector. The goals for the sector are to improve the water supply quality, to ensure the necessary water supply capacity and to reduce pollution load in the water bodies. The identified major issues and concerns as

validated during the TWG meetings, series of stakeholders' meeting and the FGD are inadequate water supply, unsafe water supply and increasing pollution load in water bodies. She presented the causes, countermeasures and project/plans for each of these issues as well as the options for targeting the implementation of projected urban Level 3 system.

For sanitation, as of 2008 about 17% does not have access to safe water in the basin and 12% does not have access to sanitary facilities. It is targeted to have 100% provision of sanitation facilities by 2025. The toilet facilities identified are the conventional toilet which is the pour flush toilet with septic tank and the Ecological Sanitation (EcoSan) toilet. The EcoSan toilet which views human excreta not a waste but as a resource is a form of the urine diversion dehydration toilet, an alternative to conventional sanitation. The EcoSan toilet is existing at San Fernando, La Union and Bayawan City, Negros Occidental. She shared their personal experience of Ms. Quiñones, the Water Environment/ Watershed Mgt. Expert on the use of the EcoSan toilet during a visit at Fisherman's Village in La Union. She recommended its use in areas with no sanitary toilet especially in far-flung barangays, however she noted that the social preparation and the acceptance of the people in the area are major considerations.

For sewerage, 6 highly urbanized cities and municipality were identified with high pollution load, namely: Angeles City, City of San Fernando, City of Malolos, Mabalacat, Cabanatuan City and Tarlac City. Cabanatuan City has already initiatives for its sewerage system although the construction of the wastewater treatment plant had been put on hold due to budgetary constraint. Ten percent of the urban population is targeted for sewerage system service coverage by 2015 and 15% by 2025 based on the Cabanatuan existing sewerage system project.

The wastewater treatment plant alternatives identified are the biological (e.g. Clark and Cabanatuan Project) and wetland (e.g. Bayawan City, Negros Occidental). Another option being considered to reduce pollution load is the adequate treatment of sludge and its proper disposal. This option was identified as a result of the water quality analysis done by Ms. Quiñones who presented the results of her evaluation.

Initial estimates showed that domestic load constitutes about 50% of the total pollution load in the basin and considering that there are 6 highly urbanized cities and municipality in the area, addressing pollution load coming from domestic sources will be a big step in improving water quality. One strategy is providing coverage to the remaining 12% of the population without sanitary toilets. With the target of 100% sanitary toilet coverage for the urban population, the estimated amount of pollutants to be produced is 180,000 kg BOD/day. If there will be sanitary disposal of the sludge in toilet facilities, a 4% reduction in domestic pollution is achievable while with a combination of sewerage treatment of wastewater effluents, a 6% reduction is possible.

In order to realize this, there has to be a change in the existing practice of private contractors in the region where wastes are dumped on water bodies. Private contractors must have the required facility under the law for treatment of sludge and disposal at the Clark sanitary landfill in Capas, Tarlac. This calls for a stronger regulatory enforcement by the LGUs in coordination with the DENR of the requirements of the Clean Water Act and the Sanitation Code.

4. Mr. Mizutani, the organizational/institutional expert, discussed the preliminary study on institutional and organizational arrangements for localization and implementation of IWRM in Pampanga River Basin. Five key IWRM functions are recommended to cover the following: water use management and water rights allocation; water quality and environmental management; management of flood and natural disasters; watershed and forest management; and localization, implementation, O & M of IWRM Plan from regional interests. Eleven strategic issues were identified from these key functions and a countermeasure is the empowerment of the institutional, organizational and financial aspects. He emphasized that IWRM will not function well if only one aspect will be empowered. All aspects should be empowered to some extent.

The key actions identified to be necessary on the institutional, organizational and financial aspects include the improvement of the Water Code, introduction of specific Multi-purpose Dam law, building capacity of missing functions for IWRM, strengthening of line agencies and LGUs as well as strengthening of financial capacity for sustainable IWRM in Pampanga River Basin. He noted that these actions are tentative and was prepared based on Japan experience and therefore is still subject for further discussion.

He mentioned that the proposed River Basin Committee by NEDA is acceptable to the attendees of the recently conducted FGD on the institutional arrangement last March 17, 2010. However, it is still subject to the review and decision of the Steering Committee.

5. Mr. Mendoza of NEDA Region III presented their proposed draft vision statement on IWRM in Pampanga River Basin. He explained that the draft vision was prepared upon the request of NWRB to review and provide inputs to the vision statement of the project. He commented that the title of the project could actually be the vision statement itself.

In the formulation of the draft vision, analysis was done on the planning logic (elements of the vision, goals and objectives), plan description and objectively verifiable indicators (OVIs)/targets. The vision was found to be clear and its elements defined in the presentation of Mr. Otagawa. Relative to the 5 objectives of the projects, it was observed that the Study Team's perspective on decentralized development was different from the Philippine perspective of devolution and decentralization of central functions. For the projects and programs, it was assumed that other initiatives outside the water resources projects are also implemented by the other agencies of the government, including the private sector considering that the water resources sector is only one of the many sectors that have to be work with to achieve the vision. The IWRM Plan study sector was also evaluated vis-à-vis the traditional sector used in planning and found to perfectly dab tails with the traditional sector.

The draft vision formulated is as follows: "The Pampanga River Basin (PRB) shall become the most economically advanced river basin in the country that has the lowest incidence of poverty, fully restored watershed and ecosystems, properly utilized and managed water resources, adequately provided modern infrastructure facilities, and an empowered citizens in partnership with transparent, accountable and development-oriented leaders".

6. Comments/recommendations gathered from the above presentations were as follows:
 - Ms. Iblan of MWCI raised the following:

- She suggested inclusion of the term “sustainable environment” in the vision statement to take account of the sustainability aspect. Mr. Mendoza responded that the vision statement provided by their office is not yet final as it is intended to be a working vision for comment of the group. Mr. Otogawa also replied that the sustainability aspect has been covered in one of their objectives addressed to sustainable ecosystem and several sector goals have been proposed to achieve the objective. To achieve the sector goals, 84 programs and projects have been proposed;
- With reference to the presentation of Mr. Mizutani, specifically on the slide on “key actions to strengthen financial capacity”, she suggested not only strengthening the financial capacity of NWRB but also institutional strengthening for its role as the water resources lead agency for appropriation and allocation of water resources. Mr. Mizutani explained that the capacity empowerment cannot be achieved by only one measure so various measures are being proposed. However, the focus has been on the financial aspect as it is considered to be a big challenge;
- She requested clarification on to who does “concessionaire” refer to in the “action to enforce concessionaires to conduct water saving measures” under the slide on “key actions to improve the Water Code and Related Rules”. Mr. Mizutani responded that the Water Code generally define it to mean all water users in the country;
- With reference to the same slide, she requested clarification on the recommended action: “effective period of water permit (5-10 years) for review and enforce rational/efficient water use”. She inquired on how the provision on the Water Code regarding the revocation or cancellation of water permit on grounds such as non-beneficial use or non-payment of annual water charges would affect this proposal. The Chair explained that the water permit being issued by NWRB is perpetual but considering the present scarcity of water, the proposal has its merit. It is worth considering making the effective period of water permit for a certain period only;
- With reference to the presentation of Mr. Mizutani, specifically on the slide showing the organizational structure between NWRB, RBCO and RBO, she suggested including MWSS on the structure showing NIA, LLDA, selected WDs and selected RBOs considering that MWSS is one of the major stakeholders of the Angat Reservoir which is part of Pampanga River basin. Mr. Mizutani took note of the recommendation; and
- Relative to the discussion on the empowerment of the LGUs on groundwater monitoring and enforcement, she shared that in Makati which has been identified in the NWRB Study on Groundwater for Metro Manila conducted by CEST, Inc. as one of the areas in Metro Manila where groundwater is already below the cone of depression, the LGU has been working with MWCI through a MOA with NWRB for the monitoring groundwater for environmental protection. MWCI shares the same advocacy for the protection of the environment. She

informed that there are also other LGUs with similar involvement in areas where groundwater is critical.

- With reference to the presentation of Mr. Mizutani, specifically on the slide on “key actions to strengthen line agencies and LGUs”, the Chair requested the inclusion of MGB in the agencies mentioned in the collaboration for the monitoring system to monitor regional groundwater level, quantity and quality as MGB is mandated to monitor groundwater levels.
- Mr. Felizardo of DPWH-PMO-FCSEC raised the following:
 - He requested for the possibility of having the EcoSan toilet demonstrated to the TWG members, being a new technology in the market. As Ms. Mallare mentioned, she had earlier suggested and discussed with NWRB counterpart staff her recommendation for them to see for themselves the EcoSan toilet to have a better appreciation of the technology but this matter is subject to Mr. Otagawa’s decision. In this regard, Mr. Otagawa responded that he will consider organizing and scheduling a study trip after the JICA Study Team arrives in July;
 - With reference to the presentation of Mr. Mizutani, specifically on the slide showing the organizational structure between NWRB, RBCO and RBO, he inquired on the implication of the newly signed E.O. transferring NWRB under DENR to this proposed structure. Mr. Mizutani responded that in as much as the condition of NWRB is not clearly stipulated in E.O. 860, NWRB can still function in the manner proposed in the organizational structure. Furthermore, he had provided Director Tuddao of RBCO a copy of the proposed structure, although no comment has been received yet so the matter is still subject for further discussion.
- Ms. Dacanay of JICA Philippines raised the following:
 - Relative to the discussion on the recommendation to revise the Water Code, she inquired if there are any on-going initiatives in Congress to revise the Code. The Chair explained that the NWRB has initiated last year the review of the provisions of the Water Code towards its amendment. However, it was put on hold due to budgetary constraint. Financial assistance is now being sought from DENR;
 - She noted that the Study has many good recommendations towards the amendment of the Water Code. She inquired on the possibility for DENR to be able to implement some of the recommendations by way of issuance of a Department Administrative Order while the amendment of the Code is still in process. The Chair expressed hopefulness in the light of the recent transfer of the office to DENR by virtue of E.O. 860 dated February 8, 2010; and
 - With reference to the presentation of Mr. Mizutani, specifically on the slide on “key actions to strengthen line agencies and LGUs” she requested clarification on the recommended action: “empower groundwater and enforcing function of LGUs from regional interests”. From the explanation of Mr. Mizutani that he

meant the involvement of LGUs on monitoring and sustainability of groundwater in the project area, she expressed that it may conflict with the groundwater monitoring role of NWRB and MGB. The Chair explained that the NWRB has existing MOA with some LGUs to assist NWRB in monitoring groundwater extraction in its areas. Mr. Agustin added that the Local Government Code provides for co-management of LGUs of the natural resources and provided that the national line agency would like to decentralize its function and there is an enabling agreement such as a MOA, there will be no conflict.

- Relative to the discussion on groundwater monitoring, Mr. Collado of BSWM inquired on whether NWRB issues permit to extract groundwater for irrigation purposes as he observed that monitoring of groundwater extraction from shallow aquifers for irrigation purposes is not being done in Pampanga River basin thereby resulting to rapid depletion of its shallow aquifers. He suggested for the groundwater monitoring of not only municipal use but also for irrigation use to which Mr. Kitamura agreed but a system has to be established so it will be considered. Mr. Mizutani added that it is in this regard that regional groundwater monitoring is being proposed to address the issue as NWRB at the national level cannot monitor each individual water users while is technically possible at the regional level.
- Ms. Cabinta of NCIP Reg. III reiterated the incorporation in the Study of the identified ancestral domains which their office had furnished the Study Team in the beginning of the Study as it is crucial in the implementation of the Plan. Indigenous people (IP) having ownership of the ancestral domains have the right under the Indigenous People Rights Act to decide and prioritize the developments in its area such that for any identified proposed projects within its area, consultation is necessary being stakeholders of the watershed. She observed that the issue on non-compliance of Free and Prior Informed Consent was not included in the presentation as had earlier been identified. She expressed willingness of the office to conduct IEC on the projects that will fall on the ancestral domain if the Study Team would request it.

In this regard, Mr. Otogawa expressed appreciation for the data earlier provided and apologized for not having presented the data in the report. He explained that presentation of data collected by the Study Team is in accordance with specified JICA reporting. Nevertheless, the data provided has been used in the assessment of the 89 proposed programs and projects to determine its possible impact to the IP in the area. This is presented in Chapter 6 of Progress Report No. 2 under the Scoping and Impact Assessment of Alternative IWRM Plans. The report will be distributed prior to its submission to JICA in July.

- With reference to the presentation of Mr. Mizutani, specifically on the slide on “key actions to strengthen line agencies and LGUs” where the strengthening of weak execution functions of FMB and LGUs was mentioned, Mr. Lansigan of FMB clarified that FMB is just a staff bureau of DENR undertaking policy formulation on forest management. Operation work is done by DENR field offices and since the issue refers more on the operational aspect, he suggested having FMB changed to DENR field offices. Similarly, on the cited strengthening of RBCO, EMB, FMB and LGUs to execute and enforce water quality management, he suggested having FMB changed to DENR as water quality management is being enforced and executed by EMB which is a line bureau of DENR.

7. Mr. Otagawa informed that a Joint Steering Committee and Technical Working Group meeting will be held by the end of July at Sulo Hotel. Hence, the next TWG meeting will be held on the last Wednesday of August (Aug. 25).
8. There having no other matters to discussed, the meeting was adjourned at around 12:15 pm.

Annex

The Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin

5th Technical Working Group Meeting

Social Action Center of Pampanga (SACOP), City of San Fernando, Pampanga

March 26, 2010

Attendance Sheet

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
1. Emmie L. Ruales	Engineer IV	NWRB	920-2724	
2. Candida P. Cabinta	DMO V	NCIP-Reg.3	(045) 961-5956	cpcandida@yahoo.com
3. Rosita A. Pariña	EMS II	DENR-PAWB	925-8950	
4. Jesse C. Felizardo	Engineer IV	DPWH-PMO-FCSEC		jessef@yahoo.com
4. Rosalia Adonis	OIC	ENRO	(045) 861-3606	
5. Felixberto P. Lansigan	SFMS	FMB	928-2891	
6. Cyndi Iblan	Manager	MWCI	917-5900	cindi.iblan@manilawater.com
8. Arthur R. Dela Cruz	Section Chief	NIA-C.O.	928-8252	
9. Mario Collado	Agri. IV	BSWM	923-0454	
10. Antonio A. Cacdac	Senior EMS	Bulacan ENRO	(044) 896-0397	tonycacdac@yahoo.com
11. Romeo F. Dayao	W.O. I	PRFFWC, PAGASA	(045) 455-1701	PRFFWC_FFD@yahoo.com
12. Agustin . Mendoza	Supervising Economic Devt. Specialist	NEDA - III	(045) 961-3902	tengmendoza2003@yahoo.com
13. Rosendo B.. Panganiban	Sr. Engineer A	NIA Reg, 3	(044)766-2467	robert_1229@yahoo.com
14. Eugenio Diaz, Jr.	C.E./S.E.	RBCO-DENR	925-2540	eugene2066@yahoo.com
15. Julita V. Santiago	Supvg. Engr. A	NIA-UPRIIS	(044) 463-1347 09165269865	jvs0518@yahoo.com
16. Carmencita S. Agustin	Fish Health Officer	BFAR - III	(045) 455-0878	carmencitaagustin@yahoo.com
17. Erlinda Pajarillaga	SFMS	DENR - 3	0919-8616110	lindapajarillaga@yahoo.com
18. Lovercain de Jesus	SWUMO	CLAWD	(045) 491-0425	lovercain_101@yahoo.com
19. Minerva Dacanay	In-house Consultant	JICA Phil	889-7119 loc. 223	
20. Naoto Kuwae	Assistant Resident Representative	JICA Phil		
21. Makihiko Otogawa	Team Leader/ IWRM	JICA Study Team		
22. Tadanori Kitamura	Deputy Team Leader/ Water Res. Devt. & Mgt. Planning	JICA Study Team		
23. Yukihiko Mizutani	Organization Institution Expert	JICA Study Team		
24. Kunita Okuwa	Agriculture/	JICA Study		

NAME	POSITION	OFFICE	TEL. NO.	EMAIL ADDRESS
	Irrigation Expert	Team		
25. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team		
26. Emadelyn M. Quiñones	Water Env./ Watershed Mgt. Expert	JICA Study Team		lynnx_1st@yahoo.com
27. Jesusa Mallare	Water Supply and Sewerage Planning Expert	JICA Study Team		
28. Francis Joseph M. Funa	GIS Engineer	JICA Study Team		
29. Eleazar Rupido	Secretary	JICA Study Team		
30. Gladys Ida S. Albuero	Encoder	JICA Study Team		
31. Francis B. Hilarie	Economist III	NWRB	920-2724	franzhilarie@yahoo.com
32. Florimel Balbedina	Economist III	NWRB	920-2724	melrbalbedina@yahoo.com
33. Joey Castro	Engineer III	NWRB	920-2724	
34. Charito Menguito	Engineer II	NWRB	920-2654	

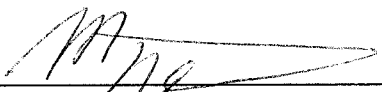
APPENDIX 11

Minutes of Joint Steering Committee and Technical Working Group
Meeting on Progress Report 2 on August 12, 2010


**MINUTES OF JOINT STEERING COMMITTEE AND
TECHNICAL WORKING GROUP MEETING
ON
PROGRESS REPORT 2
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COOPERATION AGENCY**

August 12, 2010 in Quezon City



MAKIHICO OTOGAWA
Study Team Leader
Japan International Cooperation Agency



VICENTE S. PARAGAS, CESO III
Executive Director
National Water Resources Board
(Chairman of Steering Committee)

**The Study on Integrated Water Resources Management for Poverty Alleviation
and Economic Development in the Pampanga River Basin**

4th Joint Steering Committee and Technical Working Group Meeting

Sulo Hotel, Quezon City

August 12, 2010

Highlights:

1. The meeting was called to order at approximately 9:25 am. It was chaired by NWRB Executive Director Vicente S. Paragas and vice-chaired by Deputy Executive Director Nathaniel C. Santos. The meeting was held to present to the Steering Committee (SC) and Technical Working Group (TWG) members the contents of Progress Report No. 2 and the web page prepared for the Study. The list of attendees is shown in Annex.
2. In his opening remarks, Exec. Dir. Paragas expressed gratitude to the Japanese Government through JICA for funding the project for the localization of IWRM. IWRM is a long overdue approach that would address the many issues relative to water and watershed. This would not be easy for it takes the support of both the national and local governments so he expressed hope that with the Study, there will be a strong partnership among the local government, national government and other stakeholders. He appealed for the cooperation and support for the Study Team as the Study on IWRM for the Pampanga River Basin will be a model for IWRM in other river basins as well. He requested for more inputs in the discussion to strengthen the results of the Study and to look beyond the Study. He hopes that the undertaking will not only be a Study but for the Philippine Government to support the implementation of the projects that would be identified in the Study.
3. The contents of the Progress Report – 2, which was distributed weeks before the meeting were explained briefly by Mr. Makihiko Otogawa, Team Leader for the Study. He gave a short overview on the Study area, objectives of the Study and Study schedule. The Study Team is currently working on the inter-sector evaluation/prioritizing of the projects identified towards the formulation of the IWRM Plan and the Institutional Set-up Plan. The next report to be made is the Draft Final Report for submission towards the end of the year.

He explained that in the Progress Report – 2, the numerous issues existing in Pampanga River Basin relative to irrigation, municipal water supply, sewerage and sanitation, flood and sediment disaster management, watershed management and water-related environment management were further clarified and countermeasures were proposed. A total of 82 projects have been identified for the IWRM Plan of which 34 are on-going, 21 proposed by related-agencies and 27 conceptual projects proposed by the Study Team to complement the ideal IWRM Plan. Some of these projects were also considered for the studies on alternative plans for IWRM to address the water shortage from Angat Dam and flood damage along Pampanga River. Inter-sector evaluation is being undertaken on the projects as some have expanded to several different sectors using a scoring system based

on 25 environmental points or criteria. The results will be the basis for prioritizing the implementation of the projects in the short term (2011-2015), mid-term (2016-2020) and long term (2021-2025). He informed that the result of the evaluation will be presented during the next TWG meeting and upcoming stakeholders' consultation meeting to solicit comments.

Relative to the institutional set-up plan for IWRM, the most promising institutional structure is the recommendation of NEDA Region III for a River Basin Committee to be established under the Regional Development Council III. He would like to solicit comments on this.

4. Engr. Funa, the GIS Expert of the Study Team presented the website developed for the Study. He informed that it is already working and temporarily accessible at www.prb.iwrm.com which would later be integrated to the NWRB official website. He demonstrated the features of the website. Members will be provided later with user name and password to be able to log-in. The use of the website and information sharing will be coordinated with the SC and TWG members later while access of stakeholders to the website will still be discussed with NWRB. Information that will be uploaded in the website after the Study pertains to the IWRM Plan Framework and Lessons Learned.
5. Atty. Santos expressed appreciation for the comprehensive presentation of Mr. Otogawa. For the benefit of new members in attendance, he gave a short background on how the project was conceptualized. He noted that IWRM should not only be integrated and participatory but also scientific. The recent appointment of DOST as a member of the NWRB Board and its representation in the Steering Committee is to the advantage of the Study in this regard. He called the attention of the SC and TWG members regarding the list of projects presented by Mr. Otogawa for the review of the point system being used for evaluation. He encouraged the submission of comments in this aspect especially in the assignment of points to the projects since it is at the stage of identification and prioritization of projects where their participation is crucial.
6. The major issues, concerns, observations and recommendations raised during the meeting were as follows:
 - OIC-Exec. Dir. Pagdilao of PCAMMRD-DOST commended the Study Team for the very comprehensive report. He considered the IWRM Plan as a grandiose Plan that will need the participation of all departments and local governments in the localization of IWRM. He suggested that in the evaluation process for the implementation of the IWRM Plan to look at the different components as it inter-relates with the other systems to be able to determine the progress made.

In the formulation of the Institutional Set-up Plan, he raised his concern on the monitoring aspect. There is a need to identify specifically the commitments, plans and programs of the different units for NWRB to be able to coordinate and monitor the implementation of the Plan. Atty. Santos suggested to the consultants the inclusion of monitoring of the

implementation of the projects identified in the Plan in its recommendations for the institutional aspect.

- Ms. Oredina of DENR raised three concerns as follows:
 - a) vision vis-à-vis the actual problems on Pampanga River Basin, i.e., whether the vision is for a revitalized river or healthy river
 - b) whether there had been an in-depth analysis on cross-cutting policies or conflicting/overlapping policies
 - c) whether there were considerations made on how to address the various interest of the various sectors of the stakeholders

Atty. Santos explained that the different issues and concerns were identified in consultation with stakeholders. These were grouped by sector with prioritization of the problems that needs to be addressed in the immediate, medium and long-term.

- Atty. Fondevilla of DOJ also congratulated Mr. Otagawa for a very comprehensive presentation. He had read the report and found it to be sustainable, manageable, attainable, realistic and time-bound (SMART).
- Ms. Victorino of DOF raised the following:
 - She commended the Study Team for coming up with a very comprehensive, very meaningful and scientifically-approached Study. With the involvement of the Department in the evaluation of major capital projects in agriculture and other infrastructure projects in the NEDA Investment Coordinating Committee, she found in the Study more bases on approving or guaranteeing projects related to agriculture and water.
 - The Study is also very helpful in prioritizing projects as not all projects can be implemented and found the integrated approach contributing to maximization of resources. Given the recommendations of the Study on the priority projects, it is necessary to bear in mind the issues such as delay in project implementation and changes in project design which results to cost overrun.
 - Being with the Corporate Affairs Group involved in the affairs of the Government-Owned and Controlled Corporations like MWSS, LWUA and NIA that implement the main projects for water, the Study is helpful in having empirical basis for policy decisions.
 - There was a concern on the monitoring of the sanitation projects being proposed by the two concessionaires for Metro Manila as these may contribute to the pollution of Manila Bay and whether it would complement with the other projects under the IWRM. Atty. Santos explained that the sanitation problem of Metro Manila will have to be tackled in another IWRM Plan for Metro Manila because Metro

Manila belongs to another river basin. It was included in the Study because the water supply that is used in Metro Manila comes from Bulacan.

- She raised the idea of converting Candaba Swamp into a place of interest for tourist like Mt. Pinatubo.
- She raised concern on the financing aspect of the proposed projects and proposed the ownership by the local government of the projects that would emanate from the Study so funds would not necessarily be dependent on the national government for sustainability. Atty. Santos suggested deferring discussion on the matter since some of the proposed projects may be offered for private investments. The priority for now is the identification and prioritization of the projects and the institutional arrangements.
- Dir. Mercado of NEDA Region-III was impressed with the progress of the Study based on the presentation and is enthusiastic to propose the mass marketing of the project outputs and make available the inputs to the Study so it can be optimized by LGUs which are now preparing its Development Plans. The Study has a wealth of information that can be utilized by the LGUs. Hence, he suggested that the Study Team post in the website information that the LGUs would need in their planning such as those relating to disaster risk measures and climate change to make their Plans more responsive in preventing future disasters. The help that the Study Team can extend to the LGUs will be a very good move towards acceptability of the Study by the LGUs. If the LGUs could already input some of the initial findings of the Study as well as some of the inputs that went into the Study in its Development Plans, adoption of the project recommendations will be easier.

Atty. Santos supported the suggestion and requested the help of the LGUs in doing advance marketing on the proposed projects at this early stage if it is amenable to the projects since it is important that project endorsement is solicited from local chief executives and principals of the respective agencies. Approval of the Steering Committee members will also be eventually sought on the prioritization of the projects identified.

- Engr. Balmeo of NE-PPDO raised concern on the manner of prioritization of projects since as per experience prioritization of projects is not always based on needs or in accordance with the thrust of the province. Atty. Santos responded that the concern can be discussed during the TWG meeting but for now the criteria for prioritization will be adopted.
- Mr. Serrano of DILG would like to know some information on the two on-going projects for municipal water supply, sanitation and sewerage mentioned in the presentation relative to the location, processes involved during the implementation and management model implemented. He would also like to know how the succeeding municipal water supply

projects would be implemented. Mr. Otagawa explained that the proposals of the Study Team for municipal water supply are for the establishment of bulk water supply system using surface water and the expansion of Level III systems by each water districts in the province. The bulk water supply system will be discussed with MWSS.

- Ms. Pajarillaga of DENR Region III raised concern on the integration aspect in the light of other projects. Atty. Santos suggested for the Study Team to include it in the report.
7. The SC/TWG members are given until September 13, 2010 for the submission of any other comments before the Study Team finalizes the Report.
 8. The next TWG meeting and Stakeholder Consultation meeting will be in September 2010.
 9. Mr. Otagawa made an announcement on the seminar that will be conducted by JICA in December 2010 to extend the knowledge of the IWRM. It will be an exchange of knowledge between Filipinos and Japanese so he extended an invitation for voluntary speakers to attend the seminar and discuss on any topic related to IWRM.
 10. With no other matters to discuss, the meeting was adjourned by Atty. Santos at about 11:30 am. ✓

Annex

**The Study on Integrated Water Resources Management for Poverty Alleviation
and Economic Development in the Pampanga River Basin
4th Joint Steering Committee and Technical Working Group Meeting**

*Sulo Hotel, Quezon City
August 12, 2010*

Attendance Sheet

NAME	POSITION	OFFICE
1. Vicente S. Paragas	Executive Director	NWRB
2. Nathaniel C. Santos	Deputy Executive Director	NWRB
3. Cesario R. Pagdilao	OIC - Executive Director	PCAMRD-DOST
4. Eduardo V. Manalili	Sr. SRS	PCAMRD-DOST
5. Ruben F. Fondevilla	ACSC	DOJ
6. Remigio Mercado	Regional Director	NEDA-Reg. III
7. Agustin C. Mendoza	OIC-Chief / Supervising Economic Development Specialist	NEDA-Reg. III
8. John T. Zapata	Economic Development Specialist II	NEDA-Reg. III
9. Resito David	Project Director	PMO-FCSEC, DPWH
10. Jesse C. Felizardo	Engineer IV	PMO-FCSEC, DPWH
11. Rosendo D. Panganiban	Senior Engineer A	NIA-Reg. III
12. Arthur Dela Cruz	Principal Engineer	NIA C. O.
13. Carlito Gapsin	Division Manager	NIA-UPRIIS
14. Gregel B. Redublado	Department Manager, Dam and Reservoir Operation	NPC, DRFFD
15. Virgilio M. Garcia	Principal Hydrologist A	NPC, DRWD
16. Lorna Balmeo	Project Evaluation Officer IV	PPDO - N.E.
17. Albin P. Carreon	Engineer V	DPWH-Region III
18. Wilfredo S. Manabat	PDO III	PPDO - Pampanga
19. Marlynn M. Mendoza	Chief EMS	PAWB
20. Lovercain de Jesus	SWUMO	Tarlac City WD
21. Dax Llorente	TA	SCADC
22. Arthur Punsalan	OIC, ENRO	Provincial Govt. of Pampanga
23. Felixberto P. Lansigan	SFMS	FMB
24. Cesar P. Odi	Forester I	RBCO, DENR
25. Hilton Hernando	Senior Weather Specialist	PRFFWC, PAGASA
26. Ezequiel A. Serrano	Project Officer	DILG
27. Natalie Victorino	FAV	DOF
28. Araceli Oredina	DMO IV	DENR C.O.
29. Erlinda Pajarillaga	SFMS	DENR Region III
30. Richard Evangelista	Planning Officer II	PPDO-Tarlac
31. Gonzalo D.V. Coloma	Aqua 2	BFAR-Region III
32. Jose Dimatulac	PM - V	MWSS
33. Evangeline Dacanay	PMO - A	MWSS
34. Mario B. Collado	Engineer IV	BSWM

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NAME	POSITION	OFFICE
35. Makihiko Otagawa	Team Leader/IWRM	JICA Study Team
36. Yukihiko Mizutani	Organization Institution Expert	JICA Study Team
37. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team
38. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
39. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
40. Eleazar Rupido	Secretary	JICA Study Team
41. Gladys Ida S. Albuero	Encoder	JICA Study Team
42. Isidra D. Peñaranda	OIC, Policy and Program Division	NWRB
43. Susan P. Abaño	Engineer IV	NWRB
44. Felisa M. Manlulu	Information Officer IV	NWRB
45. Francis B. Hilarie	Economist III	NWRB
46. Florimel R. Balbedina	Economist III	NWRB
47. Josephine R. Billones	Engineer II	NWRB
48. Josephine Abellana	Administrative Assistant I	NWRB



APPENDIX 12

Report on 6th Technical Working Group Meeting on September 29, 2010

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin**
6th Technical Working Group Meeting
Sulo Hotel, Quezon City
September 29, 2010

Highlights:

1. The meeting was called to order at approximately 9:15 am with Engr. Isidra Peñaranda, OIC of the NWRB Policy and Program Division, presiding. The meeting was held to present the proposed prioritization order of the projects and development scenario for IWRM of Pampanga River Basin with the interim results of preliminary Initial Environmental Evaluation (IEE) done for the projects as well as the proposed IWRM institutional setup. The list of attendees is shown in Annex.
2. Mr. Otagawa, JICA Study Team Leader presented the preliminary results of the IWRM Plan formulated by the Study Team for Pampanga River Basin. Several steps of the planning procedures for the formulation of the IWRM Plan had been undertaken such as the assessment of the present conditions, setting of planning framework, identification and classification of projects for IWRM, conduct of Pre-Feasibility Study on the principal projects for the Angat-Umiray water system and Candaba Flood Control scheme and the inter-sectoral evaluation/prioritization of the projects. Based on the process, the IWRM Plan and the Institutional Set-up Plan were formulated.

A total of eighty-two (82) projects have been identified as components of the IWRM Plan, of which 36 are on-going, 18 are proposed and 28 are conceptual projects. These projects which cover the several sectors of IWRM have been divided into Group A and Group B. Group A are the regular projects believed to be indispensable and have to be implemented regardless of the project cost while Group B are the projects for regional economic development and/or disaster mitigation which could be implemented by a special budget during specific periods. Projects under Group B have been subjected to evaluation for prioritization of the 44 projects identified using a scoring system based on 25 environmental points or criteria. The results of the project evaluation for the proposed and conceptual projects in Group B including the priority order and Investment Schedule in the short term (2011-2015), mid-term (2016-2020) and long term (2021-2025) were presented.

An Investment Plan would be prepared for both Group A and B projects based on the development scenarios that were set for each of the sectors. Before finalization of the said Plan, comments or suggestions of the TWG members and stakeholders on the development scenarios are being elicited.

He informed that a Stakeholders' Consultation meeting is scheduled on Oct. 13, 2010 in Pampanga and by the end of October, a Joint SC-TWG meeting is planned for the final proposal of the Study after which the Draft Final Report will be submitted sometime in December. Comments on the report will be incorporated in the submission of the Final Report in February 2011.

3. Mr. Mizutani, the organizational/institutional expert, reiterated his discussion during the 5th TWG meeting on the eleven strategic issues identified from the 5 key IWRM functions of the proposed organization for IWRM in the Pampanga River Basin and the actions

necessary for the empowerment of the institutional, organizational and financial aspects as countermeasures to these issues. He emphasized that IWRM will not function effectively if only one aspect will be empowered. All aspects should be empowered to some extent.

With the proposed creation of the River Basin Committee (RBC) under the Regional Development Council (RDC) III for the implementation of the IWRM Plan in Pampanga River Basin, he noted that the separation of policy making and coordination task from executing function as being exercised in the RDC III shall also apply to the RBC. Hence decision making lies with the RBC while actual implementation shall be done by national sector and line agencies and LGUs. Technical activities shall be supported by Technical Working Groups (TWGs). The establishment of Provincial River Basin Sub-committees is an option for provincial governments, if necessary.

Based on the FGD conducted with NEDA Region III sometime last month on the institutional set-up, there were issues and concerns raised as follows for which opinions of the members were being sought:

- Role of new RBC on: “To enforce Committee members to execute tasks determined by the RBC” in order to ensure that implementing organizations execute the decisions done by the RBC. Another alternative is for the Committee to be composed of representatives of implementing organizations;
- Options on the term of office of the RBC Chairman which is elected from among the Provincial Governors: same as RDC Chair or sharing among the Governors;
- Eligibility/representation of NGO to act as Co-chair of the RBC in consideration of its mandate;
- Options on the Vice-chairmanship of RBC: NWRB or RBCO/DENR;
- Chairmanship of the following TWGs:
 - Chair for TWG on IWRM Plan: NEDA Region III or NWRB
 - Chair for TWG on Water Supply, Sanitation and Sewerage sector: DILG
 - Chair for TWG on Fund Sources: DBM or NEDA Region III
- Responsibilities of the parties concerned in the TWGs under the new RBC;
- Use of respective funds of TWG members on relevant TWG activities and use of respective funds of Committee member organizations on the execution of tasks determined by the RBC on the functions specific to respective jurisdiction;
- Allocation of operation cost of RBC; and
- Options for the legalization of the institutionalization of the RBC to be able to define the functions and powers of the RBC and responsibilities of the members and to ensure the allocation of funds: issuance of RDC Sectoral Committee of informal resolutions (MOA) or drafting of a resolution in the form of an E.O. by the RDC that would be endorsed to the Office of the President.

4. Ms. Yoshioka, the Environmental and Social Considerations Expert, discussed the interim results of preliminary IEE of proposed projects for the IWRM Plan. The objective of the IEE is to assess if the implementation of any of the proposed projects under the IWRM Plan would create any adverse impacts on natural and social environments in the localities according to the Philippine's Environmental Impact Statement System (PEISS) and JICA Guidelines for Environmental and Social Considerations.

Projects that are covered by PEISS which defines the environmentally critical projects, the non-environmentally critical projects (NECP) in environmentally critical areas (ECA) and the NECP in Non-ECA (NECA) were identified which would require application for Environmental Compliance Certificate (ECC) or Certificate for Non-Coverage, as the case may be with the EMB-DENR to get permission for project implementation. These projects will need further consultation with EMB.

The potential adverse/positive impacts of the implementation of the projects in the IWRM Plan and its extent have been identified in the screening process in accordance with the JICA Guidelines for Environmental and Social Considerations. The characteristics of these impacts at each phase of the project cycle were analyzed in the scoping process taking into consideration the impact items for each of the 3 categories of social environment, natural environment and pollution. The impacts were rated with the following criteria:

- A + / - : Significant positive/negative impact expected
- B + / - : Some positive/negative impact is expected to some extent
- C + / - : Positive/negative impact is unknown in the scoping stage
- : Negative impact is expected

For projects evaluated with A- and B- a mitigation plan to mitigate/minimize the potential adverse impacts will be developed and the necessary monitoring items during the project cycle will be identified. This will be undertaken for the remaining period of the Study until Nov. 21, 2010.

She noted that for the conceptual plans, the results of screening/scoping are subject to change since its detailed components shall be determined in the following phases after the Study.

5. Comments/recommendations gathered from the above presentations were as follows:
 - The Chair appealed to give significant consideration on the sustainability of IWRM Plan implementation beyond the Study period in terms of the financial support on the RBC and the allocation for the MOOE component of the projects identified by JICA;
 - Ms. Mendoza of PAWB raised the following:
 - She commended the efforts of the Study Team on coming up with the prioritization of the projects. However, she suggested for the TWG members to have another meeting for its own validation on the prioritization of the different projects that were identified. The members were amenable in recognition of the importance of having the data validated prior to presentation in the upcoming Stakeholders' Consultation meeting.

- Regarding the organizational structure of the RBC presented by Mr. Mizutani, she suggested not to integrate monitoring of water quality with watershed environment under one TWG since water quality is with EMB and there is a possibility for either of the sectors to be neglected. Mr. Mizutani explained that prior to the FGD, the proposal of the Study Team was a separate TWG for each. However, during the FGD it was decided to integrate them under one TWG since the two sectors are coordinated and both are under the organization of DENR. Nevertheless, it can still be modified subject to others' opinions. In this regard, Ms. Mendoza expressed her intention to discuss the matter with representatives from EMB, FMB and RBCO and requested for the presence of a representative from NWRB during the meeting to explain the details of the structure.
- She inquired whether existing management bodies within the basin were considered such as the Protected Area Management Board (PAMB) or Water Quality Management Area (WQMA) Governing Board. Her concern was for the harmonization of the IWRM Plan with the existing plans of these bodies and the possibility of having the WQMA Board as part of the RBC. The Chair responded that existing structures such as the PAMB were already considered in the first phase of the Study and if watershed management councils will be created, it will definitely be considered in the planning and implementation of the programs. With regard to WQMA, it seems that Meycauayan-Marilao Obando WQMA is outside the basin.
- Mr. Collado of BSWM raised the following:
 - He suggested for every member of the TWG to review their agency's projects based on the criteria of the respective agencies to facilitate the validation of the projects in the next meeting;
 - He observed that in the organizational structure between NWRB, RBCO and RBO as presented by Mr. Mizutani, the Department of Agriculture (DA) was not included and NIA which is under the DA was placed under DENR. Considering that a big area of the Pampanga River Basin is agricultural, he suggested that DA and its attached agencies, which are monitoring the water quality on the agricultural aspect such as BFAR be included. In this regard, Mr. Mizutani responded that the organizational structure will be modified to include the DA. The Chair commented that perhaps the DA can co-chair or be one of the members of the TWG for Monitoring Water Quality since the Clean Water Act is spearheaded by DENR and DA.
- Ms. Dacanay of MWSS inquired regarding the data source for the P3.6 M investment cost reflected in the report for the Project Code MW-G-1: AWUAIP Phase 2 under Group A projects, which is inaccurate. Mr. Kitamura explained that the cost was taken from the project profile in the MWSS homepage and there was a typographical error since the figure should have been around P5M. Considering that the project is on-going with duration of 5 years, the cost up to 2010 was excluded and about 60% of total project cost was assumed necessary for 2011-2015. He wanted to correct the figure to be able to reflect the actual cost since the project is already on-going as pointed out by Ms. Dacanay, who will provide the actual data.

- Mr. Canlas of DILG III observed that there was a discrepancy on the data presented by Mr. Mizutani for the chairmanship of the DOH on the TWG for Monitoring Sanitation and Sewerage in the organizational structure of RBC and the chairmanship of the DILG for the water supply, sanitation and sewerage sector in the matrix on the role of LAs & LGUs for TWG Operation. He commented that water supply, sanitation and sewerage is not under the DILG since only water supply projects are under the Department and no monitoring is being done on the implementation of these projects. He suggested for the water supply to be headed by the LWUA or water districts (WDs) while the sanitation and sewerage to be under the DENR-EMB as it is the one monitoring the implementation of sewerage. The DILG should not be included in the TWG of the RBC but it can be a member of a sub-technical working committee that may be organized by LWUA under its chairmanship of the water supply.

Mr. Mizutani noted the discrepancy. He explained that the idea of the Study Team was for the DOH to chair the TWG for Monitoring Sanitation and Sewerage, however during the FGD it was raised that LWUA does not have the mandate for the management of such matter on the national or regional basis since it is a technical support only in financing organizations. Hence, it was modified to DILG but it may still be subject to change if there is hesitation to the idea.

The Chair added that the DILG has a big role to play in monitoring the access and coverage of water supply and sanitation where its regional offices will be of great use in providing the overall picture in the region in terms of water supply, sanitation and sewerage coverage which is needed for the sector assessment. Moreover, the focus of the project is the Pampanga River Basin where the water service providers are not only the WDs but also LGUs and Rural Water Supply and Sanitation Associations (RWSAs). Under the chairmanship of DILG, WDs can be members of the TWG and other concerned implementing agencies.

Mr. Canlas is amenable if the chairmanship of the DILG is for monitoring per se and not monitoring the implementation, operation and maintenance of water supply, sanitation and sewerage projects as indicated in the specific function of the TWG. Mr. Mizutani clarified that the intention is only for the chairmanship of the TWG since the members will be composed of implementing organizations.

- Mr. Diaz of DENR-RBCO inquired on which is a better legal option to support the institutionalization of the RBC since based on experience, it seems that the E.O. is the best legal basis. Mr. Mendoza of NEDA Region III replied that both options are the most practical ones to hasten the implementation of the plans and programs upon completion of the IWRM Study so the option on legislation which was raised during the FGD was not considered anymore.
- Mr. Garcia of NPC inquired on the location of the 4 automatic gauging stations to be established for the monitoring system for regulating water rights allocation in the Angat Dam. Mr. Mizutani responded that the locations are as follows: 1) just downstream of the main power plant of Angat dam power station; 2) downstream of Ipo Dam intake site; 3) upstream of Bustos dam and downstream of Ipo dam; and 4) downstream of Bustos Dam.

Relative to the proposal for the installation of a set of flow meters by NPC on the main and auxiliary power plant, Mr. Garcia informed that flow meters have already been installed by the NPC on the auxiliary units of the plant including the bypass and the low level outlet but still the actual flow from the auxiliary unit, i.e. the actual water being delivered to Ipo Dam is also the subject of conflict between NIA and MWSS. Hence, he felt the need to have a consensus on the manner of measurement of the release of water which is delivered from the Angat auxiliary units down to Ipo dam.

Mr. Mizutani explained that it was proposed since according to present information available, only the amount of flow is estimated by use of the water level. However, it will be reconfirmed if indeed there is a flow meter installed on the auxiliary power plant. If such is the case, he requested for NPC to release the recorded data to NWRB. On the other hand, he supported the opinion about the consensus on how to install the monitoring system; nevertheless this is only an initial proposal.

- Mr. Lansigan of FMB raised the following:
 - He inquired whether there is an existing Pampanga River Basin Management Council to manage the IWRM Plan aside from the RDC. The Chair responded that before there was an Upper Pampanga River Basin Management Council but it was not sustained so the RBC is proposed to be attached to the RDC that will oversee the implementation of the IWRM Plan.
 - He requested clarification on the manner FMB was presented in the organizational structure between NWRB, RBCO and RBO which was confusing. He informed that FMB is just a staff bureau of the DENR and not a line bureau. Mr. Mizutani explained that the chart was prepared by RBCO and would be modified to address the concern. The Chair recommended for the submission of the proper structure to Mr. Mizutani.

6. The Chair informed that further comments on the presentations and contents of Progress Report No. 2 will still be considered for submission.
7. The TWG Workshop for the Validation of the Prioritization of Project Components of the IWRM Plan is scheduled on October 7, 2010 at Sulo Hotel from 9 – 4 pm.
8. Engr. Abaño announced that a training for the Pampanga River Basin web page will be conducted for the TWG members on October 12, 2010 at Diliman Interactive Learning Center in U.P. from 8:30 – 12NN. Letters of invitation will be sent to the members.
9. There having no other matters to discussed, the meeting was adjourned at around 12:35 pm.

**The Study on Integrated Water Resources Management for Poverty Alleviation and
Economic Development in the Pampanga River Basin
6th Technical Working Group Meeting**

Sulo Hotel, Quezon City

September 29, 2010

Attendance Sheet

NAME	POSITION	OFFICE
1. Isidra D. Peñaranda	OIC, Plocy and Program Division	NWRB
2. Albin Carreon	Engineer V	DPWH Region III
3. Eugenio Diaz, Jr,	CE/SE	RBCO
4. Agustin C. Mendoza	OIC-Chief/Supervising Econ. Development Specialist	NEDA Reg. III
5. John T. Zapata	Economic Development Specialist II	NEDA Reg. III
6. Jesse C. Felizardo	Engineer IV	PMO-FCSEC, DPWH
7. Jose Algy B. Canlas	LGOO V	DILG Region III
8. Rosendo D. Panganiban	Sr. Engineer A	NIA Region III
9. Virgilio M. Garcia	Principal Hydrologist	NPC
10. Julita V. Santiago	Supervising Engineer	NIA-UPRIIS
11. Jayson M. Ibarra	Acting Supervising Engineer	NIA-UPRIIS
12. Mario Collado	Engineer IV	BSWM
13. Felixberto Lansigan	SFMS	FMB
14. Marlynn M. Mendoza	Chief EMS	PAWB
15. Jose Dimatulac	Project Manager	MWSS
16. Evangeline Dacanay	PMO - A	MWSS
17. Gonzalo Coloma	Aqua 2	BFAR Region III
18. Marcelino Rivera, Jr.	Engineer IV	EMB
19. Ma. Theresa L. Lalu	OIC, FRD	DENR Region III
20. Cecilia A. Arquilita	For. I	DENR Region III
21. Hilton Hernando	Senior Weather Specialist	PRFFWC, PAGASA
22. Reynaldo Tabela	Planning Officer I	PPDO Tarlac
23. Arthur R. dela Cruz	Principal Engineer	NIA
24. Makihiko Otogawa	Team Leader/IWRM	JICA Study Team
25. Tadanori Kitamura	Deputy Team Leader/ Water Resources Development and Management Planning	JICA Study Team
26. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team
27. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team
28. Yayoi Yoshioka	Environmental and Social Considerations Expert	JICA Study Team
29. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
30. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
31. Eleazar Rupido	Secretary	JICA Study Team
32. Gladys Ida S. Alburo	Encoder	JICA Study Team
33. Susan P. Abaño	Engineer IV	NWRB
34. Felisa M. Manlulu	Information Officer IV	NWRB
35. Francis B. Hilarie	Economist III	NWRB
36. Florimel R. Balbedina	Economist III	NWRB
37. Josephine Abellana	Administrative Assistant I	NWRB

APPENDIX 13

Report on Technical Working Group Workshop on October 7, 2010

**TWG Workshop for Prioritization of Project Components of the IWRM Plan
Study on IWRM for Poverty Alleviation and Economic Development
in the Pampanga River Basin**
Sulo Hotel, Quezon City
October 7, 2010

Background

The one-day TWG workshop for the prioritization of project components of the IWRM Plan was organized as a result of the agreement reached during the 6th TWG meeting held on September 29, 2010 where the proposed projects prioritization for IWRM of the Pampanga River Basin was presented by the JICA Study Team. Considering that the various agencies that comprise the TWG may have different criteria and priorities from that presented by the Study Team, a consensus was arrived for the TWG members to be able to validate the prioritization of the different projects that were identified. The importance of having the data validated prior to presentation in the upcoming Stakeholders' Consultation meeting on October 13, 2010 was likewise recognized and considered.

Objectives

The TWG Workshop aims to:

- Validate and/or improve the selection criteria for prioritization of projects as components of the IWRM Plan; and
- Validate and/or improve the prioritization of projects through Delphi technique

Attendance

Thirteen (13) TWG members attended the workshop. Also in attendance are the JICA Study Team Experts with its support staff and selected NWRB counterpart staff. List of participants is attached as Annex A.

Workshop Orientation

Ms. Emadelyn M. Quiñones, the Water Environment/Watershed Management Expert and JICA Study Team Coordinator, explained the workshop mechanics. There will be 2 workshops. Workshop I is for the validation/revision of the projects and prioritization criteria and scoring system while Workshop II is for the validation/revision of prioritization of projects under Group B. The scoring under Workshop II will be conducted in two rounds.

There will be 3 groups. The workshop grouping is attached as Annex B. The Study Team Expert and NWRB tandem will act as facilitators in the assigned group and each group will be provided with encoders who will key-in the group's outputs into the Scoring Matrix using each group assigned computer. Engr. Francis Funa, GIS expert of the Study Team, will act as Chief Encoder who will collate and integrate the outputs of the 3 groups.

The projects' profile, detailed criterion for scoring and the results of the project evaluation for the proposed and conceptual projects in Group B, including the priority order

and Implementation Schedule in the short term (2011-2015), mid-term (2016-2020) and long term (2021-2025) periods are provided in the discussion materials for the workshop.

Workshop Proper

Workshop I: Criteria and Scoring System for Project Prioritization

Mr. Otagawa, JICA Study Team Leader discussed briefly the criteria on project evaluation that was applied in the Study. He explained that of the eighty-two (82) projects that have been identified as components of the IWRM Plan, 36 are on-going, 18 are proposed and 28 are conceptual projects. These projects, which cover several sectors of IWRM have been divided into Group A and Group B. Group A are the regular projects believed to be indispensable and have to be implemented regardless of the project cost while Group B are the projects for regional economic development and/or disaster mitigation which could be implemented by a special budget during specific periods.

Projects under Group A are out of the scope of evaluation of the projects while projects under Group B have been subjected to evaluation for prioritization of the 32 proposed and/or conceptual projects identified using a scoring system based on 25 environmental points or criteria. Thus, the priority orders of the projects for implementation under Group B were proposed in accordance with the results of evaluation.

He discussed in detail the evaluation criteria from the viewpoint of six categories, namely a) viability of the project; b) enhanced livelihood; c) improved quality of life; d) decentralized development; e) sustained ecosystem and; f) empowered people. The criteria for evaluation from these six categories total to 25 items and the projects were evaluated for each of the criteria using a scoring system that range from 1-3. The projects which may be expected to attain the high performance in the criterion were rated with a score of 3 while those which would attain a lower performance were scored with 2 or 1. He showed an example of the scoring done for two projects: AI-P-02: Balog-Balog Multipurpose Project Phase II and WS-C-01: Upland Development Program.

Based from his presentation, the ff. issues and concerns were raised:

- Mr. Hernando of PRFFWC, PAGASA inquired on the reason for the absence of score 0 as had been previously presented during the last TWG meeting. Mr. Otagawa explained that there was a change in the scoring due to technical requirements in getting the average using geometric mean such that from the previous score that ranges from 0-2 it was changed to 1-3.
- Deputy Director Gaerlan of RBCO raised a query on how can projects be evaluated professionally and intelligently under the viability of the project if there are no figures for EIRR. Mr. Otagawa responded that the EIRR is indicated in the project profile which was estimated from a previous study. If there is no figure for the EIRR it means that there is no previous study where the EIRR can be estimated and in this case, the project has a disadvantage so the score that can be given at the most is 1.
- Engr. Peñaranda of NWRB raised two concerns:

- She inquired on what is the range of the EIRR for a project to be considered economically viable. Mr. Otagawa responded that as described in the discussion material, the score is 3 for an EIRR of above 15%, score is 2 for an EIRR ranging from 9-15% and score is 1 if there is no EIRR or it is below 9%.
- She inquired if a capacity development program be subjected to the same criteria as that of developmental projects. Mr. Otagawa responded that it is an experiment to evaluate the various kinds of projects with different nature that are components of the IWRM Plan based on the same criteria. It needs to be tried.
- Mr. Felizardo of PMO-FCSEC, DPWH commented that if the project does not have an EIRR it means that there is no feasibility study yet. In this regard, he inquired how conceptual and proposed projects can be intelligently scored. Mr. Otagawa responded that for these projects, the scoring will be based on the contents of the project. Evaluation would be difficult if one is not familiar with the project.
- Mr. Collado of BSWM inquired on the possibility of evaluating project A1-C-01: New Construction of Small Scale Irrigation Projects by component and not as a whole. He noted that the project has several components such as SWIP, small diversion dam, small farm reservoir and shallow tube well which differs in construction sites so evaluation must be site-specific. Mr. Kitamura responded that evaluating the project as a whole is better for now since a Feasibility Study (FS) may be needed to be able to make a detailed evaluation by component and determine which component to be implemented. Mr. Otagawa concurred with the idea since this is only a conceptual project which is still subject to the FS for Master Plan Study prior to implementation.

The group agreed to adopt the criteria presented by Mr. Otagawa and evaluate the projects based on the criteria presented.

Workshop II: Validation/Revision of Prioritization of Projects under Group B

The workshop discussion was for the review and evaluation of the projects based on the 25 environmental points or criteria presented by Mr. Otagawa. The objective is to validate the scores given by Mr. Otagawa for the projects that cover the following sectors: (1) Flood and Sediment Disaster Management; (2) Agriculture/Irrigation and Fishery Development; (3) Municipal Water Supply, Sanitation and Sewerage; (4) Watershed Management; (5) Water-Related Environmental Management; and (6) Inter-Sector for Water Resources Management or the Sector for "Others". The participants were asked to validate only the projects which they are familiar with and only the criteria where there is a variation in opinion.

Prior to the evaluation, the participants raised some clarifications/queries on the projects to be evaluated. Among them are the following:

- Engr. Peñaranda raised the ff. queries regarding the project MW-P-04: Water Supply Development of New Frontier Area in Clark Special Economic Zone:
 - She inquired if the project will cater to the proposed expansion of the existing locators of Clark Development Corporation using surface water since there are existing golf courses that are not operational due to water constraints. Mr. Kitamura explained that the project is basically for the development of the new frontier area which is the northern part of the existing Clark and not the existing area although if there will be possible water sources perhaps, it can cater to the existing area as well.
 - She inquired if a sewerage facility will be incorporated in the proposal or it will be a separate program. Mr. Kitamura responded that the Master Plan includes water supply component as well as a sewerage system.
- Mr. Canlas of DILG Region III raised the ff:
 - He inquired on the reason for including the proposed projects which have no expected funding source since its implementation is indefinite yet. Mr. Otagawa explained that the components of the IWRM Plan are the necessary projects regardless of whether there is a funding source or not, while for projects without budgetary allocation, an Investment Program will be proposed.
 - Regarding project FL-P-02 Bacolor Comprehensive Rehabilitation Master Plan, he informed that the Plan was already finished in 2009 and has been allotted P1 billion during the time of former Pres. Arroyo as it had been endorsed by Congressman Dong Gonzales in Congress. Mr. Otagawa responded that he has discussed the project with DPWH Region III as the implementing agency and he learned that the Master Plan is still lacking in content as some information are not detailed. Furthermore, it seems that the DPWH is not very keen on the project.
 - He inquired if the project FL-C-02: Community Based Flood Early Warning System for Provinces of Pampanga, Tarlac and N.E. is the same as the one constructed by PRFFWC in Pampanga. Mr. Hernando clarified that it is different since the one constructed by PRFFWC is covering the basin as a whole and monitoring specifically the main Pampanga River whereas this conceptual project will be focusing at the tributaries.
- Mr. Garcia of NPC commented regarding the cost and implementation period for project FL-C-02: Community Based Flood Early Warning System for Provinces of Pampanga, Tarlac and N.E. Considering the simplicity of the project, the estimated cost of P75M is too costly in comparison with the community-based project completed in Bulacan and it could be implemented earlier than its target implementation in 2016. The benefits can be gained for a longer period of time if it can be implemented earlier. Moreover, Mr. Hernando recommended to give the project more functionality by not limiting its use to flood alone but to utilize the data that can be monitored for research development, infrastructure, etc. Mr. Otagawa concurred with the suggestion.

- Mr. Hernando informed that the Provincial Disaster Coordinating Council (PDCC) of Nueva Ecija is now considering the proposal for the community-based flood early warning system which will be discussed with the Governor. He shared that there is a new law where the PDCC has been changed to the Disaster Risk Reduction Management Office and its IRR is currently underway.
- Mr. Collado commented on the project WS-C-01: Upland Development Program. If the area is located upstream of O'Donnell River and Porac-Gumain area, the project will not be feasible since the area is covered with lahar. Establishment of agro-forestry will be very difficult as the soil is prone to erosion. An alternative site would be in Nueva Ecija (Pantabangan) or Bulacan which is also a watershed uphill but the soil is quite different from the Porac-Gumain-O'Donnell area. Ms. Quiñones took note of the information and will consider it in the final report. Nevertheless, she emphasized that part of the project is the identification of the most appropriate upland technology that has been tested in other areas that are highly erosive. If it is not feasible, other areas would be selected. Aside from the Porac-Gumain-O'Donnell area, there are other areas in the watershed that have been targeted for the project.

After the discussion, the participants replicated the evaluation done by Mr. Otagawa by project sets. Project Set 1 is for the Agriculture/Irrigation and Fishery projects while Project Set 2 is for the Municipal Water/Flood Control/Watershed Management projects. On the other hand, Project Set 3 is for the Water-Related Environmental Management/Inter-sectoral projects. Using the Scoring Matrix, the participants revised the scores of the projects for each set, as they see fit. Revised scores were placed in the blank above the scoring made by Mr. Otagawa. The new scores were incorporated and the total scores were collated by the encoders for each project set. The scores for Project Sets 1, 2 and 3 were collated and integrated by the Chief Encoder using geometric mean to arrive at the final scores.

The scoring matrix that reflects the changes made by the participants is attached as Annex C while the resulting changes in the priority order of the projects is attached as Annex D.

Summary and Integration

Ms. Quiñones made a recapitulation on the workshop that transpired. It has been observed from the scoring matrix that not all projects have been evaluated since the participants were given the option to evaluate only the projects that they are familiar with; hence, the result has been quite insignificant. The big difference in ranking was noted only for four projects, namely: a) A1-C-02 Introduction of Water Saving Irrigation Technology; b) A1-P-03 Sector Loan of Irrigation Facilities; c) A1-P-01 Balintongan Reservoir Multipurpose Project (BRMP); and d) MP-C-01 Septage Treatment and Disposal Facility. There was a considerable decline in rank in the order of priority for these projects while for the rest of the projects, the order of priority was not much affected.

The participants had reservations on the results. It was felt that the result would have been different if all the projects have been rated and if a blank scoring sheet had been used since the rating had somehow been influenced by the given rating of Mr. Otagawa. Some may not necessarily concur with the rating of Mr. Otagawa but due to inadequate knowledge

on the project and the limited time, the rating of Mr. Otogawa was just adopted. As a result, the rating done for selective projects does not necessarily represent the opinion of the whole group.

In this regard, instead of proceeding to Round 2 of the workshop where the participants will repeat the validation process for the final and official scoring results, it was agreed due to lack of time to provide the participants and the rest of the TWG members who were not able to attend the workshop, with a blank scoring sheet through email to be accomplished and submitted by Monday, October 11, 2010 at 12 NN. All the 32 projects will be rated. Any queries on the project can be raised to the experts of the Study Team through email or phone call at NWRB. If no accomplished form is sent back, the participant's score during the workshop will be the one to be considered.

Closing Remarks

Mr. Otogawa explained that the scoring done during the workshop was only one of the methodologies in the formulation of the IWRM Plan for Pampanga River Basin. The methodology may not be perfect but considering that the formulation of the IWRM Plan entails a spiral stage of development approach, he expressed hope that the methodology will be improved over time by the implementors of the IWRM Plan as it is the country's Plan for the Pampanga River Basin.

**TWG Workshop for Prioritization of Project Components of the IWRM Plan
Study on IWRM for Poverty Alleviation and Economic Development in the Pampanga
River Basin**

*Sulo Hotel, Quezon City
October 7, 2010*

Attendance Sheet

NAME	POSITION	OFFICE
1. Noel Gaerlan	Deputy Director	RBCO, DENR
2. John T. Zapata	Economic Development Specialist II	NEDA Reg. III
3. Jesse C. Felizardo	Engineer IV	PMO-FCSEC, DPWH
4. Jose Algy B. Canlas	LGOO V	DILG Region III
5. Virgilio M. Garcia	Principal Hydrologist	NPC
6. Mario Collado	Engineer IV	BSWM
7. Marlynn M. Mendoza	Chief EMS	PAWB
8. Evangeline Dacanay	PMO - A	MWSS
9. Hilton Hernando	Senior Weather Specialist	PRFFWC, PAGASA
10. Ma. Lynn Delos Santos	Sr. SRS	Phivolcs
11. Arthur R. dela Cruz	Principal Engineer	NIA
12. Richard Evangelista	P.O.II	PPDO Tarlac
13. Antonio Caedac	SEMS	Bulacan ENRO
14. Makihiko Otagawa	Team Leader/IWRM	JICA Study Team
15. Tadanori Kitamura	Deputy Team Leader/ Water Resources Development and Management Planning	JICA Study Team
16. Yukihiro Mizutani	Organization Institution Expert	JICA Study Team
17. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team
18. Yayoi Yoshioka	Environmental and Social Considerations Expert	JICA Study Team
19. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
20. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
21. Eleazar Rupido	Secretary	JICA Study Team
22. Gladys Ida S. Alburo	Encoder	JICA Study Team
23. Isidra D. Peñaranda	OIC, Policy and Program Division	NWRB
24. Susan P. Abaño	Engineer IV	NWRB
25. Felisa M. Manlulu	Information Officer IV	NWRB
26. Emmie L. Ruales	Engineer IV	NWRB
27. Francis B. Hilarie	Economist III	NWRB
28. Florimel R. Balbedina	Economist III	NWRB
29. Josephine R. Billones	Engineer II	NWRB
30. Ferdie I. Billones	Engineer III	NWRB
31. Higinio C. Mangosing, Jr.	Engineer IV	NWRB
32. Milagros M. Velasco	Engineer II	NWRB
33. Ma. Cristina B. Arellano	Economist II	NWRB
37. Josephine A. Abellana	Administrative Assistant I	NWRB

WORKSHOP GROUPING

GROUP 1:

Members: John Zapata – NEDA Region III
Virgilio Garcia – NPC
Arthur dela Cruz – NIA
Jose Algy B. Canlas – DILG Region III

Facilitators: Tadanori Kitamura – JICA Study Team
Takeshi Ikematsu – JICA Study Team
Susan P. Abaño – NWRB
Higino C. Mangosing, Jr. - NWRB

Encoders: Gladys Alburo – JICA Study Team
Ferdie I. Billones - NWRB

GROUP 2:

Members: Richard Evangelista – PPDO Tarlac
Marilynn Mendoza - PAWB
Evangeline Dacanay – MWSS
Jesse Felizardo - PMO-FCSEC, DPWH
Lynn Delos Santos - Philvolcs

Facilitators: Makihiko Otagawa – JICA Study Team
Yayoi Yoshioka – JICA Study Team
Emmie L. Ruales – NWRB
Francis B. Hilarie - NWRB

Encoders: Eleazar Rupido – JICA Study Team
Ma. Cristina B. Arellano - NWRB

GROUP 3:

Members: Noel Gaerlan – RBCO, DENR
Mario Collado - BSWM
Hilton Hernando – PRFFWC, PAGASA
Antonio Cacdac - Bulacan ENRO

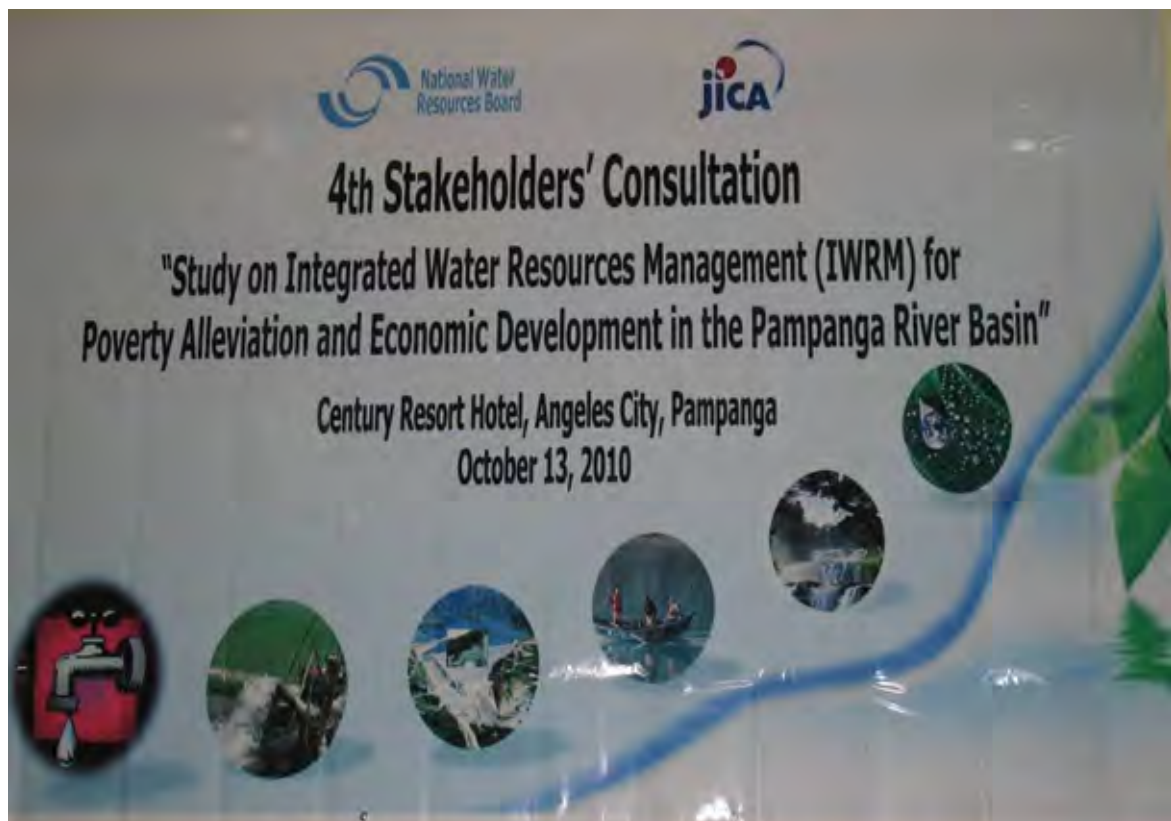
Facilitators: Emadelyn M. Quiñones – JICA Study Team
Isidra D. Peñaranda – NWRB
Felisa M. Manlulu - NWRB

Encoders: Josephine R. Billones – NWRB
Milagros M. Velasco - NWRB

APPENDIX 14

Report on 4th Stakeholders' Consultation Seminar on October 13, 2010

CONSULTATION REPORT



ORGANIZATION

The Fourth Stakeholders' Consultation on the Japan International Cooperation Agency (JICA) - assisted "Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin" was held on October 13, 2010 at the Century Resort Hotel in Balibago, Angeles City, Pampanga.

The National Water Resources Board (NWRB) as the overall policy and coordinating body in the water sector and lead agency in the implementation of IWRM in the country, with JICA consultants conducted the Fourth Stakeholders' Consultation as part of the on-going 2-year Study to formulate the IWRM Plan for Poverty Alleviation and Economic Development in the Pampanga River Basin, under the development study programme of JICA which started in February 2009.

The Pampanga River Basin is the fourth largest river basin in the Philippines with about eight million people who rely on water for various economic uses. The IWRM Study was commissioned in response to the need to manage the multiple uses of the basin's water resources in a sustainable manner without compromising the life-sustaining functions of vital ecosystems. As the Study is about to end, the formulation of the IWRM Plan nears its completion with the proposed institutional set-up for the IWRM implementation in the Pampanga River Basin.

With the stakeholder consultation being an integral part of the IWRM planning process, said consultation was the last of the series of stakeholder consultations conducted for the Study. The First Stakeholders' Consultation was held in May 2009 for the discussion of objectives, methodologies, schedules and all other initial arrangements for execution of the Study as described in the Inception Report while the Second Stakeholders' Consultation was held in October 2009 to deliberate and discuss among stakeholders the main findings by the JICA Study Team as embodied in the Progress Report No. 1. On the other hand, the Third Stakeholders' Consultation was held on March 11, 2010 to discuss the contents of the Interim Report, results of preliminary study on the River Basin Organization (RBO) for execution of IWRM in the Pampanga River Basin and status of the web-page being developed for the Study as well as validate with the stakeholders the issues of IWRM; visions, objectives and sector goals of IWRM Plan and the water-related programs and projects which should be implemented as components of the IWRM Plan in the Pampanga River Basin.

These stakeholders' consultations and other consensus building activities that were undertaken during the Study period were conducted with the end in view of refining the contents of the IWRM Plan and ensure stakeholder ownership of the Plan that is about to be finalized.

OBJECTIVES

The one-day consultation-workshop was conducted to:

- a) Present the methodologies for the formulation of the development scenarios, implementation program and investment program of the water-related projects proposed as components of the IWRM Plan for Pampanga River Basin by the JICA Study Team;
- b) Discuss the approach and framework for the proposed institutional set-up plan for IWRM for Pampanga River Basin;
- c) Present the web-page developed for the Pampanga River Basin Study; and
- d) Review and validate with the stakeholders the development scenarios, implementation program and investment program targeted for the short-term, mid-term and long-term.

ATTENDANCE

A total of sixty-seven (62) participants attended the consultation. The participants represented various sectors that include central and regional government agencies, provincial and city governments as well as non-government organizations. List of participants is attached as Annex A. The directory of participants is attached as Annex B.

The list of the consultants from the JICA Study Team and selected NWRB staff that were present is attached as Annex C.

PROGRAM

The program for the seminar is attached as Annex D. Ms. Emadelyn M. Quiñones, the Water Environment/Watershed Management Expert and JICA Study Team Coordinator served as the emcee and moderator during the consultation while Ms. Felisa M. Manlulu, NWRB Counterpart Coordinator provided the activities for the energizer/ice breaker.

A. OPENING CEREMONIES

The singing of the National Anthem was led by Engr. Josephine Billones, NWRB counterpart staff while the invocation was given by Ms. Felisa M. Manlulu. The introduction of participants and members of the JICA Study Team and NWRB Counterpart staff was made by Ms. Quiñones.

B. WELCOME REMARKS

Engr. Susan P. Abaño, NWRB Counterpart Deputy Team Leader welcomed the participants on behalf of NWRB Deputy Executive Director Nathaniel C. Santos, who could not make it because he attended the Southeast Asian Water Forum at ADB with Engr. Isidra Peñaranda, the NWRB Counterpart Team Leader. As the project is nearing completion, she expressed gratitude to the JICA Study Team for the efforts in coming up with the proposed prioritization of projects, development scenarios and institutional set-up for IWRM of the Pampanga River Basin. She mentioned that the Stakeholders' consultation, being held primarily for the validation of the outputs of the Study Team may probably be the last consultation for the Study. She called for the cooperation of everyone to work towards the goal of alleviating poverty and economic development in the Pampanga River Basin and she looked forward to a fruitful discussion for the day.

C. PROGRAM ORIENTATION

The program orientation was a discussion on the overview of the stakeholders' consultation, objectives, schedule of activities, methodologies and expected outputs. Ms. Quiñones explained the workshop mechanics. There will be five sectoral groupings for the workshop. The workshop will be a free-wheeling discussion on the development scenarios, implementation program and investment program of the water-related projects proposed as components of the IWRM Plan for the Pampanga River Basin by the JICA Study Team targeted for the short-term, mid-term and long-term period. The discussion materials are included in the kit.

Each group will elect a rapporteur who will lead the discussion and report the output of the group during the plenary session. NWRB counterpart staffs will sit in each group to act as facilitator and encoder during the discussion. Any queries on the topics of discussion can be raised to the experts from the Study Team who will observe the discussion.

D. PRESENTATIONS

- Mr. Otogawa, Study Team Leader discussed the final results on the principal outputs of the IWRM Plan as follows: 1) list of projects to be implemented for IWRM; 2) priority order of projects to be implemented; 3) implementation program of the projects; 4) investment program for implementation of the projects; and 5) development scenario of IWRM.

Of the total of eighty-two (82) projects that have been identified as components of the IWRM Plan, 36 are on-going, 18 are proposed and 28 are conceptual projects developed by the Study Team. These projects which cover the several sectors of

IWRM have been divided into Group A and Group B. Group A are the regular projects believed to be indispensable and have to be implemented regardless of the project cost while Group B are the projects for regional economic development and/or disaster mitigation which could be implemented by a special budget during specific periods. Projects under Group A are out of the scope of evaluation of the projects while projects under Group B have been subjected to evaluation for prioritization of the 32 proposed and/or conceptual projects identified using a scoring system based on 25 environmental points or criteria. The results of the classification of the projects, project evaluation for the proposed and conceptual projects in Group B including the priority order as well as the implementation schedule and investment schedule in the short term (2011-2015), mid-term (2016-2020) and long term (2021-2025) were presented. The ceiling of the project investment cost for Group B projects was about P31-33 billion.

He explained that the target development scenarios for projects under Group A were set first before the implementation schedule of the projects have been programmed to attain the development scenarios. On the other hand, the development scenarios for projects under Group B were delineated after the phased implementation schedule of the projects has been determined.

He requested for the comments and suggestions of the stakeholders on the proposed development scenarios and likewise assured that the Study Team will do its utmost effort to revise it, if necessary, based on the comments and suggestions that will be received.

The Powerpoint presentation is attached as Annex E.

- Mr. Mizutani, the organizational/institutional expert, briefed the participants on the basic Study approach and framework for the proposed institutional set-up plan for IWRM of the Pampanga River Basin with a focus on the design of the River Basin Committee (RBC) and the potential fund sources for sustainable IWRM.

The approach of the Study was the identification of the strategic issues based on gap analysis between national and regional policy objectives and prevailing problems and needs at site after which countermeasures were prepared as actions to the issues. Eleven strategic issues were identified from the five key IWRM functions of the proposed organization for IWRM in the Pampanga River Basin and the actions necessary for the empowerment of the institutional, organizational and financial aspects as countermeasures to these issues. He emphasized that IWRM will not function well if only one aspect will be empowered. All aspects should be empowered to some extent.

He informed that the proposed creation of the River Basin Committee (RBC) under the Regional Development Council (RDC) III for the implementation of the IWRM Plan in the Pampanga River Basin was one of the suggestions raised during

the FGD held on the matter which was accepted by the TWG members. The RBC shall be a decision making body at the level of the committee supported by a Secretariat and Technical Working Groups while actual implementation shall be done by national sector/line agencies (LAs) and LGUs. The establishment of Provincial River Basin Sub-committees is an option for provincial governments, if necessary.

The legal instruments being considered necessary to define the functions of RBC and responsibilities of members as well as to have sustainable funding are for RDC Sectoral Committee to issue informal resolution (MOA) or for RDC to draft a resolution in the form of Executive Order for endorsement to the Office of the President but this will still be subject for discussion.

Potential fund sources being considered for the conduct of specific tasks and activities for the IWRM of the Pampanga River Basin are the annual O & M budget for the river facilities and the revenue in General Accounts (LAs and LGUs). On the other hand, potential fund sources to operate the RBC are the allocation of the revenue of the General Accounts in the form of LGUs' royalties and NWRB's Annual Water Charge for water permit and the water users' association fee of LGUs. However, at the initial stage, while the operational fund of the RBC is unclear, organizations will have to share.

The Powerpoint presentation is attached as Annex F.

- Engr. Francis Funa, the GIS Expert, presented the web page that has been developed for the Study. He explained the key features of the web page which is basically a tool for information sharing and coordination among the individuals and agencies involved in the Study. It is already functional except for some newly requested features which are being added. It can be temporarily accessed at the official website of NWRB linked to the URL of prb-iwrn.com but the direction is towards server migration for full integration to the NWRB website. It is targeted for completion before the Study Team goes on a break by first week of November.

He appealed to the participants to provide better logos of respective agencies and to check the correctness of the website address provided. Stakeholders will be provided with their accounts through email together with their temporary password and instructions on how this can be changed to personal password and additional information on how to use the website. There will be a separate account for TWG members.

E. OPEN FORUM

The open forum was the venue for the participants to raise questions and further clarification on the matters discussed during the presentations. The issues/queries raised during the open forums were as follows:

- Mr. Bolinao of Palayan City Government inquired as to whether the Study Team came up with a review of the Medium Term Development Plan (MTDP) of each province within the river basin since he observed that from the list and profile of the projects presented in the discussion materials, the source of information are mostly from the national government line agencies and yet in the proposed institutional set-up of the RBC, the governors are on the frontline as members of the RBC and in the implementation of the programs. As such, the Governors will definitely be looking for the list of programs and projects in its province as embodied in their MTDP. Moreover, he observed that some projects were already identified in previous consultations but were not reflected in the Study. He requested for consideration of the following: 1) Cabo Holistic Development Project; 2) Tabuating River Irrigation System and 3) Sierra Madre Watershed Development Program. The latter project is of great importance considering that Sierra Madre is the watershed of the whole Pampanga River Basin.

Mr. Otagawa responded that the same list of projects was the subject of review and validation during the 3rd Stakeholders' Consultation. Nevertheless he apologized if there were projects that were missed and may not be incorporated due to time constraint as the Draft Final Report has to be completed by mid- November. But he would still review the documents that would be provided by Mr. Bolinao and make the utmost effort to consider it.

- Mr. Fuentes requested for a re-evaluation of their agency's project namely, MW-P-04: Water Supply for Development of New Frontier Area in Clark Special Economic Zone, which was initially intended to provide water supply in Clark but the coverage has expanded to the different municipalities and cities of Angeles City, Mabalacat, Bamban and Capaz to be recipients of the whole bulk water supply project as a result of the feasibility study conducted by World Bank. From the expansion of coverage, the original implementation schedule of 2025 has moved to 2013. He requested for re-evaluation considering that it has a bearing on the prioritization of the project that is going to be a major undertaking not only in Clark but for the rest of Central Luzon but currently has one of the lowest priorities in the list of projects of the Study under Group B.

Mr. Otagawa responded that if it is the case, then it will be revised.

- Mr. Garcia of NPC inquired on how soon the RBC will materialize after the Study has been completed. Mr. Otagawa responded that the matter will be further discussed during the upcoming Steering Committee meeting, nevertheless, it is

fundamentally dependent on the Government of the Philippines since the Study Team may only propose but the actual implementation needs to be done by the Government

Ms. Quinoñes commented that based on the presentation of Mr. Mizutani, the initiative would have to come from the RDC for the RBC to materialize.

- Mr. de Jesus of TCWD inquired if the creation of the RBO would require an act of Congress. Mr. Mizutani responded that the legal arrangement will depend on the will of the local government and all stakeholders, particularly NEDA Region III and the Governors. It can operate without any legal arrangement if the RDC will make a MOA or Resolution but the issue is its extent of effectiveness to bind the members. An E.O. may be more binding than a MOA but a Congressional Act is the most binding because it will also address budgetary concerns. It really depends on the necessity although there is doubt on the applicability of a Republic Act in this case since the structure of the RBC is quite different from the LLDA or other RBOs in the country.
- Engr. Manalo of DPWH Reg. III expressed the same concern on the legal arrangement for the RBC since in the country, sustainability is a big issue in the programs of the Government such as their experience from the implementation of the Pampanga River Control System where the flood control facilities were not sustained. In this regard, she suggested for the enactment of the law to be part of the recommendation of the Study for the institutional set-up, thus sustainability will be derived in the future. She shared that the Central Luzon Block, a body composed of newly elected Congressmen and chaired by Congresswoman Anna York Bondoc, will be of help in this endeavor. The output of the Study will be a good material for them to be able to enact a law that will address the sustainability of the lined up programs and its integration in the MTDP.
- OIC-Exec. Dir. Pagdilao of PCAMMRD-DOST raised three concerns as follows:
 - He inquired on how the projects under Group A and B can be aligned to IWRM. Mr. Otagawa responded that the projects can be aligned to IWRM once the RBC has been established as the RBO in the basin.
 - He inquired on where we are in terms of projects under Group A and where are we heading for. Mr. Otagawa responded that we are now at the beginning of implementation of IWRM as this is a new approach. Previously, all the water-related activities are being done independently by the line agencies or LGUs without integration. Considering that the activities in the sectors are closely related to each other, the approach of the Study is towards IWRM. He expressed hope that with the establishment of RBC, the proposed IWRM Plan will materialize and a more rational way of selection for projects will be undertaken based from the result of the Study.

- He inquired if there is a result-based monitoring system that will monitor the progress of the projects even after the implementation of the project. Mr. Otagawa responded that under the proposed institutional set-up plan, the RBC and the TWGs in cooperation with the LAs and LGUs shall monitor the project implementation.

F. WORKSHOP

Participants were divided into five (5) groups representing the following sectors: (1) Flood and Sediment Disaster Management; (2) Agriculture/Irrigation and Fishery Development; (3) Municipal Water Supply, Sanitation and Sewerage; (4) Watershed Management; and (5) Water-Related Environmental Management. The workshop groupings for the five sectors are attached as Annex G.

The workshop discussion dealt on the validation by the participants on the development scenarios and the implementation program and investment program of the water-related projects proposed as components of the IWRM Plan for the Pampanga River Basin targeted for the short-term, mid-term and long-term period.

The outputs of the different groups are as follows:

Group I: Flood and Sediment Disaster Management

The short-listed outputs of the group in the order of priority are as follows:

1. Integration of IWRM in the Department of Education (DepEd) curriculum;

The objective is to inculcate awareness in the young minds of the students about the IWRM concept. This will be coordinated with the Regional Office of the DepEd.
2. Inclusion of climate change adaptation as a component in the study of infrastructure-related matters;
3. Integration of completed PHUMP 1 & 2 in the maintenance and rehabilitation works of flood control facilities;
4. Rephrase the project name for FL-C-01: Pampanga Delta Development Project Flood Component with Usage of Candaba Swamp as Flood Retarding Basin to “Pampanga Delta Project Flood Control Development”;

This is in order not to misconstrue the retarding basin at Candaba as solely for the effect of flooding in the periphery but rather extending up to the ridges of Sierra Madre and Aurora province.

5. Inclusion of Sierra Madre watershed in the Aurora waterways.

It is proposed that the Study Team re-consider the plan given the several floodings in Aurora that affect the neighboring provinces of Nueva Ecija. and Pampanga and considering that Aurora is the source of water of Nueva Ecija dams.

Group 2: Municipal Water Supply, Sanitation and Sewerage

The development scenarios for projects under Group A were acceptable except for project no. 3: Expansion of Level 3 Municipal Supply System. Levels I and II have been included in the scenario and the coverage of water supply system in the urban areas by 2025 have been increased from 80% to 100% (80% for Level III and 20% for Levels I and II)

On the other hand, the development scenarios for projects under Group B are acceptable except for the following projects:

- Construction/Provision of Septage Treatment and Disposal Facilities: Target year for provision of septage treatment services and disposal facilities to about 82% of the urban area in the cited ten (10) principal cities/municipalities have been changed from 2020 to 2025 (from mid-term to long-term period)
- Development of Water Supply System for Clark Special Economic Zone: Target year for the completion of the proposed bulk water supply system for the Clark Special Economic Zone was moved from 2025 to 2013 and needs to be prioritized

Group 3: Water-Related Environmental Management

Based on the development scenario, the three identified on-going projects under Group A have to be prioritized to be sustainable.

On the other hand, two projects have been identified under Group B which the group felt should be given priority but have been evaluated under the Study to be of less priority. These are the following. projects:

- WQ-C-01: Capacity Development to Upgrade WQ Monitoring and Data Management Program

Water quality monitoring and data management are very crucial in the issuance of permits and certificates and as such the project should be given priority.

- WQ-C-04: Construction of Sanitary landfills and Support Facilities in Nueva Ecija and Cluster Waste Transfer Stations in Bulacan and Pampanga

This project should be given priority in support of the on-going WQ-G-01: Ecological Solid Waste Management Program that focuses only on soft measures such as recycling, waste segregation, etc. The construction of landfills or MRF should be an integral part of this project considering the volume of garbage produced everyday. On the average, there is about 5 kilos of garbage produced by every individual such that given the 6M people living within the basin, there is about 30M kilos or 30,000 cubic meters of garbage per day. A facility is really needed to properly dispose the wastes.

Group 4: Agriculture/Irrigation and Fishery Development

The group is completely amenable to the prioritization of all the projects on the sector and the development scenarios presented.

Group 5: Watershed Management

The group commented the following for the projects under Group A:

1. The word “sustainment” to “sustainability” in the project: Sustainment of the On-going Regular Program for Watershed Management.
2. The unit of measurement be changed from square kilometer to hectare for easy understanding since it is the common unit of measurement in the Philippines.
3. Additional development scenario have to be included as follows:
 - The 285,300 has. of tenured & untenured forestlands shall be protected intensively against illegal harvesting, encroachment, forest fire, illegal land use, conversion & other illegal destructive activities;
 - The conservation of natural ecosystems & their critical habitat shall be sustained in order to protect bio-diversity (Pantabangan-Carranglan, Arayat & Angat watersheds);
 - The 10,610 has. of CADT shall be developed in accordance to the ADSDPP.

On the other hand, the group is amenable to prioritize all the projects of the sector under Group B and the development scenarios presented.

The modifications made by the different groups on the template for the development scenarios as a result of the workshops are presented in Annex H. Modifications made are reflected in italics and underlined.

H. RECAP AND SUMMARY

Ms. Quiñones made a recapitulation about the workshop that transpired. From the comments gathered from the different groups, it can be said as a whole that there is an agreement on the general findings of the Study Team. The development scenarios as proposed by the consultants were found to be acceptable and practically approved by the body with minor corrections. With regard to the institutional set-up, there still has to be an agreement on the best way to institutionalize the RBC that will give the IWRM Plan the necessary push to get it going. The next stage of the work is the finalization of the report by the Study Team as well as incorporating the comments and some concerns that were missed out.

She was happy about the results and the active participation of the group and expressed hope that the group has eventually developed a sense of ownership of the IWRM Plan that was formulated under the Study. The implementation of the recommendations that were proposed will rest on each and everyone after the completion of the Study, otherwise, the efforts exerted and time spent on the Study by everybody would be in vain.

On behalf of the Study Team and the different agencies that composed the consensus body for the IWRM Plan, she thanked everyone for their participation and cooperation in all the activities of the Study.

I. CLOSING REMARKS

Mr. Otagawa delivered the closing remarks. He expressed his sincerest gratitude to everyone for the support extended to them during the entire duration of the Study. He informed that this is the last Stakeholder Consultation for the Study and the Study Team will make an utmost effort to consider all the comments and suggestions gathered. However, since the final decision on the Study shall be made during the Steering Committee meeting, he appealed for understanding in case any comment/s may not be reflected in the final report.

He informed that JICA will be holding a Technical Transfer Seminar on December 3, 2010 where there will be Japanese and Filipino speakers to share their knowledge or experience on IWRM but not necessarily on the Pampanga River Basin case. He invited the participants to attend the seminar. Invitations will be sent once the venue has been finalized.

A photo shoot capped the day's program (Annex I).

Annex A

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Annex D

4th Stakeholders' Consultation on JICA-assisted Study on Integrated Water Resources Management (IWRM) for Poverty Alleviation and Economic Development in the Pampanga River Basin Century Resort Hotel, Balibago, Angeles City, Pampanga October 13, 2010

Program of Activities

TIME	ACTIVITIES	RESOURCE PERSON
8:00AM – 8:30AM	Registration	Secretariat
8:30AM – 8:45AM	Opening Ceremonies Invocation <ul style="list-style-type: none"> • National Anthem, • Introduction of Participants/ JICA Study Team 	
	Welcome Remarks	Atty. Nathaniel C. Santos Deputy Exec. Director National Water Resources Board
8:45AM – 9:00AM	Program Orientation: Overview of the Stakeholders' Consultation, Objectives, Schedule of Activities, Methodologies, Expected Outputs	Ms. Emadelyn M. Quiñones Member of JICA Study Team Overall Moderator/Facilitator
9:00AM – 9:40AM	Presentation on the Proposed Prioritization of Projects and Development Scenario for IWRM of Pampanga River Basin	Mr. Makihiko Otogawa Leader of JICA Study Team
9:40AM – 10:00AM	Presentation on the Proposed Institutional Setup Plan for IWRM of Pampanga River Basin	Mr. Yukihiro Mizutani Member of JICA Study Team
10:00AM – 10:10AM	Engerizer	Ms. Felisa M. Manlulu Counterpart Coordinator/Facilitator
10:10AM – 11:00AM	Open Forum	Overall Moderator/Facilitator
11:00AM – 12:30PM	WORKSHOP: Review of the Proposed Prioritization of the Projects and the Development Scenarios for IWRM of Pampanga River Basin	JICA Study Team Experts/ Overall Moderator/Facilitator
12:30PM – 1:20PM	Lunch Break	
1:20AM – 1:30PM	Ice Breaker	Ms. Felisa M. Manlulu Counterpart Coordinator/Facilitator
1:30PM – 3:00PM	PLENARY SESSION: Presentation of Workshop Outputs	Overall Moderator/Facilitator
3:00PM – 3:30PM	Recap & Summary	Overall Moderator/Facilitator
3:30PM – 3:40PM	Closing Remarks	Dep. Exec. Dir. Nathaniel C. Santos National Water Resources Board
3:40PM – 4:00PM	End of Activity/Photo Op	

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Hilton Hernando – PRFFWC-PAGASA
Daxx Llorente - SCADC
Arlette Guzman – DPWH-R3
Bryan Cyro Velasco – Provincial Government of Bulacan

Facilitator/Encoder: Francis Hilarie & Higinio Mangosing/ Eleazar Rupido –NWRB/JICA
Study Team

GROUP 2: Municipal Water Supply, Sanitation and Sewerage

Rapporteur: Nestor C. Baylon – Cabanatuan City WD

Members: Rodolfo M. Goduco – Cabanatuan City WD
May R. Balingit – Cabanatuan City WD
Lovercain de Jesus – Tarlac City WD
Edralin Domingo – Tarlac City WD
Eden S. Mendoza – Angeles CPDO
Fernando A. Limbitco – San Fernando CPDCO
Josepa Reyes – San Fernando CPDCO
Elmer C. Alcanar – PPDO Bulacan
Felipe Moratillo – City of Malolos LGU
Richard Evangelista – PPDO Tarlac
Leo Caguimbal – Clark Water Corporation
Rocky M. Dungca – City of San Fernando WD
Steve Valdez - City of San Fernando WD
Janet Salvador-Pineda – Tarlac CPDCO
Arturo C. Blanco – Tarlac CPDCO
Nestor R. Cirineo – Angeles City WD
Edilberto Mallari – Angeles City WD

Facilitator/Encoder: Susan P. Abaño/Gladys Alburo - NWRB/JICA Study Team

GROUP 3: Water-Related Environmental Management

Rapporteur: Juan Miguel Fuentes – Clark Development Corporation

Members: Renato S. Tayag, Jr. – ADCL
Alfonso S. Dobles – ADCL
Eugenio O. Diaz, Jr. – DENR-RBCO
Felixberto P. Lansigan – DENR-FMB

Facilitator/Encoder: Josephine Billones/Ma. Cristina Arellano - NWRB

GROUP 4: Agriculture/Irrigation and Fishery Development

Rapporteur: Virgilio M. Garcia – NPC Head Office

Members: Arthur R. Dela Cruz – NIA Central Office
Benjamin A. Capian – DA - OPA
Beverly G. Lorenzo- NIA - Pampanga
Alberto C. Cotaco - NIA –Tarlac
Julita V. Santiago - NIA – UPRIS
Arthur F. Valdez – Palayan CPDO

Facilitator/Encoder: Ferdie I. Billones/Milagros Velasco – NWRB

GROUP 5: Watershed Management

Rapporteur: Carlos Arida – CENRO Camiling

Members: Richard Evangelista – PPDO, Tarlac
Juliet Manalili - NCIP, Region 3
Joselito Domingo – PASU, Nueva Ecija
Nida Manabat - FMS, Region 3
Rodolfo Nakpil – CPDO, Palayan City
Ma. Teresa Lalu – FMS, Region 3
Jefferson Panaligan – Pantabangan, Nueva Ecija
Manuel Sabial – DENR, Pampanga
Flordeliza Galicia – NIA-Pantabangan, Nueva Ecija
Florencio Lalu – PENRO, Bulacan
Minerva Martinez – PAWCZM, Region
Elizabeth Apresto – ENRO, Bulacan
Mendel Garcia – NPC, Watershed
Sergio Cañaverl – ENRO, Tarlac

Facilitator/Encoder: Felisa M. Manlulu/Luis Rongavilla - NWRB

GROUP PICTURE



APPENDIX 15

Minutes of Joint Steering Committee and Technical Working Group
Meeting on October 27, 2010


**MINUTES OF JOINT STEERING COMMITTEE AND
TECHNICAL WORKING GROUP MEETING
ON
THE REVISED PRIORITIZATION ORDER OF THE
PROJECTS, DEVELOPMENT SCENARIOS AND THE
REVISED INSTITUTIONAL SETUP PLAN FOR IWRM
OF THE PAMPANGA RIVER BASIN
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COOPERATION AGENCY**

October 27, 2010 in Quezon City



MAKHIKO OTOGAWA
Study Team Leader
Japan International Cooperation
Agency



VICENTE S. PARAGAS, CESO III
Executive Director
National Water Resources Board
(Chairman of Steering Committee)

**The Study on Integrated Water Resources Management for Poverty Alleviation
and Economic Development in the Pampanga River Basin**
5th Joint Steering Committee and Technical Working Group Meeting
Gateway Suites, Araneta Center, Quezon City
October 27, 2010

Highlights:

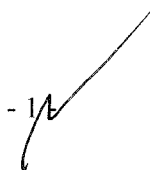
1. The meeting was called to order at approximately 9:10 am presided by NWRB Executive Director Vicente S. Paragas. The meeting was held to present to the Steering Committee (SC) and Technical Working Group (TWG) members the revised prioritization order of the projects and development scenarios as well as the revised institutional setup plan for IWRM of the Pampanga River Basin. The list of attendees is shown in Annex.
2. The Chair explained that the two Study outputs to be presented have already been reviewed by the TWG members and presented to the stakeholders and approved accordingly. The said outputs will be presented for final approval of the members of the SC-TWG members. Inputs or recommendations for the improvement of the outputs are welcome and he expressed hope that with the Study, IWRM will be in place for a river basin management implementation of water-related activities.
3. JICA Study Team Leader Makihiko Otagawa, presented the final results on the principal outputs of the IWRM Plan on the following: 1) list of projects to be implemented for IWRM; 2) priority order of projects to be implemented; 3) implementation program of the projects; and 4) development scenario of IWRM which were revised incorporating the comments from the TWG members and stakeholders. The output on the investment program for implementation of the projects will be discussed during the presentation of the Draft Final Report.

The previously proposed 82 projects as components of the IWRM has increased to 84 projects with the addition of 2 conceptual projects as a result of the comments and suggestions from the members of the SC-TWG and stakeholders. Of these projects, 36 are on-going, 18 are proposed and 30 are conceptual projects. Forty-three projects (43) fall under Group A and the 41 under Group B. He informed that the project evaluation made by the TWG members on the proposed and conceptual projects previously evaluated by the Study Team was considered as the final result of the evaluation.

The revised project evaluation for the proposed and conceptual projects under Group B including the priority order and investment schedule as well as the revised development scenarios for both Groups A and B were likewise presented.

4. The presentation of Mr. Otagawa was reviewed and the amendments/corrections identified were as follows:

- 1/1



- On page 5, on the slide on the “Number of Projects Classified into Group A & B”, there will be a footnote that will state that the grouping of the projects into Group A & B is not fixed but the projects can be transferred from one grouping to the other depending on the future situation and necessity for the project
- On page 7, on the slide on the “Projects in Group A (3/4) for Watershed Management, project # 33 with code WS-G-06: Private Forest Plantation Development Program (PFPDP), the implementing agency is DENR-FRCD (Forest Resources Conservation Division) and not DENR-FRDD
- On page 8, on the slide on “Projects in Group A (4/4) for Water-related Environmental Management”, project # 43 with code IC-C-02: Project for Recovery of Reliability of Water Supply in Angat-Umiray System will be transferred under the Water Resources Development, Water Allocation and Distribution group (5/4). The sector will be added to group A.
- On page 9, on the slide on Development Scenario by Group A Projects (1/6) for Municipal Water Supply, Sanitation and Sewerage, the following projects were corrected:
 - # 2: Development of Bulk Water Supply System for Bulacan Province
 - By 2015: Develop bulk water supply system of 2.7m³/sec (MWSS/LGU) in view of the 1.9 m³/sec water right granted by NWRB out of the 2.7m³/sec discharge of water supply capacity to the province of Bulacan.
 - By 2025: Develop bulk water supply system of 6.5m³/sec should be read as Develop bulk water supply system of additional 3.8m³/sec (Provincial Government of Bulacan). MWSS was deleted as one of the implementing agencies since the supply of the additional discharge of water supply capacity by 2025 cannot be committed with no assured source. On the other hand, the province of Bulacan had already identified 4 possible surface water sources for the implementation of the MW-C-05: Extended Bulacan Water Supply Project in its revised Provincial Long-Term Development Plan.
 - #3: Development of Bulk Water Supply System for Tarlac and Pampanga Province
 - By 2025: Develop bulk water supply system of 1.3m³/sec for Metro Clark should be read as Develop bulk water supply system of 0.8m³/sec for Metro Clark (with a footnote on the project with Code MW-P-04: Metro Clark Bulk Surface Water Project that Tarlac province will be a beneficiary of the project)

- By 2025: Develop bulk water supply system of 0.8 m³/sec for Pampanga Province should be read as Develop bulk water supply system of 1.3m³/sec for Pampanga Province.
 - Still on page 9, on the slide on Development Scenario by Group Projects (2/6) for Municipal Water Supply, Sanitation and Sewerage, the development scenario has to be renumbered and target date for provision of 100% sanitary toilet for households will be changed from 2025 to 2020 as follows:
 - 4. Expansion of Levels 3,2,1 Municipal Water Supply System
 - 5. Construction/Provision of Sanitary Toilet
 - The target is set at 2025 as proposed in the Study. However, it shall be noted in the Study Report that DENR and the Supreme Court mutually understand to clean up Manila Bay for its water quality to be Class SB category by 2020.
 - On page 19, on the slide on Development Scenario by Group B Projects (2/7) for Management of Flood and Sediment Disasters, under # 3: Mid-term Development of Irrigation Systems, by 2025 the number completed irrigation development projects was corrected from 7 to 6 projects.
5. Mr. Mizutani, the organizational/institutional expert discussed the process undertaken and the outputs for the institutional set-up as well as the design of the River Basin Committee (RBC). He emphasized that the design of the RBC with respect to its role and functions; composition and responsibilities of members and Secretariat; role of TWG and implementing organizations; allocation of operation cost and legal basis for its establishment and operation were determined by the members of the FGD and SC-TWG and supported by the Study Team. In this regard, he expressed gratefulness for their consistent support for the Study and the great contribution, without which the unique institutional arrangement for the Pampanga River Basin will not be conceived.
6. The amendments/corrections identified during the review of Mr. Mizutani's presentation of were as follows:
- On page 4 on the slide on Actions to Improve Water Code and IRR, the word "improve" should be changed to "amend".
 - Still on page 4 on the slide on Actions to Strengthen LAs and LGU: Issues 1-9, "LAs" should be changed to "NGAs/RLAs" to mean National Government Agencies and Regional Line Agencies. Accordingly, similar citations in the presentation and the Draft Final Report should be modified.
 - On page 7 on the slide on Functions of New RBC, the following were noted:
 - The word "New" should be changed to "Proposed."

- The function on “To arbitrate (resolve issues/conflict) and monitor water rights should be read as “To arbitrate (resolve issues/conflict) and monitor water rights subject to the guidelines or agreement between NWRB and RBC”.
 - Still on page 7, slide on Role of LAs and LGUs for TWG Operation, the Chairperson for the TWG on Water Supply, Sanitation and Sewerage should be DILG and DOH instead of DILG and LWUA. Nevertheless, LWUA is under DOH.
 - On page 8, slide on Members of the RBC and Secretariat, the composition of the RBC should be changed from the provincial governors of 11 provinces to the provincial governors of 7 provinces (Pampanga, Tarlac, Bulacan, Nueva Ecija, Quezon, Aurora and Nueva Vizcaya).
 - On page 10, slide on Legal Basis to Establish & Operate RBC, the following were noted:
 - E.O. to be drafted should include a provision that will direct NGAs to initially allocate contributions to the operation of the RBC from their respective offices and eventual allocation of specific funds from the national government for its operation.
 - The long-term option of legislative action to institutionalize creation of RBOs/RBCs in the country should be included.
7. The presentations were approved with the amendments/corrections cited therein.
8. Issues/concerns raised were the following:
- Mr. Alcanar of Bulacan PPDO inquired if the Group A Projects for Agriculture, Irrigation & Fishery Development is limited only to the repair and rehabilitation of existing facilities and does not include development of other sources of water such as SWIM projects. Mr. Otagawa clarified that Group A projects is only on the rehabilitation and maintenance of the facility that must be implemented annually and regularly. The development of SWIM projects belongs to the Group B projects.
 - Mr. de Jesus of Tarlac City WD raised the following:
 - He observed that while LWUA is one agency in charged particularly of municipal water supply and water supply related projects, yet no LWUA representative/s have been present during the meetings in the Study period. Mr. Otagawa responded that although LWUA may not be represented during meetings, LWUA is involved in the Study by way of personal discussions of the JICA Study Team with its staff.
 - He inquired on whether it is for the Study Team to determine the functions of the RBC or the RBC to determine its own functions in the

future. Mr. Mizutani responded that the proposed functions were initiated by NEDA-Region III and agreed upon during the FGD and TWG meetings and supported by the Study Team. The Chair added that the proposal is only a guide that can be modified.

- Engr. Diaz of RBCO, DENR raised the following:
 - Considering that the Pampanga River Basin drains towards Manila Bay, he noted the reasonableness of targeting the provision of sanitary toilet for the whole households covered by the Study area by 2020 and not 2025 in order to be consistent with the on-going understanding between DENR and the Supreme Court to clean up Manila Bay for its water quality to be Class SB category by 2020. It is for this reason that the DENR is currently working with MWSS to target its 100% sanitation coverage for households from 2037 to 2020, if possible. However, the Water Environment/Watershed Management Expert Emadelyn Quiñones explained that targeting 100% coverage for sanitary toilet by 2025 is still within the mandamus that all sewerage and septage pollution load from domestic wastes should be reduced by 50% by 2015. There are also other sources of pollution like livestock that needs to be addressed as domestic pollution load constitutes only about 50% of the pollution load entering Manila Bay. Furthermore, implementation of the Operational Plan for the Manila Bay Coastal Strategy is delayed as solid waste management program should have been completed by 2007. Mr. Kitamura added that the provision of sanitary toilets is not mainly for reducing the pollution load but to secure the safe drinking water through prevention of contamination of the groundwater. The Philippine Water Supply Sector Roadmap targets the provision of 100% safe water by 2025.
 - He inquired as to who will take the initiative in the implementation of the conceptual projects under Group B projects. Mr. Otagawa responded that the Study Team proposes that the RBC which would be organized will take the initiative in this regard. The Chair noted of the necessity for the Study to recommend for the immediate creation of the RBC.
 - Relative to strengthening the financial capacity issue, he inquired whether the Study Team has considered the provision in the Clean Water Act (CWA) for the establishment of Water Quality Management Areas (WQMA) for specific sub-basins or watersheds experiencing water quality degradation that can generate funds for water quality monitoring. Ms. Quiñones responded that the establishment of WQMA including collection of water quality fund is included in her recommendation for capacity building to improve water quality management by the regional offices of DENR-EMB under water-related environment. She informed that she has identified the water quality hot spots within the Pampanga River Basin and her recommendation is for these sub-watersheds or sub-catchments to form

a WQMA and also delineate non-attainment areas according to the CWA.

- He inquired on how the arbitration and monitoring of water rights function of NWRB be harmonized with the same function of the proposed RBC. Engr. Peñaranda of NWRB explained that issues/conflicts will be resolved first at the RBC level and only unresolved issues will be elevated to NWRB. In this regard, the Chair noted that arbitration shall be subject to the guidelines or agreement that will be developed between RBC and NWRB on the kind of issues that can be tackled by the RBC.
- Mr. Redublado of NPC raised the following:
 - He inquired if the Group A projects for Management of Flood and Sediment Disasters excludes the sediments that are impounded in the reservoirs and dam for power generation of NPC as its dredging operations will be conducted by its new buyers as per contract. Mr. Otagawa clarified that it is excluded since the sediment disaster is only confined to the Mt. Pinatubo eruption.
 - He observed that in the development scenarios for Group A projects most of the projects are for 2025 when projects under this category, calls for necessity. Mr. Otagawa responded that while seemingly most of the projects in the development scenario for Group A projects will be implemented by 2025, some scenarios contain several projects whose implementation are in the short-term period.
 - He noted that the on-going project on Capacity Building on the Appropriate Dam Reservoir Operation against Flood under the Development Scenario by Group B Projects for Management of Flood and Sediment Disasters will end by 2012 and not 2015. Mr. Otagawa clarified that development scenario is divided only into 3 terms with an interval of 5 years so 2012 was considered for 2015.
 - He inquired on why the efforts of JICA cannot be acknowledged as a counterpart in the implementation of some projects where it is the prime mover, such as the Flood Forecasting and Warning System Capacity Building project of PAGASA. Mr. Otagawa explained that it is a matter of ownership as the Philippine Government is the main player for the projects while JICA is only providing technical or financial assistance.
- The Chair commented on the presentation of Mr. Mizutani that strengthening the financial capacity of NWRB does not necessarily mean increasing its budget, so he suggested to change the word “strengthen”. Mr. Mizutani explained that it does not refer to the increase in budget but rather strengthening the institutional capacity of NWRB to generate income. Nevertheless, the increase in NWRB’s allocation of budget from DBM is also included in the report.

9. Mr. Otagawa informed that the Study Team will leave for Japan on Nov. 5, 2010 to come back on November 30, 2010 for the submission of the Draft Final Report. Another Joint SC-TWG meeting will be conducted on Dec. 1, 2010 for the presentation and discussion of the Draft Final Report. The members will be given one month to review and comment on the report. Comments will be incorporated in the Final Report to be submitted in February 2011. Moreover, a Technical Transfer Seminar will be conducted on Dec. 3, 2010 and invitations will be sent to the members of the SC and TWG to participate in the seminar.
10. With no other matters to discuss, the meeting was adjourned by Exec. Dir. Paragas at about 1:00 pm.

-7A

**The Study on Integrated Water Resources Management for Poverty Alleviation
and Economic Development in the Pampanga River Basin**

5th Joint Steering Committee and Technical Working Group Meeting

Gateway Suites, Araneta Center, Quezon City

October 27, 2010

Attendance Sheet

NAME	POSITION	OFFICE
1. Vicente S. Paragas	Executive Director	NWRB
2. Mariano R. Alquiza	Director	PMO-FCSEC, DPWH
3.. Jesse C. Felizardo	Engineer IV	PMO-FCSEC, DPWH
4. Armando Taruc	OIC, PRFDC	PRFFWC, PAGASA
5. Gregel B. Redublado	Department Manager, Dam and Reservoir Operation	NPC Port Area
6. Noel Gaerlan	Deputy Director	RBCO, DENR
7. Eugenio Diaz, Jr.	CE II	RBCO, DENR
8. John T. Zapata	Economic Development Specialist II	NEDA-Region III
9. Ma. Theresa Lalu	SFMS	DENR Region III
10. Dolores M. Gicena	Engineer II	BSWM
11. Richard Evangelista	Planning Officer II	PPDO-Tarlac
12. Reynaldo T. Tabelina	PO I	PPDO-Tarlac
13. Arthur Dela Cruz	Principal Engineer	NIA-CO
14. Juliana Manalili	Chief, TMSD	NCIP Region III
15. Lovercain de Jesus	SWUMO	Tarlac City WD
16. Edralin C. Domingo	Supervising Instrument Technician	Tarlac City WD
17. Felixberto P. Lansigan	SFMS	FMB
18. Rosalinda B. Bote	Acting Division Manager	NIA-UPRIIS
19. Julita V. Santiago	Supvg. Engr. A	NIA-UPRIIS
20. Evangeline Dacanay	PMO - A	MWSS
21. Elmer Alacantar	Project Development Officer II	PPDO Bulacan
22. Atty. Rustico De Belen	BENRO	Provincial Government
23. Naoto Kuwae	Assistant Resident Representative	JICA
24. Makihiko Otagawa	Team Leader/IWRM	JICA Study Team
25. Tadanori Kitamura	Deputy Team Leader/ Water Res. Devt. & Mgt. Planning	JICA Study Team
26. Yukihiko Mizutani	Organization Institution Expert	JICA Study Team
27. Takeshi Ikematsu	Hydrology/River Management Expert	JICA Study Team
28. Yayoi Yoshioka	Environmental and Social Considerations Expert	JICA Study Team
29. Yoshioki Ishizuka	Economic/Financial Expert	JICA Study Team
30. Emadelyn M. Quiñones	Water Environment/Watershed Management Expert	JICA Study Team
31. Francis Joseph M. Funa	GIS Engineer	JICA Study Team
32. Eleazar Rupido	Secretary	JICA Study Team
33. Gladys Ida S. Albuero	Encoder	JICA Study Team

NAME	POSITION	OFFICE
34. Isidra D. Peñaranda	OIC, Policy and Program Division	NWRB
35. Susan P. Abaño	Engineer IV	NWRB
36. Emmie L. Ruales	Engineer IV	NWRB
37. Felisa M. Manlulu	Information Officer IV	NWRB
38. Francis B. Hilarie	Economist III	NWRB
39. Florimel R. Balbedina	Economist III	NWRB
40. Josephine R. Billones	Engineer II	NWRB
41. Josephine Abellana	Administrative Assistant I	NWRB


APPENDIX 16

Minutes of Joint Steering Committee and Technical Working Group
Meeting on Draft Final Report on December 1, 2010

**MINUTES OF JOINT STEERING COMMITTEE AND
TECHNICAL WORKING GROUP MEETING
ON
DRAFT FINAL REPORT
FOR
THE STUDY
ON
INTEGRATED WATER RESOURCES MANAGEMENT
FOR POVERTY ALLEVIATION AND
ECONOMIC DEVELOPMENT
IN THE PAMPANGA RIVER BASIN
IN
THE REPUBLIC OF THE PHILIPPINES**

**AGREED UPON BETWEEN
NATIONAL WATER RESOURCES BOARD
AND
STUDY TEAM OF
JAPAN INTERNATIONAL COOPERATION AGENCY**

December 1st, 2010 at Quezon City



MAKHIKO OTOGAWA
Study Team Leader
Japan International Cooperation Agency



VICENTE S. PARAGAS, CESO III
Executive Director
National Water Resources Board
(Chairman of Steering Committee)

In accordance with the Implementation Arrangement for “the Study on Integrated Water Resources Management for Poverty Alleviation and Economic Development in the Pampanga River Basin” (hereinafter referred to as “the Study”) agreed upon between National Water Resources Board (hereinafter referred to as “NWRB”) and Japan International Cooperation Agency (hereinafter referred to as “JICA”) on November 24, 2008, the Study Team officially submitted thirty (30) hard copies (4 volumes) and ten (10) soft copies of Draft Final Report to NWRB on November 30, 2010.

In order to discuss the contents of the above Draft Final Report, the joint meeting of the Steering Committee (hereinafter referred to as “SC”) and Technical Working Group (hereinafter referred to as “TWG”) was held on December 01, 2010, 9:30 a.m. – 12:30 p.m. at Imperial Palace Suites, Quezon City. The meeting was chaired by Engr. Isidra Peñaranda, OIC, Policy and Program Division, NWRB. The list of the participants to the meeting is shown in Annex.

Engr. Isidra Peñaranda explained, in her opening remarks, the progress of the Study and invited the members of SC and TWG to attend the Technical Transfer Seminar on December 03, 2010. Mr. Kenji Nagata, Senior Advisor of Water Resources, JICA, gave a short message expressing his gratitude to all SC and TWG members for their significant contributions to the Study. He also stated that it was good opportunity for stakeholders to come together during the course of the Study and it was the first and fundamental step for the IWRM in Pampanga river basin, although the realization of the IWRM concept would not be easy.

The contents of the Draft Final Report were explained by Mr. Makihiko Otogawa, Team Leader for the Study, and they were accepted by the members of the SC and the TWG with some comments and suggestions, the major parts of which are as described below:

- (1) Ms. Araceli Oredina, Development Management Officer IV of DENR, asked a clarification about the difference between the proposed and conceptual projects described in the Draft Final Report. She also raised a question if the on-going projects and other projects (proposed and conceptual projects) could be well-harmonized so that duplication is avoided.

In response to the above questions, Mr. Otogawa explained the following:

- The proposed projects are those, which have been already materialized by the government and/or non-government agencies, while the conceptual projects are newly proposed as the essential part for IWRM for Pampanga river basin, by the JICA Study in collaboration with the stakeholders.
 - There might be certain duplications among the ongoing, proposed and conceptual projects. It is necessary to conduct further detail study for the conceptual project so as to avoid such duplications.
- (2) Dir. Vicente Tuddao, Jr., Executive Director of the River Basin Control Office (RBCO) commended the JICA Study Team for coming up with a very comprehensive report and likewise the NWRB for taking the lead in the undertaking. He inquired about the present status of the IWRM in Pampanga river basin. Mr. Otogawa replied that it is still at the very beginning stage, and it is recommended to establish the proposed River Basin Committee (RBC) soon after the completion of the Study so as to attain the smooth implementation of the proposed IWRM plan. Dir. Tuddao also raised a question on whether or not the Study includes a management plan, which clarifies the detailed processes and methods for management of the projects proposed as the components of IWRM Plan. Mr. Otogawa replied that it is not included according to the Terms of Reference (TOR) of the Study.

Dir. Tuddao further inquired about the chairmanship of the governors and the membership of the proposed RBC. He recommended the following should be included in the RBC members; i) DA, ii) LWUA/WD and iii) Governors of seven provinces. Mr. Yukihiro Mizutani, the member of JICA Study Team replied the following:

- i) Instead of LWUA, DILG was proposed as the member of the RBC.
- ii) All of the governors of seven provinces are members of the RBC with one of them serving as chairperson of the RBC on a rotational basis.
- iii) DA would be included as the member in accordance with the suggestion. The Draft Final Report would be revised accordingly.

Engr. Peñaranda added that LWUA is under the DOH and DOH is already included as a member while the Central Luzon Association of Water Districts (CLAWD) can be included as a member in the TWG.

Dir. Tuddao also recommended to consider only the lead and federated organization for the “People’s Organizations (POs)” and the corporate group that will represent the business sector in the basin instead of “private sector”, as the members of RBC because there are too many POs and private groups in the basin making it virtually difficult for all of them to be members of the RBC. Mr. Agustin Mendoza of NEDA Region III commented that the composition of the existing RDC can be a good model for this. He also commented that RBCO shall be included as a member at the TWG level and at the RBC proper.

The JICA Study Team as well as the members of SC and TWG agreed to the above suggestions of Dir. Tuddao and Mr. Mendoza.

Dir. Tuddao inquired from Engr. Peñaranda on the plan of NWRB relative to the expenses that will be incurred by NEDA Region III as Secretariat in the mobilization of the RBC for NWRB should take the lead in providing the logistic support. Engr. Peñaranda responded that considering the limited budget of NWRB, it was discussed that initially NEDA Region III will support the meetings but later on it will be a sharing with the concerned agencies. An Executive Order (EO) to secure the necessary budget for the activity on RBC would be indispensable in this regard. Perhaps RBCO can complement the needed financial support while the NWRB provides the human resources.

- (3) Ms. Evangeline Dacanay of MWSS, inquired on how the proposed RBC in the Study can be harmonized with the RBO, which is responsible for IWRM, described in the on-going amendment of the Water Code. Engr. Peñaranda replied that there will be no conflict since the proposed RBC in the Study is an interim measure and the proposed amendment in the Water Code is for the long-term institutionalization of the creation of RBOs in different river basins in the country. Mr. Mizutani, the member of JICA Study Team, stated that there is no inconsistency since there is no specific definition of the RBO in the Water Code and as such the proposed RBC may be considered as one of the types of RBOs.
- (4) Mr. Lorenzo of DILG-MDGF 1919 commended NWRB for the undertaking the first IWRM study in the country. He inquired about the harmonization of the proposed IWRM plan with i) Philippine Water Supply Sector Road Map, ii) Philippine Sustainable Sanitation Sector Road Map, and iii) Medium Term Philippine Development Plan (MTPDP) 2011-2016. Engr. Peñaranda replied that the JICA Study Team has already referred to the i) and ii) for formulation of the plan as a national guidance. She also

suggested discussing on how the projects identified in the Study can be incorporated into the updating of the MTPDP. Mr. Mendoza, NEDA Region III, recommended submitting the Plan to the executing agencies for possible incorporation in the MTPDP while awaiting the creation of the RBC under the umbrella of the RDC.

- (5) Engr. Peñaranda suggested that the term “water rate” should be changed to “water tariff”. Mr. Otogawa as well as SC and TWG members agreed with the suggestion. She also inquired about the necessary action for the establishment of RBC. Mr. Otogawa replied that NWRB as well as NEDA Region III should pursue the establishment of RBC, as described in the conclusions and recommendations of the Draft Final Report. A recommendation was raised by Mr. Mendoza of NEDA Region III for NWRB as the lead agency of the IWRM Plan to write a formal communication to NEDA Central office for the notation that the Plan was already completed and as indicated in the Plan there has to be a creation of the RBC by the RDC III. From NEDA official communication to RDC III it will act accordingly in the process of adopting the Plan and organizing the RBC. Dir. Tuddao of RBCO informed that the creation of RBOs nationwide is proposed in the MTPDP 2011 – 2016.

- (6) In addition to the above discussions, the following questions and answers were made between the members of Committee and the Study Team:

- *How the gender consideration and PANTHER (Participation, Accountability, Non-discrimination, Transparency, Human Dignity, Empowerment and Rule of Law) concept were made in the proposed IWRM plan:*

One of evaluation points for the proposed projects is addressed to the project’s contribution to the vulnerable groups that consider gender concerns.

- *What is the interval period for the monitoring and evaluation of the IWRM Plan.*

There is no definite period for it depends on the result of the monitoring which will dictate whether there is a need for immediate improvement or not.

- *How the budgetary arrangement was made for implementing the proposed projects in the IWRM plan:*

The budgets for the on-going and proposed projects have been almost secured and/or projected by the implementing agency. As for the conceptual projects, however, only the implementing agencies/institutions are proposed, while the definite budgetary arrangements have not been made yet.

- *Whether or not the support from JICA could be expected for implementation of the proposed IWRM projects:*

The JICA Study Team can not commit anything about this question. Mr. Nagata commented that one of the purposes of the Study is oriented to the actual implementation of the proposed IWRM Plan and the relevant request for the support of JICA would be welcomed.

- *Whether or not the GIS data and other basic data used for the Study could be furnished to other agencies:*

The JICA Study Team would submit all basic data for the study to NWRB and, NWRB would provide them to other relevant agencies upon official request.

- *Whether or not the JICA Study Team could undertake the Information Education Campaign (IEC), which could materialize the proposed IWRM Plan, as a part of the study:*

It is virtually difficult for the Study Team to carry out the IEC as a part of the study and another official request would be required, should the IEC be made through assistance of JICA.

At the end of the meeting, Engr. Peñaranda requested all of the SC/TWG members to submit any other comments on the Draft Final Report to JICA Study Team through NWRB by January 10, 2011 either thru email at nwrphil@gmail.com or thru fax at 920-27-24. Likewise, she requested the members to brief their principals on this matter and for the JICA Study Team to provide additional copies of the CDs for distribution to concerned agencies for them to be aware of the proposed projects to be implemented by their agency under the Plan. With no other matters to discuss, the meeting was adjourned at about 12:30 pm.



Attendance Sheet

No.	Name	Position	Office
1	Vicente Tuddao, Jr.	Executive Director	DENR - RBCO
2	Eugenio Diaz Jr.	CE/SE	DENR - RBCO
3	Araceli Oredina	DMO IV	DENR
4	Ma. Theresa L. Lalu	SFMS	DENR Reg. 3
5	Remedios Evangelista	OIC Refo. Div.	DENR - FMB
6	Felixberto Lansigan	SFMS	DENR - FMB
7	Jose Algy B. Canlas	PDMG Chief	DILG Reg. II
8	John T. Zapata	EDS II	NEDA Reg. 3
9	Emerson Canlas	NEDA Reg. 3	NEDA Reg. 3
10	Agustin Mendoza	Sup. EDS	NEDA Reg. 3
11	Gonzalo D.V. Coloma	Aqua 2	BFAR Reg. 3
12	Arlette Guzman	Engr. III	DPWH
13	Jesse Felizardo	Engr. IV	DPWH -FCSEC
14	Romeo Dayao	W.O.I	PRFFWC/PAGASA
15	Mario Collado	Engr. IV	BSWM
16	Richard Evangelista	P.O II	PPDO Tarlac
17	Reynaldo Tabelina	P.O I	PPDO Tarlac
18	Michael Calma	PPDC-OIC	NEPG
19	Richard Dingle	PDO IV	PPDO Nueva Ecija
20	Antonio Caddac	SEMS	PPDO Bulacan
21	Evangeline Dacanay	Proj. Magt. Officer	MWSS
22	Gregel Redublado	Dept. Mgr.	NPC
23	Virgilio Garcia	Proj. Hydologist	NPC
24	Daxx Llorente	TA	SCADC
25	Soledad Castañeda	Chief SRS	DOST
26	Rene Lorenzo		DILG-MDGF 1919
27	Isidra Peñaranda	OIC PPD	NWRB
28	Francis Hillarie	ECO III	NWRB
29	Josephine Abellana	AAA I	NWRB
30	Lisa Manlulu	Information Officer IV	NWRB
31	Florimel Balbedina	Economist III	NWRB
32	Kenji Nagata	Senior Advisor	JICA Head Quarters
33	Tomonori Wakabayashi	Program Officer	JICA Head Quarters
34	Kessy Reyes	Program Officer	JICA Philippines
35	Makihiko Otogawa	Team Leader	JICA Study Team
36	Tadanori Kitamura	D.Team Leader	JICA Study Team
37	Yukihiko Mizutani	Intitution	JICA Study Team
38	Emadelyn Quinones	Watershed Mgt.	JICA Study Team
39	Gladys Alburo	Encoder	JICA Study Team
40	Eleazar Rupido	Secretary	JICA Study Team