

## IV. IWRM- Ecosystem Based Approach: Exchange Visit and MONRE Demonstration Site Proposal Development

### I. Fact Sheet

<b>Name of training course:</b>	IWRM- Ecosystem Based Approach: Exchange Visit and MONRE Demonstration Site Proposal Development
<b>Level and specialty:</b>	Medium level and on-the-job based training
<b>After the training, the trainees will:</b>	<ol style="list-style-type: none"> <li>1. Have broader perspectives and approaches for developing IWRM in watersheds, and be able to give an immediate potential for application in the Pilot Site of the Demonstration Center.</li> <li>2. Understand key principles and specificities in IWRM applied in watersheds, especially the key role to be given to the population living in the Demonstration Center areas.</li> <li>3. Be able to identify areas that may bring high value added for ecosystems protection.</li> <li>4. Be able to identify particular needs in terms of knowledge and monitoring: identification of the ecosystems and related natural resources, impacts of human activities, services provided, value of the services provided.</li> <li>5. Be able to identify particular approaches in terms of water and water related resources dialogue with the stakeholders, knowledge sharing, specific awareness tools, community monitoring, and local governance.</li> </ol>
<b>Target groups:</b>	Department of Water Resources at Central and Vang Vieng district level, and communities within the MONRE IWRM Demonstration Site located in Vang Vieng district
<b>Number of training days:</b>	6.5 days
<b>Dates and venue of training:</b>	This Study Tour and Proposal Development Workshop were already conducted in northeast Thailand on 14-17 December, and Vang Vieng

	District, Vientiane Province, Laos on 21-23 December 2014, accordingly.
<b>Number of trainees:</b>	14 Trainees (3 women and 11 men)
<b>List of trainees:</b>	See Annex
<b>List of principal trainers:</b>	<p>Mr. Bounsamong Fongnaly, Training and Awareness Building Unit Director, Department of Water Resources</p> <p>Dr. Yanyong Immoung, Dean, Faculty of Health and Social Science, Khon Khaen University</p> <p>Dr. Rachapaj Ratanawara, Director, Department of Water Resources Research Center, Rachamangkhal University of Technology Isan</p> <p>Mr. Suparek Janprasart, Chief Technical Advisor and Team Leader</p>
<b>Training methodologies:</b>	<p>The training was divided into two main parts which are study tour and proposal writing workshop.</p> <ul style="list-style-type: none"> <li>• Key note presentations and interactive discussions prepared by the trainees themselves</li> <li>• Key note presentations and interactive discussions prepared and facilitated by trainers</li> <li>• In-depth interview with governmental officers and local stakeholders</li> <li>• Study tours of successful communities</li> <li>• Proposal write shop</li> </ul>
<b>Training materials:</b>	<ol style="list-style-type: none"> <li>1. Situation Analysis, Training Concept and Training Modules</li> <li>2. Training Program Agenda with training Methodologies</li> <li>3. Keynote presentations</li> <li>4. Summary report</li> </ol>
<b>Recommended additional reference materials:</b>	<p>Ecosystem Management: Lessons Learnt around the World: A Guide for Development and Conservation Practitioners</p> <p><a href="http://intranet.iucn.org/webfiles/doc/WWRP/Publications/EcosystemManag">http://intranet.iucn.org/webfiles/doc/WWRP/Publications/EcosystemManag</a></p>

	<a href="#">ement.pdf</a>
<b>Training assessment results and findings:</b>	<p><b>IWRM Ecosystem Based Approach: Exchange Visit</b> was organized in Northeastern part of Thailand on 14-17 December, and <b>MONRE Demonstration Site Center Proposal Development Workshop</b> was organized in Vang Vieng District on 21-23 December accordingly. There were 14 trainees participated for both the exchange visit and the proposal development workshop. The trainees include representatives from central unit of DWR, representatives from Vang Vieng District and head of the villages that are located in the MONRE demonstration site in Vang Vieng. The exchange visit and the proposal development workshop are the follow-up training that were developed based on the findings from IWRM Frameworks training that held in central part of Lao PDR. The trainees of the IWRM Framework Training had requested another set of training that would enhance their understanding on how IWRM principles can be participatory adopted at community level with support and recognition from the central administration.</p> <p>The exchange visit to successful pilots of local IWRM Ecosystem-based communities in Thailand was conducted. As a follow-up activity that would allow the trainees to apply the knowledge learnt from the exchange visit, the workshop was organized as a platform for the trainees to develop some ideas for the development of MONRE’s demonstration site to be located in Vang Vieng district. The documents prepared during the workshop can be used to request for further funding.</p> <p>The exchange visits in Thailand included the visit of Thai Irrigation Department and Chi River River Basin Organization office, organic vegetable garden communities, community tourism and local water and land use management. The trainees reported high satisfaction for all the visits, and have shown enthusiasm in exchanging ideas on how they could adopt what they have learned to improve the livelihood and water conservation efforts in their villages and communities.</p> <p>The proposal workshop that was organized in Vang Vieng also appeared to be engaging. There were many active discussions, which were mainly initiated by the community representatives and local officers. The trainer team had collected all the notes and information and organized it into a brief report to be used as draft proposal preparation. It was agreed that the structure of the proposal should include six key areas of activities which are: 1) Livelihood improvement; 2) Community forest and water conservation; 3) Innovative community tourism, 4) Capacity building and research, 5) Local networking and 6) Facility development.</p>
<b>Next steps and Recommendations:</b>	<p>Continue organize the proposal and identify potential donors</p>

## II. Situation Analysis, Training Concept and Training Modules

### A. Justification

*“Integrated Water Resources Management (IWRM) is a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment”*<sup>1</sup>. This general concept was developed in a first training on IWRM framework organized in May 2014. Actually, this training has created a demand from the officials and stakeholders in Nam Ngum Basin to tackle more specifically the topic of “sustainability of vital ecosystems” by boosting IWRM-ecosystem based activities to be demonstrated in Vang Vieng in the MONRE-DWR Demonstration Site.

It is widely recognized that, within large river basins like Nam Ngum, in which trade off must be found for boosting socio-economic development while maintaining sustainable water and water-related environmental resources, there is a need to focus on areas which are expected to play a particular role for sustaining healthy ecosystems, maintaining good water quality (both surface and groundwater) and smoothing flash flood and drought. These areas actually provide what it is now commonly called “Ecosystem Services”.

Some areas, like National Park or Conservation Areas in which generally no human activities (or limited human activities) are allowed have their own legal framework and management rules. They have been identified for their exceptional value in terms of bio-diversity, wildlife and value of forest. These areas obviously greatly contribute for maintaining vital ecosystems in the river basin.

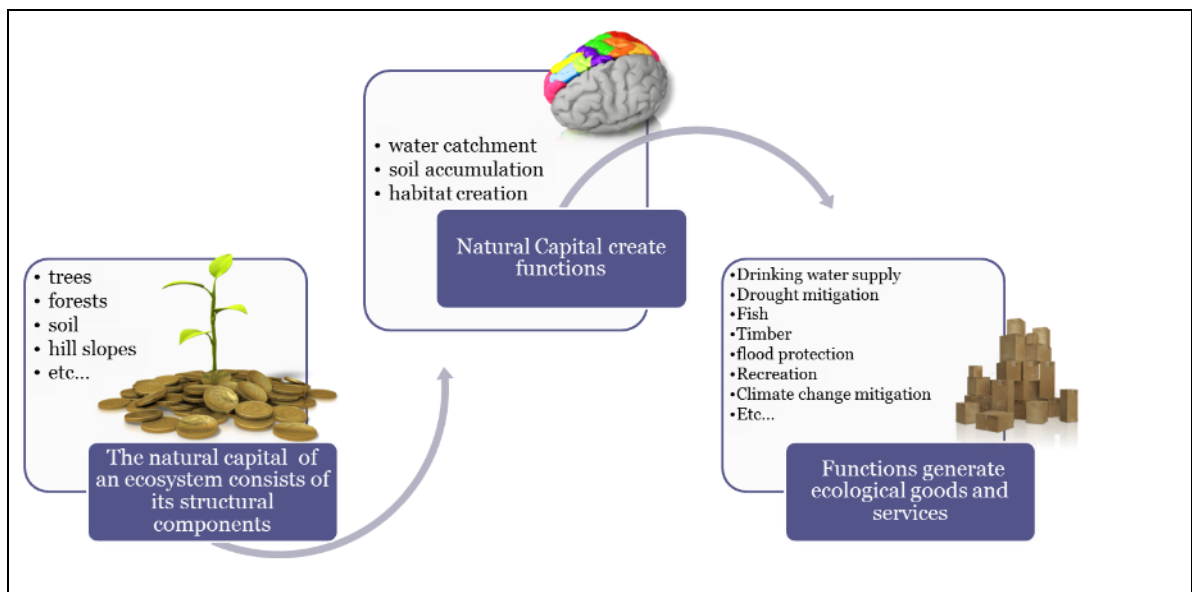
But other areas that have not such level of protection and in which usual settlement and human activities are encountered, may also contribute significantly to sustain ecosystems and environment. These areas may be for example : (i) upper-watersheds where water, soil and forest must be carefully protected for mitigating soil erosion, sediment transport, eutrophication of reservoirs located downstream and for maintaining high quality of freshwater; (ii) wetlands and river embankments that provide rich and diverse eco-systems and contribute to sustain groundwater and minimum flows; (iii) flood plains where large flood can be buffered decreasing the risks of damage for human lives and infrastructures.

Protecting such ecosystems participates directly to the economic and social development of a river basin. Ecosystems have actually an economic value that must be taken into account in the global trade-off and that justify investments and specific management rules. The “services” provided by the ecosystems may be:

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<sup>1</sup> Global Water Partnership : <http://www.gwp.org/The-Challenge/What-is-IWRM/>

- *Provisioning services*: the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.
- *Regulating services*: benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- *Habitat services*: habitat for migratory species and to maintain the viability of gene-pools.
- *Cultural services*: non-material benefits that people obtain from ecosystems such as spiritual enrichment, intellectual development, recreation and aesthetic values.



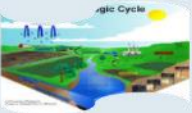




It is therefore essential that the water resources managers, at central and decentralized levels, recognize the importance of the ecosystems services, proceed to an identification of the areas where to focus specific activities of protection or restoration and take long term measures for adequate management. Ideally this should be part of the key functions of a River Basin Organization (RBO) i.e. Nam Ngum.

IWRM principles are a particularly well adapted tool for supporting the protection of such vital ecosystems as it is for river basin management in general. This means that it is necessary to get the stakeholders together to identify the issues (where we are ?), trying to sort out a common vision (where we want to go?) and a mutually agreed road map and the related action plans (how do we get there?).

IWRM-Ecosystems based approach presents some specificities, the likely most relevant being:

- The areas selected as “vital ecosystems” are generally geographically limited (small watershed, wetlands, etc.). It is therefore generally a “community/villagers-driven” context.
- The central government and decentralized agencies have an important role to play for providing assistance and safeguards. Nevertheless, the key stakeholders and the guarantors of the good health of the ecosystems and environment are the people living in the area. Therefore, positioning the villagers at the center of the IWRM-Ecosystems dialogue and coordination and recognizing the importance of good local governance in each step of the process is a pre-requisite.
- It is important to get a good knowledge of the ecosystems and natural resources to be protected in order to propose adequate road map and actions. These ecosystems should be also inserted into the context of the services they may provide for contributing to the sustainability of vital ecosystems and the environment at river basin level. A good knowledge on the impacts of human activities on these eco-systems is also essential for supporting the decision process.
- Apprehending the value of the services provided by the vital ecosystems may then help establishing mechanisms for ensuring the long term sustainability of the actions taken. This may even conduct to envisage “Payment for Ecosystem Services” that may be good incentive for the stakeholders and a tool for sustainability.

Promoting IWRM-Ecosystems in watersheds is an opportunity to step-wisely boost the engagement of the communities in the overall River Basin IWRM process, creating local capacity and leadership. It may eventually greatly contribute to a more seamless collaboration between the government agencies and communities.

		<b>River Basin</b>	<b>Watershed</b>
Hydrology		all the water drains to a large river	smaller area of land that drains to a smaller stream, lake or wetland
Stakeholders		Wide range of various stakeholders	humans settlement that simple logic demands that they become part of a community
Functions		Contribute to the sustainable socio-economic development at nation or regional level	Providing ecosystems services that sustain the global and local socio-economic development
Management		Provincial/National/Regional Level	“Communities driven”/Local level (Districts/ Communities)
Sustainability		Government Funds/Funding agencies	Local Funds/Local Taxes Government incentives Payment for Ecosystem Services

It is in this context that MONRE/DWR has initiated a “Demonstration-IWRM training Center” in Vang Vieng. The Center has been established for two years while the activities undertaken are mostly at early stage. This is the very first ever of IWRM-Ecosystem based demonstration site of Laos. The activities of the Center include:

- Training facilities
- Venue for river basin management exhibition
- Demonstration or “Pilot Site” for IWRM activities at community levels in different important areas of water management.

The National MONRE’s Demonstration-IWRM Training Center is located on the Nam Pao River. The “Pilot Site”, covering an area of 829 ha, is an upper-watershed which is largely constituted of headwater rainforest which is mostly in pristine condition. There are five villages located within the Pilot area inhabited by mixed ethnic groups: high-middle-lower Laotians. The local residents live on rice farming and non-timber products harvesting. Local flora and fauna communities in the project area characterize distinct headwater rainforest biota while rare native species are abundant with high biodiversity of national importance. The Center is also co-inhabited by five villages of mixed ethnic groups; low-middle-high Laotians.

The activities in the Pilot Site, at early stage, were conducted jointly by the central-provincial-district governments in partnership with local communities. The activities are strategically designed to support the local communities in playing a proactive role

in implementing conservation actions in their localities. Many activities are therefore managed and implemented by these communities, these include:

- Exploring physical and biological settings of the project area, fencing of the project area boundary, initially survey of the stream morphology and the local fauna and flora.
- Building and renovating a weir and check dam.
- Establishing and providing waterfall water supply system for the villagers.
- Reforestation and organization of community involvement activities.

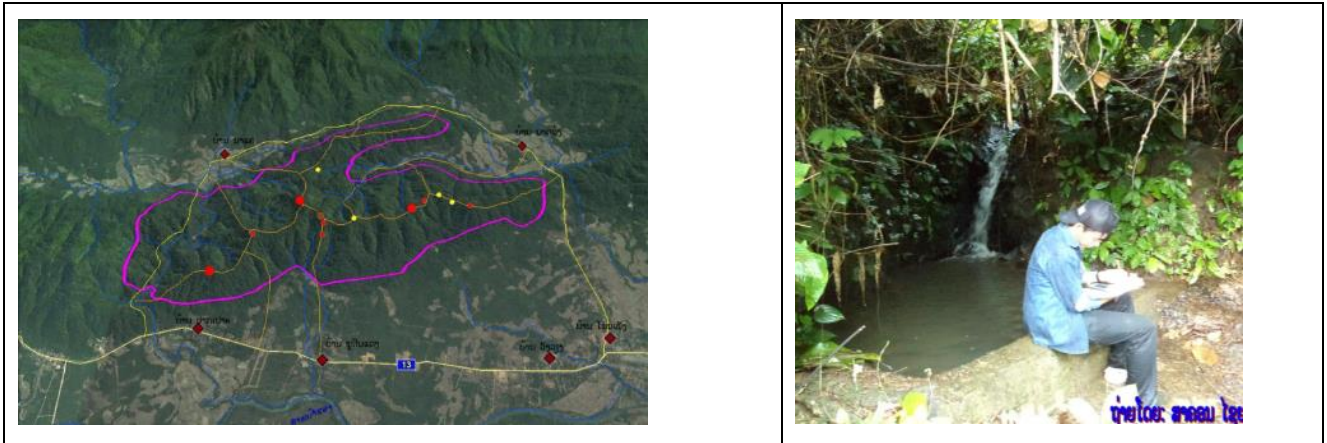
The vision that leads to the expected development of Pilot Site's activities is the highlighting of the key role and benefit of local engagement to contribute to the sustainability of water and environmental conservation, local livelihood and local's wellbeing. The success stories and lesson learn of the Pilot Site will be disseminated and upscale across every basin of Laos.

In a next step, it is planned to develop and consolidate the potentiality of the "Demonstration-IWRM Training Center" focusing on the following areas

- Develop the facilities of the Center to fit with the objective of being a Center for Exhibition Events on topics related to water management, a Venue for meeting and seminars and an Awareness Center with permanent exhibition material on the importance to protect the watersheds ecosystems (that would be also visited by tourists to get them more familiarised with the Lao nature richness)
- Promote local livelihood i.e community forest management, sustainable agriculture, water quality management, fisheries conservation zone, community tourism.
- Develop capacities in local water quality monitoring and risk management (e.g. floods warning).

The University of Khon Khaen, Thailand (KKU) has been identified as a suitable partner to bring advises and technical support for the development of the potentialities of the Center. KKU is located in North-East of Thailand and is involved in watersheds which share similar physical, social and cultural features of the Mekong ecoregion.





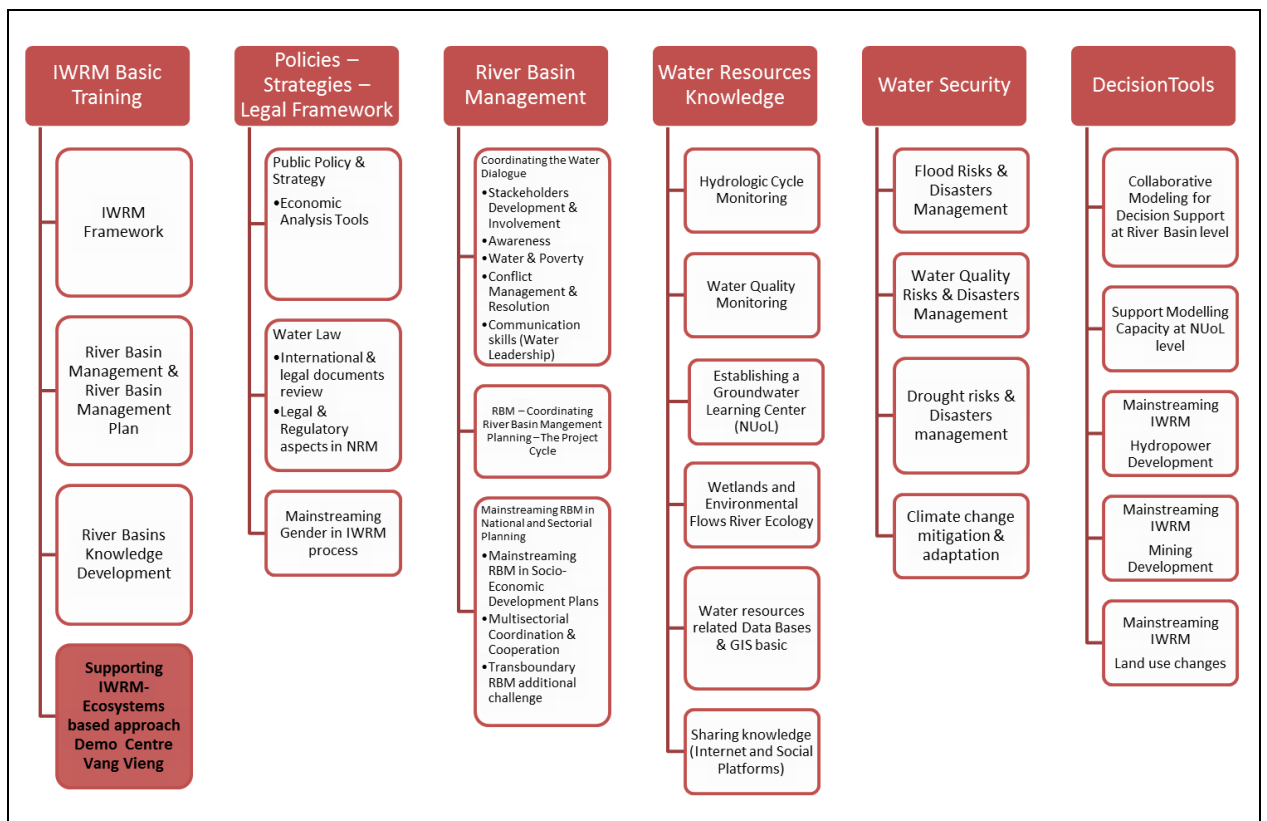
The present training has 2 parts :

- *Part 1: Exchange study tour* organized by KKU will bring the trainees to visit these type of successful cases in NE Thailand and encourage them in considering new ideas and approaches that could be proposed in the Pilot Site of the Vang Vieng Demonstration site. The exchange visit must also contribute to a better understanding of the specificities of applying IWRM-Ecosystems based approach in a “community-driven” context for protecting vital ecosystems and related natural resources.
- *Part 2: Visit of the Demonstration Center in Vang Vieng.*
  - Wrapping up from the participants of the exchange visit in Thailand of the outputs of their visit, the lessons learnt and the potential they have discovered that could be applied in the Pilot Site.
  - Review the potentialities and areas for supporting the development Demonstration Center in Vang Vieng and sort out a concept and development plan that would be presented for consideration to potential partners that could support the Center in a longer perspective after completion of ADB TA7780<sup>2</sup>.

The next figure allows to localize this module within the framework of the Training Plan:

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<sup>2</sup> It is agreed with WBIWRM project that they will take on for the consideration of funding and implementation after ADB TA7780 would have been completed.



## B. Expected Outputs

The expected outputs are:

### Part 1: Exchange study tour

- From exchange with Thai communities, villagers and WR agencies, the trainees get broader perspectives and approaches for developing IWRM in watersheds. It gives them an immediate potential for application in the Pilot Site of the Demonstration Centre
- The trainees understand key principles and specificities in IWRM applied in watersheds, especially the key role to be given to the population living in the targeted areas;
- Trainees are able to identify areas that may bring high value added for ecosystems protection.
- Trainees are able to identify particular needs in terms of knowledge and monitoring: identification of the ecosystems and related natural resources, impacts of human activities, services provided, value of the services provided.
- Trainees are able to identify particular approaches in terms of water and water related resources dialogue with the stakeholders, knowledge sharing, specific awareness tools, community monitoring, local governance.

### C. Main topics covered

The topics that will be covered are listed below:

- *During the exchange visit trip in Thailand (Part 1)*
  - What is generally behind the concept of “Vital Ecosystems”?
  - Criteria for selecting an area where the concept of protecting “vital ecosystems” is expected to be applied (hydrological criteria, environmental criteria, socio-economic context, existing “leadership”, etc)?
  - What are the specific ecosystems and/or water/natural resources to be protected and what are the “services” they may provide for contributing to maintain environmental sustainability and socio-economic development and welfare within the perspective of the overall river basin?
  - How these eco-systems may be impacted by human activities and socio-economic development?
  - How IWRM principles may be applied to manage these areas and what are the specificities when applying these principles, with emphasis on the key role of the population living in the areas?
- *During the workshop at the MONRE/DWR’s Demonstration Center in Vang Vieng (Part 2)*
  - *Develop an action plan based on the following topic :*
    - *Identification of the needs to make the Center a place of excellence to organize exhibitions and seminars about Water Resources Management*
    - *Identification of the needs in Knowledge and Monitoring – What would be the community engagement in contributing to the knowledge and Monitoring: Getting a good knowledge of the area covered by the MONRE/DWR demonstration center (“Profile”). Evaluate up to what point this knowledge is adequate and what should be done to improve it (focusing on the concept of vital ecosystems, the services they may provide and the impacts of human activities on these ecosystems)*
    - *Identification of the needs to reinforce Communities/Stakeholder’s capacity, involvement, leadership and coordination: Evaluate the status of the dialogue with the stakeholders: consensuses on issues, shared vision, road map.*
    - *Identification of the needs for improving Local Governance Tools: Evaluate the needs for improving governance tools such as:*

community tools for decision process, communication with RBC/Agencies, knowledge sharing, community monitoring, risk management, awareness, etc.

### III. Training Program Agenda

#### A. IWRM- Ecosystem Based Approach: Exchange Visit in Northeast, Thailand

##### DAY 1:

Time	Program	Resource Persons
<b>Exchange Visit Session 1: Introduction</b> <b>Objectives:</b> To give an overview picture of Thailand Water Resources Management and the program agenda of the visit in the next three days		
10:00	Travel to Khon Khaen, Thailand	
15:30	Arrive Khon Khaen	
16:00-16:30	Welcome remarks	Director DWR Region 4, Thailand, and Khon Khaen University, Health and Social Science
16:30-17:00	Briefing: The Chi River Basin - basic facts, Thailand IWRM management strategy a) Thailand river basin legal system. b) River basin management framework. c) Institutionalization of Thailand river basin organization (RBO). d) The role and function of RBO. e) Limitation and barrier of Thailand RBO. f) IWRM concepts and key practices of the pilot sites.  and site visits in the next three days  <i>Keynote presentation 1 (English)</i>	Director DWR Region 11, Thailand
17:00-17:30	Briefing: River basin information management system  a) Application of GIS and webpage for watershed information management. b) One page mapping strategy for public communication in the watershed. c) Inventory and application of telemetry system in assisting watershed conservation and management.  <i>Keynote presentation 2 (English)</i>	Mekong Research Center, Technology Rachamangkhal University
17:30-18:00	Q&A	Khon Khaen University, Health and Social Science

Time	Program	Resource Persons
18:00-20:00	Reception dinner	

## DAY 2:

Time	Program	Resource Persons
<b>Exchange Visit Session 2: Water Management Facilities and Exhibition</b> <b>Objectives:</b> The trainees will visit the northeast irrigation and water management center and be shared experience from Thailand on collaborative flood and irrigation management		
08:00-08:30	Depart Hotel to Khon Khaen Irrigation Department Information Center	
08:30-09:00	Welcome Address and Introduction of Khon Khaen Irrigation Department Information Center	Director, Irrigation Department, Region 4
09:00-10:30	Visit the Center Exhibition	Director, Irrigation Department, Region 4
10:45-11:00	Refreshment Admin team	
11:00-12:00	<p>River basin organizations in Northeast Thailand and experience on collaborative flood and irrigation management between government, NGOs, private sectors and water user groups</p> <p>a) Briefing on water allocation system in the irrigated farmlands.</p> <p>b) Application of WEAP and CropWat programs in water management and planning within the watershed.</p> <p>c) Direct observations on water allocation system</p> <p><i>Keynote presentation 3 (Thai)</i></p>	Irrigation Department, Region 4, Irrigation Management expert

Time	Program	Resource Persons
12:00-13:00	Lunch	
<b>Exchange Visit Session 3: Self-sufficient economy and chemical free agriculture</b> <b>Objectives:</b> The trainees will visit a success community on integrated farming practice and exchange lessons and knowledge		
13:00-16:00	Departs to Kalasin Province, visit the 'Community Rice Seed Production Center' at Huay Po Sub-District, Muang District (2 hours)  <i>The Center delivers activities;</i> <ul style="list-style-type: none"> <li>• <i>Bioherbal pest control,</i></li> <li>• <i>plant hormone,</i></li> <li>• <i>renewable energy,</i></li> <li>• <i>integrated pest management,</i></li> <li>• <i>mixed farm-base productions.</i></li> </ul>	Khon Khaen Team
<b>Exchange Visit Session 3: Community Tourism</b> <b>Objectives:</b> The trainees will visit and stay in a NE Thailand, award winning community on community tourism. The trainees will have opportunities to learn about local tourism management that led and managed by the members of the community themselves		
16:00-17:30	Arrives at Ban Kok Gong, Kuchinarai District Welcome address by the Community leader <i>Meeting the home-stay hosts</i>	Khon Khaen Team
18:00-21:00	Reception dinner	
21:00	Stay overnight at Ban Kok Gong (Home Stay), Kuchinarai District	

### DAY 3:

Time	Program	Resource persons
07:00-09:30	Enjoy morning special moment at Ban Kok Gong <ol style="list-style-type: none"> <li>a. <i>Cooks breakfast with the home-stay host</i></li> <li>b. <i>Offers food to the Buddhist monks</i></li> <li>c. <i>Breath taking at the local waterfalls</i></li> <li>d. <i>Having breakfast with the hosts</i></li> <li>e. Cultural performance and dinning management.</li> <li>f. Household accommodation and in-house activities management.</li> </ol>	Khon Khaen Team
<b>Exchange Visit Session 4: Community-based Water and Land Management</b> <b>Objectives:</b> The trainees will visit a successful and award winning community in local water management. The community has been long facing chronic drought problem but however, has		

Time	Program	Resource persons
recently coped with the problem very efficiently by adopting integrated smart land use planning and farming system.		
09:30-10:15	Departs to Sai Na Wang Sub-District, Nakoo District (50 Kms from Ban Kok Gong)	
10:15-12:00	Briefing: Community water management and integrated farming practices in dryland	Chief of the Village
12:00-13:00	Lunch at Sai Na Wang Ms Siripak and the team	
13:00-16:00	Experiencing: Integrated farming systems at Mr Bumroong farmland  <i>Keynote presentation 4</i>	Mr Bumroong Kayota, a farmer
16:00-18:30	Departs from Sai Na Wang Sub-District to Khon Khaen Province	
18:30	Stay overnight at hotel in Khon Khaen Province	

#### DAY 4:

Time	Program	Facilitator
<b>Exchange visit session 5: Wrap Up and Reflection</b> <b>Objectives: Reflection session and to discuss on a preparation of the next week trip in Laos, IWRM Eco-system based Approach Poposal Development</b>		
08:30-09:00	Q&A with lessons learnt	Khon Khaen University
09:00-10:00	Discussion of future collaborations	Khon Khaen University
10:00-10:30	Coffee break plus Q&A	
10:30	Departs to Vientiane Lao PDR	

### B. MONRE's Demonstration Site Proposal Development Workshop

#### DAY 1:

Time	Program	Resource persons
<b>Session 1: Demonstration Site Visit and Local Interviews</b>		
10:00	Meet KKU team at Laos-Thai Border and depart to Vang Vieng	DWR and KKU



Time	Program	Resource persons
12:00-13:00	Lunch on the way at Vientiane Capital	
16:00	Arrive Vang Vieng Demonstration Site, met with Community representatives	
18:00	Travel to Vang Vieng and check-in to hotel	

## DAY 2:

Time	Program	Facilitator
<b>Session 1: Introduction of the Workshop and Recap</b>		
08:30-09:00	Opening and Introduction  <i>Keynote presentation 5</i>	DWR
09:00-09:30	Recap, Objectives, expected output and methodology	CTA
09:30-10:00	Small plenary discussion	CTA
<b>Session 2: Warm up and Pilot Activity Brainstorming</b> <b>Objectives:</b> To collect inputs on possible activities to be developed in the MoNRE's Demonstration Site		
10:00-10:45	Warm-up. Ideas brainstorming of pilot activities for the Demonstration site	KKU/Village representatives
10:45-11:00	Break	
11:00-12:00	Proposal and Action Plan methodology Discussion	KKU/Village representatives
12:00-13:00	Lunch Admin	
13:00-15:00	Group Discussion on activities grouped into (if possible) <ul style="list-style-type: none"> <li>1. Facility and exhibition management,</li> <li>2. Sustainable livelihoods ie non-chemical agriculture, local energy production, fisheries conservation and community tourism</li> <li>3. Local based water and land use management</li> <li>4. Community research</li> </ul>	DWR/KKU/CTA And Village representatives

Time	Program	Facilitator
15:00-15:15	Break	
15:15-16:30	Continued group discussion and reporting to plenary	

**DAY 3:**

Time	Program	Facilitator
<b>Session 3: From Ideas into Proposal and Action Plan Development, and Commitment Building</b>		
<b>Objective:</b> Proposal workshop, to drawing structure and outlines of the proposal		
08:30-09:00	Recap	CTA
09:00-10:45	Development of proposal and action plan <ul style="list-style-type: none"> <li>• Background</li> <li>• Objectives and outcomes</li> <li>• Budget and timeframe</li> <li>• Pilot activities</li> <li>• Concerned agencies and communities</li> <li>• Fund raising plan</li> <li>• Ways forward</li> </ul>	KKU/Village Representatives
10:45-11:00	Break	
10:45-12:00	Continued: Development of proposal	KKU/Village representatives
12:00-13:00	Lunch	
13:00-16:00 15:00-15:15 break	Group workshop on their proposal activity and Reporting to plenary  Commitment building and future plan  <i>Report material 1:</i>	KKU/DWR/CTA
16:00-16:30	Closing and travel back home	DWR


## IV. Training Materials

### A. Key note presentation 1: Northeast-Chi River Basin Management (English)



โครงการส่งเสริมการจัดการน้ำในภาวะวิกฤตโดยการ  
รักษาระบบนิเวศในพื้นที่ลุ่มน้ำ  
(ลุ่มน้ำสาขาห้วยสายบาตรของลุ่มน้ำชี)  
หน่วยงานที่รับผิดชอบ :  
สำนักงานทรัพยากรน้ำภาค 4 กรมทรัพยากรน้ำ  
หน่วยงานสนับสนุน  
สำนักประสานความร่วมมือระหว่างประเทศ กรมทรัพยากร  
น้ำ  
โดย..สถานวิจัยทรัพยากรแหล่งน้ำลุ่มน้ำโขง-ชี-มูล  
มหาวิทยาลัยเทคโนโลยีราชมงคลอีสาน วิทยาเขตขอนแก่น  
ผศ.ราชภัทร รัตนาราท  
(คณะทำงานสำนักวิชาการลุ่มน้ำชี -TNMC- MRC - 5T)

### B. Key note presentation 2: Water and Database management by Telemetry Equipment (English)



ระบบโทรมาตร (Telemetry System)  
**Telemetry System (ระบบโทรมาตร )**  
Develop an information decision support system.  
**RMUTI**  
Rajamangala University of Technology Isan  
:Khonkaen Campus

### C. Key note presentation 3: Water Management by Royal Thai Irrigation Department (Thai)



สำนักงานชลประทานที่ ๖ กรมชลประทาน  
Royal Irrigation Department  
ยินดีต้อนรับ คณะ  
เจ้าหน้าที่  
สาธารณรัฐประชาธิปไตย  
โครงการส่งน้ำและบำรุงรักษา  
เขื่อนลำนางรอง

## D. Key note presentation 4: Community IWRM (Thai)

การบริหารจัดการทรัพยากรน้ำชุมชน

โดย

คณะกรรมการบริหารจัดการน้ำแบบบูรณาการตำบลสายน้ำวัง  
อำเภอนาตุ จังหวัดกาฬสินธุ์

## E. Key note presentation 5: MoNRE IWRM Demonstration Site (Laos)



**F. Document material 1: Summary Report on IWRM Knowledge and Practice Exchanges between Lao PDR and Thailand**

Summary Report on  
IWRM Knowledge and Practice Exchanges between Lao PDR and Thailand



By

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Aschara Booppapun

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## Preface

This report aims to summarize the outcomes of IWRM knowledge and practice exchanges activities between Lao PDR and Thailand. The outcomes are based on the two set of activities done; (i) the Lao PDR delegates visited NE Thailand for exploration of IWRM practice in NE Thailand during 14-17 December 2014, and (ii) the four Thai experts made visit to the IWRM Demonstration Site during 21-23 December 2014.

The content in this report concludes all activities being organized and the subsequent achievements. More importantly, the Thai experts in consultation with Central, Provincial, District, and village Heads finally list of activities subject to be further done within the IWRM Demonstration Center area.

We do hope this summary report will inform and guide any donors and agencies in response to the need of future development actions at the IWRM Demonstration Center area. We would like to thank to NE Thailand IWRM model communities, Department of Water Resources Thailand, Department of Royal Irrigation Thailand, and special grateful thank to the Asian Development Bank.

We also feel much appreciated to all Lao PDR delegates from Department of Water Resources MoNRE, Vientiane Province, Vang Vieng District, and Village Heads of Ban Nadunag, Ban Nakhae, and Ban Pakpo.

Yanyong Inmuong *PhD*  
Thailand Experts Team Leader

**Background:**

Department of Water Resources (DWR), of MoNRE Lao PDR, has established the National IWRM Capacity Building Center located at Vang Vieng District of Vientiane Province. The IWRM Center is aimed to deliver training courses as well as demonstrate IWRM model practices for nationwide government officials and general public of Lao PDR. The Center has an area of 826 hectare and situated in the Nam Po watershed, a part of Nam Ngum River Network. The preliminary surveys indicated that the IWRM Center's area at Nam Po has high conservation values of native flora and fauna richness. The Center is also co-inhabited by five villages of mixed ethnic groups; low-middle-high Laotians.

Implementation of IWRM practices by the Center has just started for two years while the DWR further recognizes the need to gain more experiences on IWRM practices from neighboring localities – NE Thailand. The Chi River Basin Organization (Chi-RBO) NE Thailand has been practicing the IWRM for more than ten years, this RBO supports watershed communities in managing conservation actions of between water-economic-social in harmony with nature. Further, those NE Thailand IWRM model communities also evidently show on how community groups could apply the ecosystem-based approach in managing of their lands, waters, and livelihoods while directing to sustainable development goal.

The DWR Lao PDR, with a special support by the Asian Development Bank (ADB TA77802), then requested Khon Kaen University (KKU) NE Thailand to co-plan and co-organize jointed IWRM activities between Lao PDR and NE Thailand. There were two set of activities on IWRM knowledge and experience exchanges between Lao PDR and Thailand;

- (i) a short study visit of Lao PDR delegates to IWRM community-based pilot sites in NE Thailand (14-17 December 2014), and
- (ii) the NE Thailand IWRM experts made a visit to the IWRM Capacity Building Center Lao PDR at Vang Vieng to advise the Lao team in framing of future IWRM program activities (21-23 December 2014).

**Specific objectives:**

It is expecting that the Lao PDR delegates will:

- 1) Directly experience and learn on how the NE Thailand IWRM organizations are institutionalized and functioning.
- 2) Tangibly observe on how the NE Thai rural communities are practicing on-the-ground of IWRM activities.
- 3) Practically gain key concepts and ideas, from visiting Thailand IWRM cases, and that therefore merge some idea in development of IWRM activities at the demonstration site.



## List of successful organized activities and outputs in NE Thailand

- 1) Delivery of RBO and IWRM concepts and practices.
  1.
    - 1.1) Thailand DWR expert presented Thailand river basin management framework and IWRM principle and practices (14 December 2014).
      - (a) Thailand river basin legal system.
      - (b) River basin management framework.
      - (c) Institutionalization of Thailand river basin organization (RBO).
      - (d) The role and function of RBO.
      - (e) Limitation and barrier of Thailand RBO.
      - (f) IWRM concepts and key practices of the pilot sites.
    - 1.2) Thailand RMUTI expert presented on Thailand watershed information management system (14 December 2014).
      - (a) Application of GIS and webpage for watershed information management.
      - (b) One page mapping strategy for public communication in the watershed.
      - (c) Inventory and application of telemetry system in assisting watershed conservation and management.
    - 1.3) Thailand water irrigation system (15 December 2014).
      - (a) Briefing on water allocation system in the irrigated farmlands.
      - (b) Application of WEAP and CropWat programs in water management and planning within the watershed.
      - (c) Direct observations on water allocation system.
  - 2) Direct experiences on community-based IWRM practices (15 December 2014).
    - (a) On-farm practices on growing vegetables with netting, supplying vegetable products to Khon Kaen fresh market.
    - (b) On-farm practices on growing chemical-free vegetables to Khon Kaen hypermarket.
  2.
    - 3) Direct experiences on home stay management (15-16 December 2014).
      - (a) Cultural performance and dining management.
      - (b) Household accommodation and in-house activities management.
    - 3.
  - 4) Direct experiences in sub-district IWRM management and integrated farming practices (16 December 2014).
    4.
      - (a) Briefing on Sai Na Wang sub-district water resources management framework of Kalasin Province.
      - (b) On-farm observations on integrated farming practices.
  - 5) Summary of what the Lao delegates have learnt, these were: (17 December 2014).
    - (a) Thailand IWRM framework and institutionalization.

- (b) Applications computer programs for assisting watershed conservation and management planning.
- (c) IWRM community-based actions and livelihood benefits.
- (d) Plan of activities of visits to Vang Vieng Lao PDR.

### **Concluding remarks on assessment of lesson learnt from NE Thailand:**

Assessments were done by observations and reflections of Lao PDR delegates while attending presentation sessions and visiting IWRM model communities. The Lao PDR delegates responded as followings:

- i) Understanding more of Thailand framework in managing of river basin and IWRM; organization arrangement, roles and functions of Thai RBOs, participation of local community in managing water and natural resources.
  - ii) Experiencing and learning some key tools, used by the Thai RBO, for assisting watershed management planning; QGIS, Telemetry, WEAP, CropWat.
  - iii) Learning on the sub-district organization establishes the water balance map as well as water resources management planning at local community scale.
  - iv) Getting key ideas from community visits:
    - a. The first two communities at Ban Mao and Ban Sa Wang of Khon Kaen Province, these two sites inspires them on how to start off organic farming systems as well as marketing the products.
    - b. The third community, at Ban Kok Kong of Kalasin Province, brings in some clue with community-based home stay management:
    - c. The last community visit, at Ban Kood Ta Kai of Sai Na Wang sub-district of Kalasin Province, this inspires them with the integrated farming system of mixed plant and animal cultivation.
- 5.

### **List of successful organized activities and outputs in Vang Vieng Lao PDR**

- 1) Revisit and wrap-up of what the Lao PDR have learnt from the NE Thailand visits (14-17 December 2014).
- 2) Discussions on opportunity for merging IWRM activities in the demonstration site (22 December 2014).
- 3) Breaking into two-group discussions:
  6.
    - (a) Group 1, overview and development of IWRM activities of the three villages (Naduang, Nakae, Pakpo) participated by three villages heads and two Thai experts plus two technical officers of DWR Lao PDR and ADB technical assistant leader

- (b) Group 2, IWRM Nam Po institutional establishment and its mandates participated by officers from DWR, provincial, city, and two Thailand experts (22 December 2014).
- 4) Presentation of the two-group works on proposed plan of activities (23 December 2014).
- 5) Discussion and summary of proposed plan of IWRM activities (23 December 2014).

## Final outcomes: Proposed IWRM plan of activities

At community scale: Three villages

### **Ban Naduang**

#### ***Ban Naduang: In Brief***

**Ban Naduang** is located at the Pak Pao watershed upstream while most local residents are lower Laotians. Villagers are of two mixed ethnic groups; lowland Lao and Khmu. Mr. Sengdao Vongphachan, the village head, reveals that currently his village has two high development potentials related to ecotourism; the Tad Kaeng Nyui Waterfall and the Community-based Homestay.

**Kaeng Nyui Waterfall** is one of the top Vang Vieng attractions ranked by the Trip Advisor. The water fall circuit consists of three cataracts: Kenlon's five-meter, tumble into a pleasant swimming pool, Kaeng Nyui's 34-meter drop into a fine mist, and the inaccessible Kaeng Nyeang. A 400-meter further leads to Kenlon Waterfalls with featuring a swimming hole. The Kaeng Nyui Waterfall Circuit is managed by Na Duang community, the four business stalls are running by the three families in turns for each. The fall is 34 meter height while the waters flow plentifully during June-October. The entrance charges per person; Asian and Lao 5000 Kip, and for others 10,000 Kip. The Naduang earns as community revenue yearly approximately 30,000 USD (250,000,000 Kip), while 20% paying as tax, 8% administrative committee fees, 40% waterfall development fund, and the rest paid as profit to all families. The *Kaeng Nyui Waterfall* is recognized as a major source of community income.

During dry months with limited of waters, some activities have been organized for group adventures at the waterfall site- the flying squirrels.

At present, there is no proper signpost installed to inform visitors of immediate localities, warnings, accident prevention, etc. The community also needs to have a local guide to service visitors.

**Homestay** is another community-based service open for visitors since the last three years. Attraction is paid to observe of mixed lowland Lao and Khmu livelihoods and also unique housing architectures. Most clients are from EU countries and US while coming in group with 5-16 persons. The charge is made per head 90,000 Kip per person per night including dinner and breakfast.

### **Proposed IWRM activities of Ban Naduang**

The Village Head, Mr Sengdao Vongphachan, in consultation with the Thai experts and DWR Lao officials expressed the need on future development of IWRM related activities in his locality, these included:

- (a) Requesting the Van Vieng City and Vientiane Province to consider relocation of pumping station from the existing water impoundment at upper Kaeng Nyui terrain to another nearby reservoir. This will hence keep water availability flowing at the Kaeng Nyui all year round and therefore will bring more income to Ban Naduang community.

- (b) Requesting the Van Vieng City to pave the road for seven kilometers from the main road passing Ban Naduang up to Kaeng Nyui waterfall as well as building a standard car park at the waterfall.
- (c) Ban Daduang definitely seeks technical and financial external supports for an improvement of Kaeng Nyui waterfall management, this includes:
  - (1) Building essential signposts.
  - (2) Creating and how-to making souvenir products.
  - (3) Training local tourist guides and navigators.
  - (4) Improvement of waste management.
  - (5) Increasing of quality of food services.

**Ban Nakhae**

7.

8.

***Ban Nakhae: In Brief***

**Ban Nakhae** is the uppermost village of the IWRM demonstration loop. Inhabitants are of mixed Khmu and Hmong ethnic groups. The community lives on growing both sticky and plain rice varieties as well as raising cows. Most families have plain rice as their staple food while selling the sticky rice. During monsoon season, local residents also grow mixed vegetables for sell at Vang Vieng market but they very often found the demand is relatively low. Lately, the community gain income mainly from selling cattle. In recent years, the community faces water shortage during dry months and thus cannot make them plant any vegetation. Beside, some families at Ban Nakhae are still doing cloth weaving for their additional income.

**Ban Nakhae** is also listed as the mixed ethnic culture of visiting place by the ecotourism agents. The ecotourism loop often starts from Ban Naduang *via* Tham Chang Cave and to Ban Nakhae while ending at the organic farm of Ban Phoudindeng. At present, Ban Nakhae still needs more developments on building of tourist attractions especially on cultural artifacts and performances.

**Proposed IWRM activities of Ban Nakhae**

The Village Head, Mr. Xaydalo, in consultation with the Thai experts and DWR Lao officials expressed the need on future development of IWRM related activities in his locality, these included:

- (a) The community basically still needs to external support to make them producing their staple food sufficient for year-round living.
- (b) They also seek support of plant seed varieties that tolerant to drought as well as any construction of small reservoirs and irrigation canals diverting waters into their farmlands.
- (c) The Village Heads of Ban Naduang and Ban Pakpo also add more comments to the development of Ban Nakhae, while they see that Ban Nakhae has high potential of attractions for visitors particularly on weaving activity and ethnic cultural affair. They

would like to Ban Nakhae to move on an establishment of ethic culture conservation center and promotion of the cotton weaving activity.

### **Ban Pakpo**

9.

#### ***Ban Pakpo: In Brief***

(d) **Ban Pakpo** is located by the road route 13 at the lower terrain of the IWRM demonstration loop. Ban Pakpo is also situated at the confluence of Nam Song and its tributary Nam Po while this makes Ban Pakpo becomes a stopping point to either going up to the hillside or down to the stream reach. There are some hotels open for service to tourists within Ban Pakpo vicinity.

**Ban Pakpo** has elevated the dike, right below the bridge on route 13, on the Nam Po stream. The community recently uses the impoundment for conserving native fish stock. Many visitors are cycling around the city and stopping at the bridge to visit this fish conservation site. There is a small food outlets around the dike area run by local residents while they pay 500,000 Kip as community fees.

### **Proposed IWRM activities of Ban Pakpo**

The Village Head, Mr. Bounlerd Sayyavong, in consultation with the Thai experts and DWR Lao officials expressed the need on future development of IWRM related activities in his locality, these included:

- (a) He needs to initiate producing organic vegetables within his community. He intends to form a small group of families to start doing organic farms.
- (b) He also seeks external support for examining chemical residues in vegetables, this aims to inform the community and vegetable buyers whether his planned organic products are more safe when compared to others.
- (c) He also needs the Vang Vieng City to support an increasing of the height of the dike. He also wishes to make the surrounding area of the dike to be a stopping mid-point between Laung Prabang and Vientiane Capital City route for nature scenery, particularly on fish conservation attraction.

### **Overall interconnected IWRM activities of the three villages**

The Thai experts finally make more comments on future development of IWRM activities that could be done by the Center, particularly focusing on connecting ecotourism of the three villages (also with other two villages; Ban Vieng Samai and Ban Phoudindeng) in a single loop (Figure.1). It is a very high potential that Ban Naduang could be highlighted as ecotourism-ecological conservation destination while Ban Nakhae is for ethic and cultural values and Ban Pakpo is of agroecosystem importance.



Figure 1. Possible development on ecological-ethic cultural-agroecosystem interconnected attraction loop.

### More comments on local opportunities for possible local product deliveries

The Chief of Van Vieng City Environmental Management Office, Mr. Mixay Thantavong, also views that the IWRM Demonstration Center has a high abundance of a native plant, the vegetable fern (*Diplazium esculentum*). This fern is rarely found elsewhere except richness in the rainforest mountain range while local residents prefer to buy this fern as food. This is also a good opportunity for local dwellers particularly at Ban Nakhxae to make for a living.

The Thai experts also make more comments on this unique species as it is of high value as an indicator of pristine nature while it is absent when the surrounding environment is degrading. In Thailand, the people recognize this fern as herb and consider it as a vegetable of high value for good health as well as nature conservation.

Lastly, Mr Prasit Warnset, a Thai expert, also points out of another local opportunity to make a living that could bring in by the locals is a black-born chicken (*Gallus gallus domesticus* (var.) *Linnaeus*). This type chicken is of high value for selling as many believe its meat has medicinal property. The black born chicken becomes a special dish offered in many Chinese restaurants as well as in Korea, Thailand, and other Asian countries. Many Asian women consume it after they have given birth to get a boost of energy, but it's also said to have a positive effect on the yin, blood, lungs and stomach.

### **Initial agreements on Nam Po watershed institutional arrangements**

The representatives of Vientiane Province, Vang Vieng District, and DWR Lao PDR all agreed to have the Vang Vieng District to be responsible of establishing the Watershed Committee that approved and appointed by the Vang Vieng Governor. The DWR Lao PDR as the Central Government will do a supporting role to the Committee and the Vientiane Province does a coordinating work. The Committee should be also included members recruited from villages that could be devoting their time and willing to do public affairs.

### **Summary of all proposed IWRM activities**

The Thai experts recognize that the IWRM Demonstration Center has a very high potential to initiate conservation management on selected activities. The set of activities, after consultation with representatives from Central, Provincial, District Governments as well as village Heads, these could be summarized with the timeline as listed in Table 1.

It should be noted here that the activities listed as shown in Table 1 are principally aiming to conduct such works as 'action research' manner and/or otherwise in another meaning if appropriated these activities can be practically transformed and meant as 'type of works'. Further, the timeline of each activity made here needs more refinement as individual work would need detailed planning of activities and involvement of stakeholders.



Table 1. List of related activities to be undertaken within the IWRM Demonstration Center area.

Activity	2015	2016	2017	2018	2019
<b>1. Forest conservation management planning.</b>					
-Baseline study on flora and fauna species richness and abundance also with investigation of biodiversity zoning in the IWRM demonstration area.	→				
-Research and development of topographical and biodiversity digital database and GIS base mapping.	→				
-Study on inventory of rare native flora and fauna species.	→				
-Study on inventory of conservation zone of high value.		→			
-Study on establishment of plant genetic conservation center.			→		
<b>2. Reforming agricultural practices.</b>					
-Study on local and external market demands as well as investment cost and pricing of selected farm products.		→			
-Study on soil quality and water availability for the selection of crops to be best cultivated by local residents.	→				
-Study on ways of an introductory application of Good Agricultural Practice (GAP) in selected crops in selected villages in the IWRM demonstration areas.					→
-Study on opportunity in producing organic farming products, focusing on vegetables and natural-base vegetation and poultry raising.					→
-Study on opportunity of agricultural resources recycling and pest control, particularly on animal manure as organic fertilizer, water saving practices, vegetable farm netting.	→				
-Study on establishment of local farm outlets to local tourist consumers (from farm to fork) as well as farm products delivery to specific markets (hotels, guesthouses, local restaurants).		→			
<b>3. Community-based water resources conservation and management.</b>					
-Study on development and invention of GIS base system and physical model of the Nam Po watershed.	→				
-Study on invention and installation of the remotely stream telemetry measuring system installed across	→				

the Nam Po water network.					
-Study on development and invention of appropriate water quality assessment tools and methods to be applied at the Nam Po watershed.	→				
-Study on ways of local residents, youth groups, religious leaders, and women participating in water and land conservation actions in Nam Po watershed.		→			
-Study on water demands for household consumption and farmlands in Nam Po watershed.		→			
-Study on relationship between forest conservation and increasing water yield in Nam Po headwater streams.					→
-Study on possibility on application of solar energy for use in water management in the IWRM demonstration area.	→				
<b>4. Upgrading the Kaeng Nyui waterfall as ecotourism spotlight destination.</b>					
-Study on possibility of relocating the water pumping station at Kaeng Nyui waterfall.	→				
-Study on upgrading Kaeng Nyui waterfall as ecotourism spotlight destination, proper spatial arrangement and zoning, signposts establishment, food outlet establishment, car park rearrangement, tour guide training and supervision, building Kaeng Nyui waterfall information released to eco-adventure groups and general public.		→			
<b>5. Establishment of ethnic cultural conservation management center.</b>					
-Study on review history of ethnic group origin and place plus livelihood based storyline.	→				
-Study on refinement and upgrading of ethnic cultural performances potential for tourist attraction.					→
-Study on upgrading selected local handicraft and weaving products of good value for tourist groups.					→
-Study on local recipes or food products that could be further upgraded to deliver as unique dish or set of meal or preserved food delivery for visitors.					→
-Study on local resource materials that could be further made as local souvenir products for visitors.					→
-Study on needs of local groups' capacity to be built in support of eco-cultural conservation tourism services to visitors.	→				
<b>6. Quality improvement of home-stay services.</b>					

-Study on current home-stay service system in Ban Naduang.	→				
-Study on demands and specific needs of visitors for home-stay services.	→				
-Study on ways in upgrading home-stay services in Ban Naduang interconnection with Ban Nakhae and other nearby localities.	→				
-Study on needs of community and local hosts in building their capacity for an improvement of home-stay services.	→				
-Study on ways in producing of organic farming products as food delivery for home-stay visitors.	→				
<b>7. Cross-cutting development issues managed by the IWRM Demonstration Center.</b>					
-Study on exploring of vital ecosystems, current threats, conservation hotspots, and nature restoration activities in the IWRM demonstration area.	→				
-Study on the proper roles and functions of the IWRM Demonstration Center in support of national Lao government agencies, general public and local villages.	→				
-Study on development and invention of information management system essentially operated and delivered by the IWRM Demonstration Center to Lao PDR officials, Vang Vieng City, local villagers, and general public.	→				
-Study on development and invention of selected natural resource database, GIS and webpage delivery by the IWRM Demonstration Center.	→				
-Study on development and invention of resources materials, toolkits as well as exhibition design and content within the IWRM Demonstration Center.		→			
-Study on establishment and operation of mutual or revolving fund in support of development activities in local villages.		→			
-Study on ways and forms of institutionalization arrangement of Nam Po watershed organizations and committees, as well as their respective roles and functions.	→				
-Study on the roles and functions of gender in land and water conservation and management in the IWRM demonstration area.			→		
-Study on building nature conservation awareness raising program activities to be managed by the IWRM Demonstration Center.		→			

Annex-1 List of Thai experts

**Dr Yanyong Inmuong** *BSc, MEnvSt PhD*

Khon Kaen University (KKU)  
yanong.inmuong@gmail.com

Dr Yanyong has more than 20 experiences in conducting research and development activities on environmental management and planning in the Mekong region. He is also leading many Mekong region research project activities; including, climate change adaptation in rural farmlands sponsored by the Mekong River Commission, Mekong livelihood development future options sponsored by the Stockholm Environment Institute. His recent research interest is trying to explore an appropriate land and water management approach by applying the ecosystem-based practices.

**Prof. Rachapat Ratanawaraha** *BEng, MEng*

Rajamangala University of Technology Isan (RMUT)  
racha2503@hotmail.com

Prof Rachapat is leading research and development group in building hydroinformatics system of the Mekong region. He also acts as the Director of Kong-Chi-Mun Water Resources Information Management of RUMIT. He and his group have been successfully innovated and installed the climate telemetering systems in many watersheds within the Mekong. His recent research is trying to build the easy-for-use GIS system for local and regional agencies as well as farmer groups. Moreover, Prof Rachapat is a leading specialist in applying the watershed and agriculture WEAP and CropWat software for management of agricultural land and water. He also organizes a set of training on use of WEAP and CropWat for many organizations in Thailand and the Mekong region.

**Mr Prasit Warnset** *BEng, MEng*

Department Water Resources Region 11 (DWR Region 11)  
pp\_warnset@hotmail.com

Mr Prasit is a Director of Thailand Department of Water Resources Region 11, which is another leading water management agency located in the Mekong region. Director Prasit has many years of experiences in operating of the large dams in Thailand. He is a forefront expert in formulating and managing of river basin organization in Thailand. He has been also working on pushing the IWRM practices for Thailand watershed management for many years.

**Dr Aschara Booppapun** *BA MEd PhD*

Mahachulalongkornrajavidyalaya University (MCU)  
aschara01012525@gmail.com

Dr Aschara is an expert in environmental education. She has been developing many training course manuals and handbooks for Buddhist monks, youth groups, and farmer groups. Dr Aschara is also leading public communication actions in nature conservation and management of the Mekong Climate Change Adaptation Initiative Program. She is among one of Thailand country leaders in conducting local (villagers) participatory research on the ground in climate change adaptation practices

## **Annex-2** List of LAO PDR participants visiting NE Thailand

### **I. Central Government**

1. Mr. Thoumma SALERMXAY, Deputy Director of DWR;
2. Mr. Bounsanong FONGNALY, Manager of PIU C1;
3. Ms. Sengphasouk XAYAVONG, Deputy Head of Training and Awareness Center;
4. Mr. Souksamlane SONGKHAM, Head of Awareness Unit;
5. Mr. Viluck DUANGVICHIT, Technical Officer, Demonstration site Unit;
6. Ms. Sengphachan SINBANDITH, Technical Officer, Training Unit;
7. Ms. Bounpheng SUVANNALATH, Technical Officer, Awareness Unit.

### **II. Provincial Government**

1. Ms. Bounthavy CHAMPA, Deputy Head of Natural Resources and Environment Division.

### **III. District Government**

1. Mr. Sakhon SEEHAPANYA, Deputy Head of Demonstration site Unit;
2. Mr. Kongpheng SOUNPANYA, Deputy Head of Water Resources and Forestry Unit;
3. Mr. Simmavong PHOMMATHAM, Technical Officer, Natural Resources and Environment Office.

### **IV. Villages**

1. Mr. Xaydalor, Head of Nakhae Village;
2. Mr. Sengdao VONGPHACHAN, Head of Nadoung Village;
3. Mr. Bounlerd SAYYAVONG, Head of Pakpoc Village.