Project for the Development of Eco-Efficient Water Infrastructure for Socio-Economic Development in Asia and the Pacific Region

Evaluation Report

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Executive Summary

The project achieved goals more than original plans as indicated in the project proposal to the donor. The project introduced and improved awareness on the concept of eco-efficient water infrastructure in Asia region and contributed to strengthening the capacity of countries for sustainable development in Asia Pacific Region. *This was achieved through performing the relevant researches and putting this in the Asia-Pacific context, implementing country capacity programs and pilot projects, and developing effective communication strategies. As a whole, the project resulted in the following significant outcomes:*

- *7 Researches*
- *8 country capacity building programmes*
- *4 pilot demonstration projects in 4 countries*
- *3 Regional workshops in 2008-2010*
- *Development of website, Ecowin (www.ecowaterinfra.org)*
- *Newsletter, CDs and other communication products*

The use of a variety of tools/mechanisms/initiatives to cater to different stakeholders and their needs, was one of the critical success factors for the project. This resulted in a high impact project for developing countries.

The strategic planning by the ESCAP in the scoping/inception, oversight, management and motivation in collaboration with the donor, the Korea international Cooperation Agency (KOICA) also led to enhancing the success and impact of the project. *The partnership between ESCAP, KOICA, and the relevant organisations in the respective countries was deemed to be instrumental in the achievement of the objectives, outputs and outcomes. ESCAP encouraged the countries to achieve greater outcomes than what were initially scoped for the project (and achieved within the timeframe and within the budget).*

The support from the government of Korea on green growth paradigm, has benefited significantly the developing countries in the region. The visibility of the government of Korea and the KOICA as a leading country on green growth was well recognized and strengthened by the regional stakeholders. *The development of strategies, guidelines, action plans (road maps), the implementation of case studies to show the proof-of-concept and training/networking events to discuss ideas, were just amongst the benefits provided by the support of KOICA. As such, the visibility of KOICA was highlighted by ESCAP and the different countries in their reports, papers, website, projects and other communication media. This illustrates the gratitude the different countries have towards KOICA and ESCAP.*

The continuation of support and resources to enable the developing countries to transit from knowledge to actions is strongly recommended. In this connection, continuous support from the government of Korea will be welcome by the developing countries. Pilot projects would benefit more with a robust Monitoring and Evaluation Framework for effectiveness of the pilot projects. The role of UNESCAP as a regional commission of the UN will also ensure that the eco-efficient and green-growth vision is achieved in the Asia Pacific region. In addition, the connections/relationships established through this project with the key political leaders in the different countries; need to be recognised, sustained and supported. This will ensure that the "reform towards eco-efficient water infrastructure" initiated by UNESCAP, KOICA and the different partners will be successful.

1 Background of the Evaluation

Since 2008 the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) initiated the eco-efficient water infrastructure development in Asia and the Pacific as one of key tracks to promote the overarching framework of "green growth". A number of countries in the region were assisted in the areas of capacity development and the eco-efficient management of the water infrastructure to ensure inclusive sustainable socio-economic development.

With the financial support of the Korea International Cooperation Agency (KOICA) of Republic of Korea, ESCAP initiated a project "the Development of Eco-Efficient Water Infrastructure for Socio-Economic Development in Asia and the Pacific Region". Overall, the eco-efficient management of water infrastructure is an innovative approach to transform the structure of development patterns to address water scarcity and improve the productivity of water resource in the region.

The project aims to enhance the awareness and understanding on eco-efficiency concepts and strengthen capacities of policy makers to transform the development patterns from the centralized and separate development pattern to integrated and decentralized development pattern through the development of national strategies, and guidelines for development of strategies, compilation of good practices in the region, development of policy guide and action-based guidelines, and the implementation of national workshop and regional workshops, etc.

The key activities undertaken in the project were: (1) identification, assessment and recommendation of specific country-needs for institutional strengthening and capacity building for eco-efficient water infrastructure; (2) implementation of eight country capacity building projects (projects); (3) implementation of two pilot projects in Indonesia and the Philippines as demonstration of eco-efficiency: (4) organization of three regional workshops to share ideas, experiences and achievements: and (5) implementation of researches to provide knowledge, good practices, strategies and guidelines for capacity development in the region.

As the project is toward the end of cycle, there is need to assess and report on results of the project in the context of relevancy, effectiveness, efficiency and sustainability and to an extent impact. The objectives of the evaluation are to assess the overall performance and to derive lessons for organizational learning that can be utilized for design of future programmes in water infrastructure development in the region.

2 Objectives of the Evaluation

The main purpose of the evaluation was to conduct a systematic assessment on the key results and outcomes of the project, based mainly on project documentation and logframe; and to identify the needs for capacity building and institution building for sustainable water infrastructure development in the future.

The specific objectives of the evaluation are as follows:

1. To identify and assess the achievements including the capacity building for policy makers at the regional and country levels

2. To assess the extent to which the project has supported countries' efforts for institution building for eco-efficient water infrastructure development for green growth;

3. To identify lessons learned for organizational learning in capacity building and effective planning and design of future programme for sustainable water infrastructure development in the region

4. To formulate useful recommendations and identify needs for future programmes and activities to support developing countries in the context of green growth and climate change actions.

3 Scope and Criteria

The scope of the evaluation utilized the criteria (relevancy, effectiveness, efficiency, sustainability and impact) (see Table 1) in accordance with the UNEG evaluation guidelines and will address crosscutting issues of gender equality.

Table 1. Criteria for the assessment of the project.

Criteria	Definition	Assessment (1-5)
Relevancy	Extent to which the project has achieved its goals of **capacity building** and **institution building** for eco-efficient water infrastructure development	5 – Achieved 1- Not achieved
Effectiveness	Effectiveness of the project based on the **performance and results** attained as a result of its interventions.	5 – Highly-effective 1 – Not effective
Efficiency	Project's efficiency in **building capacity in the implementation of the project**	5 – Highly efficient in building capacity 1 – Not efficient in building capacity
Sustainability	Sustainability of the project with the aim of **contributing to a comprehensive policy framework and strategic actions** for eco-efficient water infrastructure development	5 – Contributes sustainably to a policy framework and strategic actions 1 – Does not contribute sustainably to a policy framework and strategic options
Impact	Impact of the project's interventions (outputs and outcomes) and derive **lessons and needs** for future activities.	5 – High impact and provides lessons for future activities 1 – No impact

4 Methodology

4.1 Components of the Review

The review consisted of the following:

a. Desktop reviews of
    - 1 Project document
    - 8 country reports
    - two-year semi-annual progress reports (from 2009-2010)
    - 2 pilot project reports
    - 6 research papers
    - Logframe for the Project
    - Project website
b. Field trips including observations and interviews to at least two targeted countries in the region (Philippines and Indonesia)
c. Questionnaires and on-line surveys of the countries
d. Key informant feedback (one donor, KOICA and one partner, UNESCAP)

4.2 Evaluation Framework/Design

4.2.1 Project Logic as an Over-all Approach

The over-all project was analysed using Project Logic as an over-all approach (http://www.uwex.edu/ces/pdande/evaluation/evallogicmodel.html), which tracks the impacts of the project. Project Logic has the following components:

- Inputs: Activities in the project
- Outputs: research, reports, websites, CDs
- Outcomes: results or changes for the individuals and institutions (including funding partners)
- Assumptions: the rationale of the project (e.g. the need for eco-efficient infrastructure)
- External factors: Factors that interact and influence the program outcomes (e.g. funding, collaboration/participation of institutions)

A draft Program Logic is presented in **Error! Reference source not found.**.

Project activities and inputs were analysed against the evaluation criteria outlined in the Scope section of this document (Table 2). An Evaluation Matrix was then be applied (Figure 2)

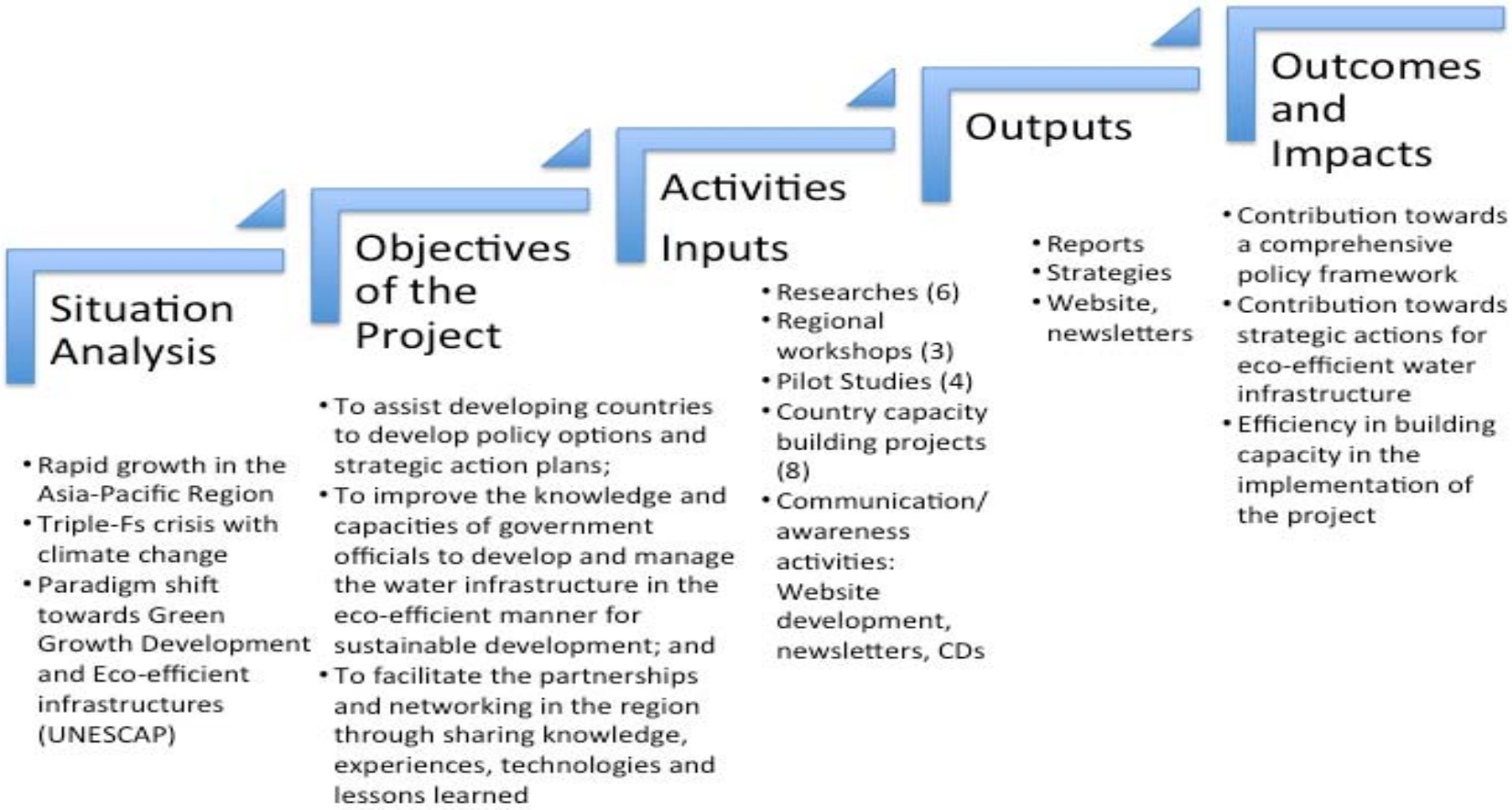


Figure 1. Draft Program Logic framework for the Evaluation of the Project.

Table 2. List of project activities and input towards evaluation criteria.

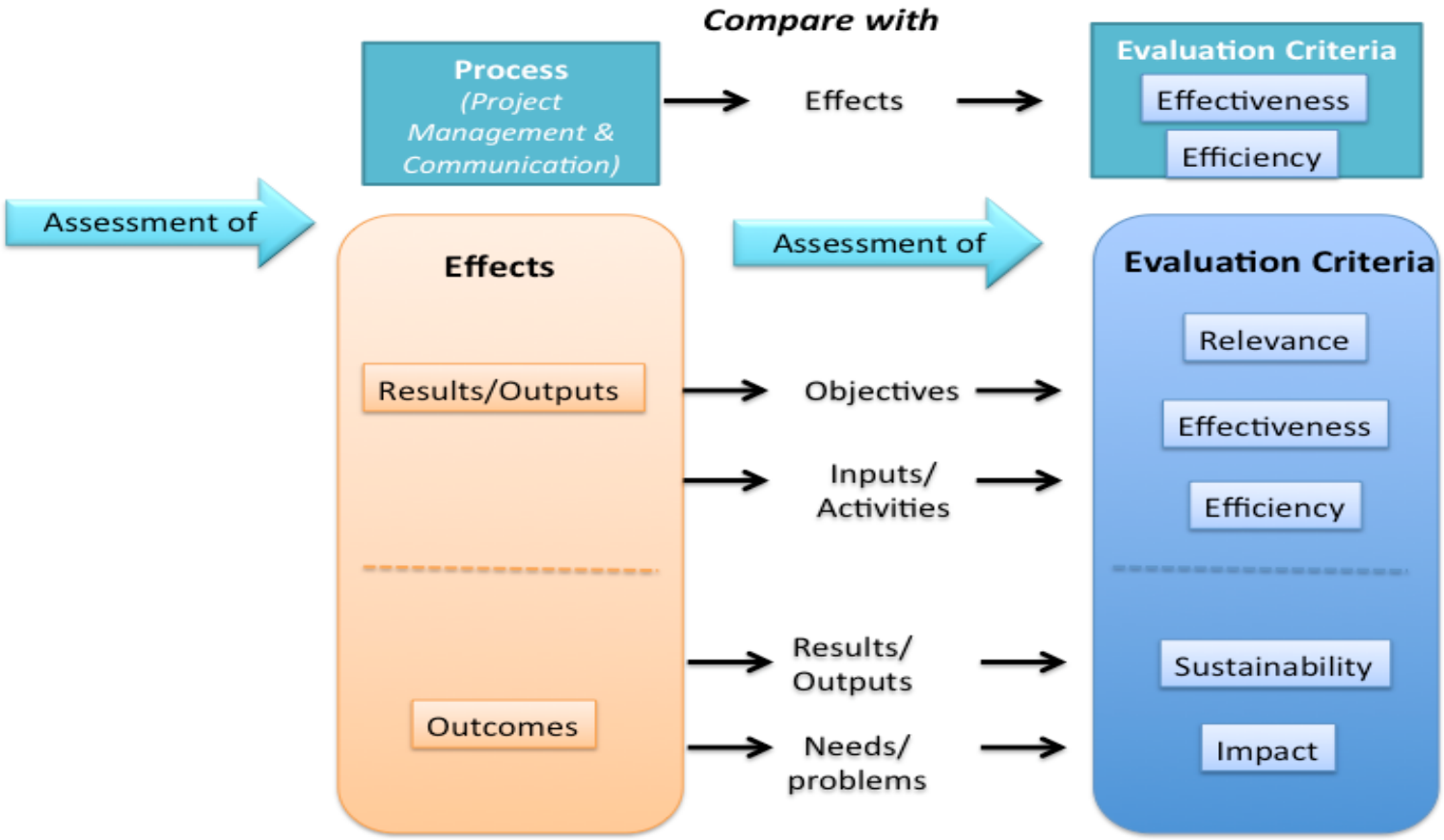
(Legend: R- relevancy; Ev – Effectiveness; Ec- Efficiency; S-Sustainability; I – Impact)

Category	**Input/Activities**	Evaluation Criteria Addressed
Researches	• Guidelines for Establishment of National Strategies for Eco-efficient Water Infrastructure Development • Guidelines for an Eco-efficient Approach to Water Infrastructure Development based on Australian Experiences • Generic Guidelines for Sustainable Rehabilitation of Small Urban Water Bodies • Status and Challenges in Water Infrastructure in Asia and the Pacific • Indicators to Assess Eco-efficient Water Infrastructure Development • Good Practices and Lessons Learned of the 2nd Regional Workshop on ECoWIN Development • Good Practices on Eco-efficient Approaches for Water Resources Planning and Management • A Guidebook on Design, Operation and Maintenance of the Integrated Rainwater and Grey-water System	R, S, I
Country Projects	• **Bhutan**: National Strategy for Eco-efficient Water Infrastructure Development in Bhutan • **China**: The Framework on Eco-efficient Water Infrastructure Development in China • **Indonesia**: Development of policy brief and national strategy on eco-efficient water infrastructure development • **Malaysia**: Guidelines on Eco-efficiency in Water Infrastructure for Public Buildings in Malaysia • **Mongolia**: Strategy of Eco-efficient Water Infrastructure Development for Mongolia Water National Programme and Water Law; and Educational Materials for Eco-efficient Water Infrastructure Development	Ev, Ec, I

	• **Nepal**: Concept Policy Paper on Eco-efficient Water Infrastructure Policy in Nepal • **Philippines**: National Strategy for Eco-efficient Water Infrastructure Development in the Philippines; and Integrating Eco-efficient Water Infrastructure into Philippines National, Local, and Sectoral Plans • **Viet Nam**: Guideline Framework for River Restoration in Vietnam	
Pilot Demonstration Projects	• Project on Integrated Stormwater Management System in DOST 7, Philippines • Project on Framework and Action Plans for River Rehabilitation of Small Streams in the Brantas River Basin, East Java, Indonesia	R, Ef, Ec, S, I
Communication and Awareness: *Regional Workshops*	• 1st Regional Workshop on the Development of Eco-efficient Water Infrastructure for Socio-Economic Development in Asia and the Pacific Region, 10-12 November 2008 in Seoul, Republic of Korea • 2nd Regional Workshop on the Development of Eco-efficient Water Infrastructure for Socio-Economic Development in Asia and the Pacific Region, 19-21 August 2009 in Incheon, Republic of Korea • 3rd Regional Workshop on Eco-efficient Water Infrastructure Development for Green Growth in Asia, 23-25 November 2010 in Bangkok, Thailand	R, S, I
Communication and Awareness: *Website development and number of visits*	Project website; www.ecowaterinfra.org	R, Ef, I
Communication and Awareness: *Others*	• Project brochure and CDs for the regional workshops are distributed to stakeholders during regional workshops and international conferences. • Two posters have been developed related to the project and the pilot projects and have been displayed during workshops and international conferences within and out of Bangkok, Thailand	R, Ec, I
Communication	• Sanitation and Water Conference 2008 in Melbourne / Visit CMA in 27-31 October	R, Ec, I

and Awareness: *Participation in International Conferences*	2008,Australia • 2nd International Conference for Rainwater Harvesting & Management, Japan, 8-11 September 2009 • 5th World Water Forum, Istanbul, Turkey, 16-22 March 2009, • Singapore Water Week, Singapore, 24-26 June 2009 • 6th AOGS, Singapore 10-12 August 2009 • WCWF, Incheon City, Korea, 17-21 August 2009 • International Year of Sanitation, Tokyo, Japan, 26-27 January 2010	

Figure 2. Evaluation matrix for the outputs and outcomes/impacts of the Project using Project Logic.



5 Evaluation of the Project Components

5.1 Researches

The researches that were developed as part of this project included the following:

a. Guidelines for Establishment of National Strategies for Eco-efficient Water Infrastructure Development
b. Guidelines for an Eco-efficient Approach to Water Infrastructure Development based on Australian Experiences
c. Guidelines on Decentralized Wastewater Management for Sustainable Infrastructure Development in Small Urban Areas
d. Good Practices on Eco-efficient Approaches for Water Resource Planning and Management
e. The Guidelines for Establishment of the National Strategies for Eco-efficient Water Infrastructure in Asia
f. Generic Guidelines to an Eco-efficient Approach in Water Infrastructure Development
g. Status and Challenges in Water Infrastructure in Asia and the Pacific
h. How can we develop Eco-efficient Water Infrastructure in Asia?
i. A Guidebook on Design, Operation and Maintenance for Integrated Rainwater and Grey-water System

These researches were evaluated using the three relevant criteria (out of the five evaluation criteria indicated in the methodology) and included:

- **Relevancy** to the over-all project objectives of capacity building and institution building;
- Contribution towards the **sustainability** of the over-all project in inputting towards a comprehensive policy framework and strategic actions; and
- **Impact** on the over-all project by deriving lessons and needs for future activities.

A summary of how the evaluation is shown in Table 3.

Table 3. Evaluation of research projects.

Researches	**Evaluation Criteria Addressed (1-5) 1- not achieved; 5 achieved**			
	Relevancy	Sustainability	Impact	Comments
Guidelines for Establishment of National Strategies for Eco-efficient Water Infrastructure Development in Asia	5	5	5	Good set of over-arching guidelines for a novel concept of eco-efficient infrastructure which are applicable to all countries.

Generic Guidelines on Decentralized Wastewater Management for Sustainable Infrastructure Development in Small Urban Areas	5	5	4	A good set of guidelines that combines sanitation and rehabilitation of receiving waters and encouraging viable business
Good Practices on Eco-efficient Approaches for Water Resource Planning and Management	4	4	4	Good collection of water resources planning and management as seen through the eco-efficiency lens.
Generic Guidelines to an Eco-efficient Approach in Water Infrastructure Development	5	4	4	A good overview on guidelines in implementing the approach.
Status and Challenges in Water Infrastructure in Asia and the Pacific	5	4	4	Good broad outline of challenges for implementing eco-efficient water infrastructure, but also highlights the need and effectiveness of Ecowin.
How can we develop Eco-efficient Water Infrastructure in Asia?	5	5	4	Discusses the challenges associated with achieving the vision of eco-efficient water infrastructure in Asia.
A Guidebook on Design, Operation and Maintenance of the Integrated Rainwater and Grey-water System	5	4	4	A relevant set of guidelines for rainwater and grey water harvesting, one of the key instruments for eco-efficient infrastructure.

Researches for the project were found to fall into the following categories:

a. Eco-infrastructure as a concept: Rationale and implementation at a high level *(2 researches)*
b. Guidelines to implement the concept: developing national strategies; the application of the approach; design, operation and maintenance of rainwater and greywater systems; and design of decentralized wastewater management system and rehabilitation of receiving waters *(4 researches);*
c. Case studies and practices: linking eco-efficient infrastructures and water resource management *(2 researches);* and
d. Status and challenges *(1 research)*

5.2 Country Projects

Capacity building projects in eight (8) countries were conducted as part of this project.

Evaluation of these projects (Table 4) was based on three criteria:

- Predominantly, the **efficiency** of the projects in building capacity upon their implementation
- **Effectiveness** of the projects based on their results and performance as a result of their interventions; and
- **Impact** on the over-all project by deriving lessons and needs for future activities.

The country projects rated very highly in terms of the three criteria based on the following wide-spectrum achievements:

- **Provision of detailed and succinct situation analysis**, including challenges and opportunities for the eco-efficient infrastructure;
- Development of key recommendations on how to **incorporate eco-efficient infrastructure into the countries' planning frameworks;**
- In some cases, **advocacy for legal and institutional basis** for implementation of eco-efficient infrastructure either through existing legislative mechanisms (e.g. Nepal, Philippines) or as a new policy in the national development framework;
- **Integration of Eco-efficient framework into existing initiatives** such river basin restoration, water supply and allocation management and city development and broader water resource development;
- **Proposal of evaluation framework** (index) including possible performance indicators;
- **Recognition of the need for enabling mechanisms** such as training and education; and
- Outline the **rationale for pilot studies**.

Table 4. Evaluation of country capacity-building projects

Country	Project	Objectives	Achievements
Bhutan	National Strategy for Eco-efficient Water Infrastructure Development in Bhutan	To integrate eco-efficiency concept into water resources development. To promote eco-efficient water infrastructure dimensions into planning, implementation, monitoring and evaluation of water infrastructure development	Key recommendations on how to incorporate eco-efficient infrastructure into water resources development, a framework for eco-efficient infrastructure and proposed pilot studies.
PRC	The Framework on Eco-efficient Water Infrastructure Development in China	To develop an indicator system, standards, and technical guidelines for the assessment of eco-friendly and eco-efficient water infrastructure development in China.	Discusses present situation, challenges and evaluation framework (index), integration of Eco-efficient framework into river basin, water supply and allocation management and city development
Indonesia	Development of policy brief and national strategy on eco-efficient water infrastructure development	To provide background paper for adopting the new policy approach on eco-efficient in water infrastructure development in Indonesia to address the above water issues and challenges for next 5 year development plan (2010-2014) and forward	A new policy in the development of water infrastructures in the medium-term national development plan (RPJMN) 2010-2014 as a legal basis for implementation Indicators for eco-efficient infrastructure
Malaysia	Guidelines on Eco-efficiency in Water Infrastructure for Public Buildings in Malaysia	To develop guidelines on eco-efficient water infrastructure in public buildings.	Using the existing, urban Stormwater Management Manual for Malaysia, guidelines for buildings were developed.

Mongolia	Strategy of Eco-efficient Water Infrastructure Development for Mongolia Water National Programme and Water Law; and Educational Materials for Eco-efficient Water Infrastructure Development	To develop a strategy for eco-efficient water infrastructure that contributes to the a) development of the action plan based on for implementation of Mongolia Water National Programme and Water Law and b) sustainable urban infrastructure of Mongolia by improving the green growth approaches and eco-efficiency through national development planning process.	Developed a framework and process for implementing the strategy for eco-efficient water infrastructure development in Mongolia, including training and education
Nepal	Concept Policy Paper on Eco-efficient Water Infrastructure Policy in Nepal	To lay concrete policy directions for development of a national strategy or action plans on eco-efficient water infrastructure and to mainstream eco-efficiency concept into planning, implementation and monitoring process of water infrastructure development in Nepal.	Strong recommendations in incorporating eco-efficient infrastructure in existing legislative and planning mechanisms in Nepal, specifically the National Development Plan 2011-2013.
Philippines	National Strategy for Eco-efficient Water Infrastructure Development in the Philippines; and Integrating Eco-efficient Water Infrastructure into Philippines National, Local, and Sectoral Plans	To develop a strategy that introduces the eco-efficient approach and integrating eco efficient dimensions into to government policies and plans for the development of water infrastructure in Philippines	Integrated eco-efficiency dimensions into Mid-Term National Development Plan for 2011-2015
Viet Nam	Guideline Framework for River Restoration in Vietnam	Develop a guideline for river restoration in Vietnam	It is assumed that river restoration is one of the mechanisms proposed to implement eco-efficient water infrastructure in Vietnam

5.3 Communication and Awareness

5.3.1 Regional Workshops

The project has done a comprehensive series of regional workshops. Such workshops have been effective in a) raising awareness of eco-efficient infrastructure as a concept, b) its merits/benefits and more importantly, c) how the concept can be implemented in the different countries. The workshops also allowed the exchange and sharing of information, experience and challenges amongst representatives of the different countries. The reports from the different workshops, as uploaded on the Ecowin website is extremely useful as a document of the learning and sharing process, but also, for a way forward in the different countries.

5.3.2 Website: Ecowin

The Ecowin Website was evaluated based on three criteria:

- **Relevancy** to the over-all project objectives of capacity building and institution building;
- **Effectiveness** of the projects based on their results and performance as a result of their interventions; and
- **Impact** on the over-all project by deriving lessons and needs for future activities.

Over all the website rates very good based on the three criteria. Details are shown in Table 5. The website rated well using the criteria and components below, but there is also room for improvements.

Table 5. Evaluation of Ecowin Website

Criteria	Components	Evaluation	Suggestions for Improvement
Relevancy	Website Content	The content is very comprehensive and relevant to the project. It contains very useful information on the planning for and implementation of eco-efficient infrastructure. The content is up-to-date and is variable. The purpose of the website is also very explicit.	User feedback/ discussion functionality.
Effectiveness	Searchability	The website is easy-to-find and has a very catchy and easy to remember name.	Functionality of the links can be improved e.g. link of international

			workshops to the actual workshop details or proceedings. A "Search" Tab would be extremely useful.
	Navigation	Navigation in the website is good and easy – the tabs for the different sources of information are well-shown. Contact information is clearly provided.	Some reports may need to be compressed so download times are decreased.
	Adaptiveness	The website caters for a variety of users – e.g. researches for researchers and reports for planning practitioners.	User registration functionality can probably allow some follow up provision of targeted information.
Impact	"Look and Feel"	The "look and feel" is refreshing and recognises the parties involved (with logos). It is readable and not cluttered and the home page provides a good overview of the information contained on the site	More photos of pilot studies are strongly recommended.
	URL	The URL is very catchy, short and easy to search for.	
	Interactiveness	The site motivates users to click more to get additional information, giving a sense of interest in other parts of the site, apart from the homepage.	Inclusion of FAQs.

5.3.3 Participation in International Conferences

The project has been presented in various international conferences, which included the following:

- A side event during the MCED6, 28-29 September 2010, Astana, Kazakhstan
- 5th World Water Forum, March 2009, Istanbul, Turkey
- Singapore Water Week, June 2009, Singapore
- AOGS, August 2009
- WCWF, Incheon City, August 2009, Republic of Korea
- International Year of Sanitation, Tokyo, Japan
- 2md International Conference for Rainwater Harvesting and Management, Japan
- 7th International Conference for Rainwater Harvesting, Republic of Korea

Such activity should be continued more to raise the profile and achievements of the project.

5.3.4 Others

To enhance awareness, the project also generated other products, which included the following:

- A Project brochure and CDs for the regional workshops which were distributed to stakeholders during regional workshops and international conferences; and
- Two posters on the over-all project and the pilot projects, which w ere displayed during workshops and international conferences.

These products were useful in fulfilling the objective of increasing awareness of the concept.

5.4 Pilot Projects

Program Logic was used to evaluate the success of the two pilot projects being evaluated (Figure 1).

5.4.1 Cebu: Integrated Storm Water Management (ISWM)

The Integrated Storm Water Management (ISWM) System (IWSM) including the data acquisition and monitoring system were installed at the new DOST 7 building in Lahug, Cebu City, Philippines and made operational on August 26, 2010. The DOST ISWM is now providing the water requirements for the occupants of the building for the toilet, washing and watering of plants

The project had two objectives:

1. To strengthen the capacities of local government officials for the planning and management on the integrated rainwater and stormwater recycling system through the implementation of the pilot demonstration project; and
2. To establish the model for integrated rainwater and stormwater recycling system in the selected building to demonstrate the eco-efficient approaches for water infrastructure.

Program Logic indicated that the pilot project was not only successful in achieving its set objectives, but extended more to include work on future capacity building for DOST (Figure 3). The project was also evaluated based on the set criteria (Table 6).

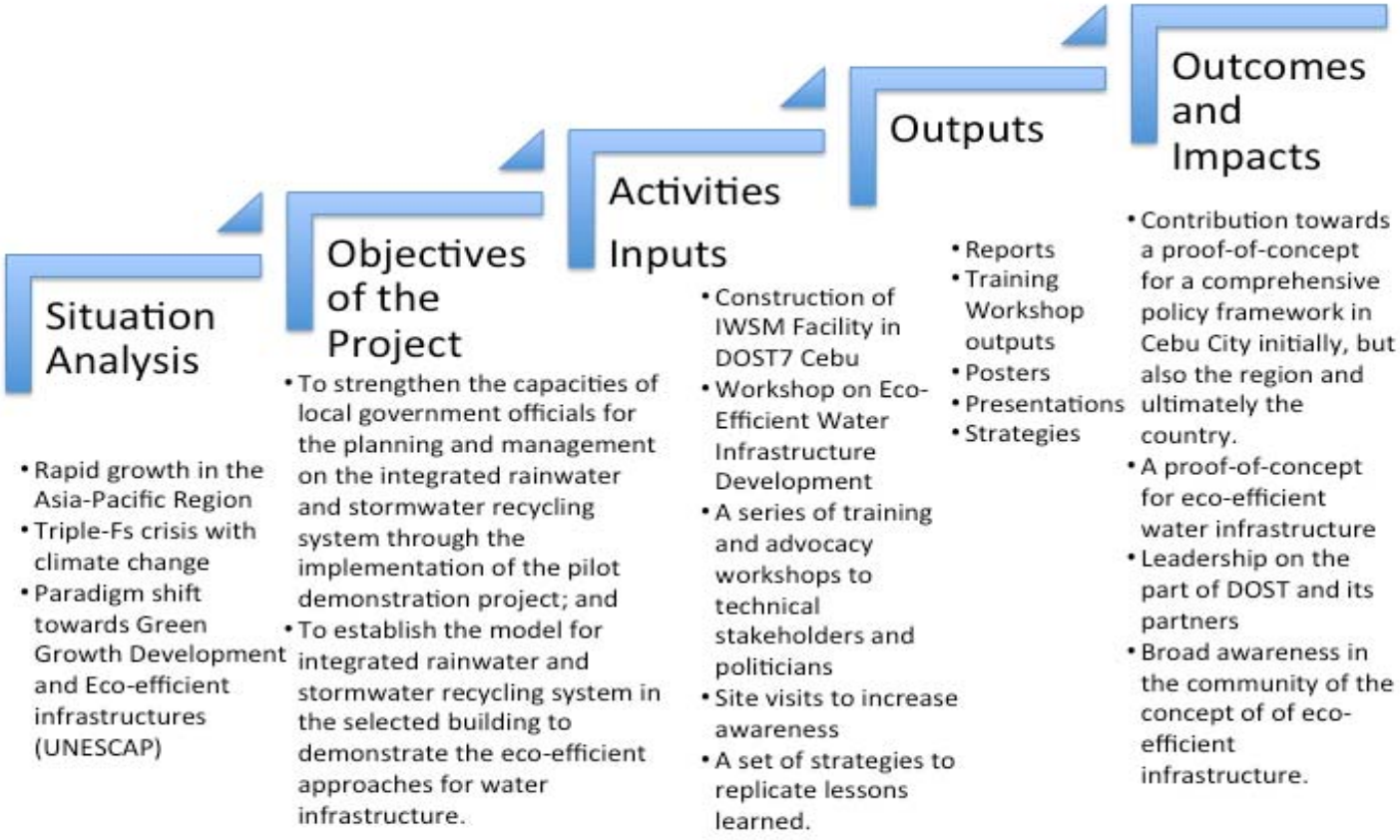


Figure 3. Program Logic evaluation of Cebu Pilot Project.

Table 6. Evaluation of the Cebu Pilot Project.

Program Logic Components	Questions	Evaluation	Over-all Evaluation Criteria	Rating
Situation Analysis	Were the drivers of the project relevant?	Project was well thought of and planned, with efficient oversight by UNESCAP.	Relevance	5
Objectives	Were the objectives of the project achieved?	Project achieved more	Effectiveness	5
Activities/ Inputs	Was the project implemented as designed?	Project was implemented as per design	Efficiency	4.5
	What were the challenges/ barriers?	Slight delay in the construction		
	What were the strengths?	• Efficient consultants resulting in project still on time despite construction delay • Leadership of DOST; - *as a non-regulatory agency, it is able to influence policy/decision making through innovation and technology* - *having strong ties with the academic and research institutions* - *effective in facilitating between UNESCAP and local partners* • Efficient project and contractual management of UNESCAP		
Outputs	Were the outputs relevant to the Objectives?	Outputs surpassed the achievement of the objectives.	Sustainability	4.5

Program Logic Components	Questions	Evaluation	Over-all Evaluation Criteria	Rating
Outcomes and Impacts	Did the project contribute towards a comprehensive policy framework? How?	Project contributed to the comprehensive framework by showing proof-of-concept (ISWM Project in DOST 7).	Impact	4.5
	Did the project contribute towards strategic actions for eco-efficient water infrastructure? How?	The project committed to long-term transferability and replicability through the following strategies: Strengthening Capability of DOST on eco-efficient water infrastructure development. • Information, Education and Communication for promotion and awareness • Transfer of knowledge to institutions and individuals through fora and training workshops • "Open facility" the DOST: ISWM system will be open to individuals or any interested parties to observe its operation to increase awareness and interest on the technology		
	Was there effective and efficient capacity building from the project?	This facilitated through trainings, presentations, consultations, site visits, and workshops.		

5.4.2 Surabaya: Framework and Action Plans for Rehabilitation of Small Streams in the Brantas River Basin, East Java, Indonesia

The Brantas River Basin Pilot Project trialled a suite of "structural and non-structural" measures to show illustrate the application of the eco-efficient water infrastructure concept using the Bendosari Village Green Concept. It also included capacity building and training modules.

To contribute towards "framework or guideline" on integrated river rehabilitation project, with prioritised activities and anticipated output and potential outcomes", the project aimed:

- To implement "structural and non-structural measures" to illustrate the concept of eco-efficient water infrastructures,
- To implement a capacity building module and training program.

Program Logic indicated that the pilot project was not only successful in achieving its set objectives, but extended more to additional work over and beyond the scope of the project (Figure 4). The project was also evaluated based on the set criteria (Table 7).

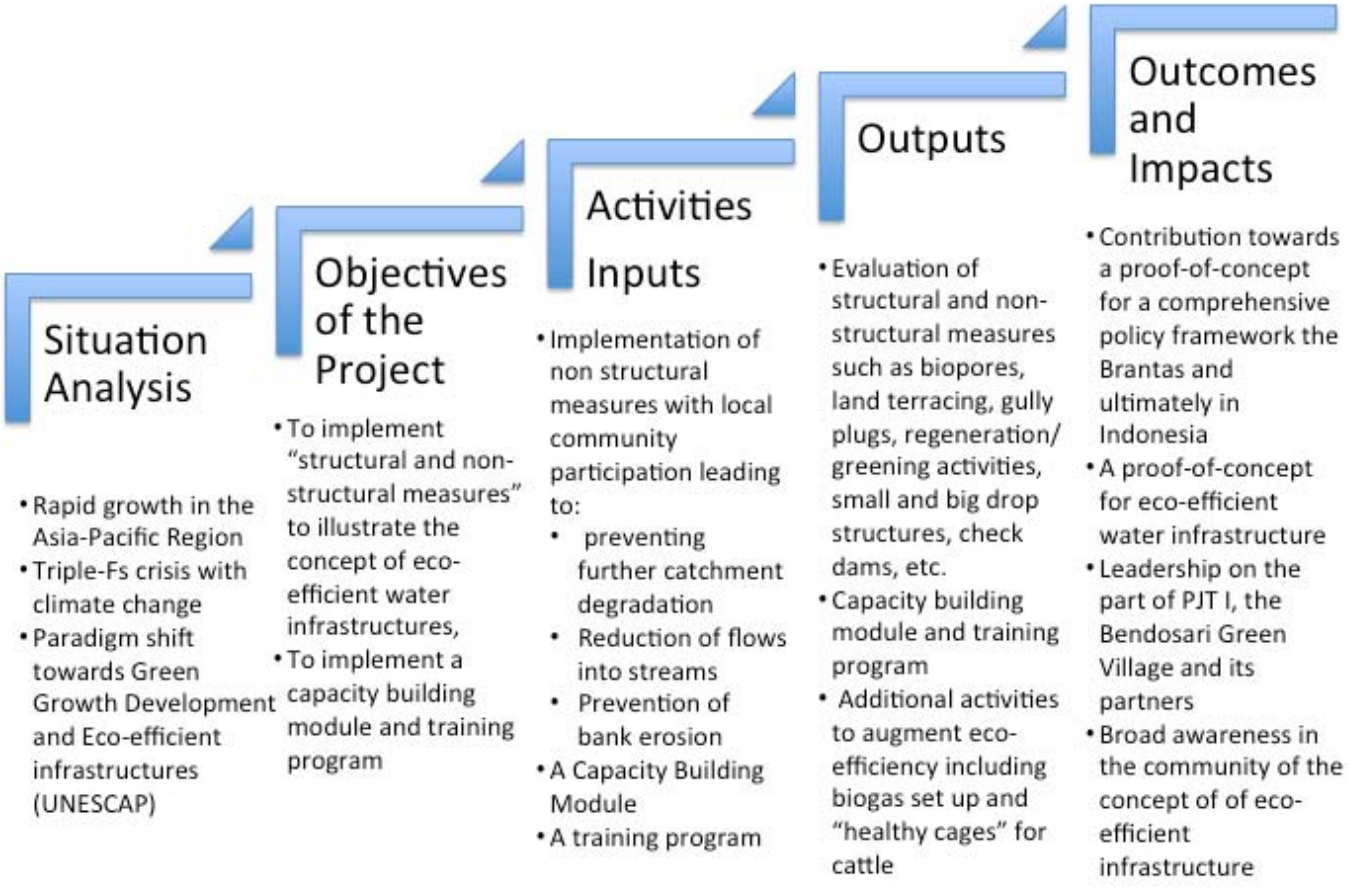


Figure 4. Program Logic evaluation of the Brantas Pilot Project.

Table 7. Evaluation of the Brantas Pilot Project.

Program Logic Components	Questions	Evaluation	Over-all Evaluation Criteria	Rating
Situation Analysis	Were the drivers of the project relevant?	Project was well thought of and planned, with efficient oversight in the scoping by UNESCAP.	Relevance	5
Objectives	Were the objectives of the project achieved?	Project achieved more – through their own funding, PJTI was able to showcase biogas and "clean cage" technologies.	Effectiveness	5
Activities/ Inputs	Was the project implemented as designed?	Project was implemented as per design meticulously. The report is a testament to the activities.	Efficiency	4.0
	What were the challenges/ barriers?	The project wanted to trial local products in the construction of the measures. Some of these products were not able to withstand extreme weather and flow periods. Some of the basic needs (i.e. water supply, wastewater management, flooding) are seen as a priority over river health/river restoration. Eco-efficient water infrastructure needs to be sold as encompassing all of these.		
	What were the strengths?	• Technical capability of PJTI to implement the project • Existing connection with the community, specifically the Bendosari Village community • Preference to use local raw materials and trial the effectiveness • The support and oversight at the highest level (i.e. Board of Directors, Organising Committee/Executing Team). • Existing Monitoring and Evaluation program, including community-based one.		

		• Linking eco-efficient water infrastructure concept to river restoration		

Program Logic Components	Questions	Evaluation	Over-all Evaluation Criteria	Rating
Outputs	Were the outputs relevant to the Objectives?	Outputs surpassed the achievement of the objectives.	Sustainability	4.5
Outcomes and Impacts	Did the project contribute towards a comprehensive policy framework? How?	Project contributed to the comprehensive framework by showing proof-of-concept (ISWM Project in DOST 7).	Impact	4.5
	Did the project contribute towards strategic actions for eco-efficient water infrastructure? How?	The project committed to long-term transferability in other river basins. It also went to address the more basic requirements of wastewater management by introducing biogas technology to the village. Over all, the journey illustrates how eco-efficient water infrastructure concept can enhance river restoration activities.		
	Was there effective and efficient capacity building from the project?	This facilitated through trainings, presentations, consultations, visits to the village, and workshops. The works were done by local consultants and the village residents themselves, with oversight from PJT1 technical experts.		

6 Summary and Conclusions: Evaluation of Over-all Project

6.1 Achievements of the project

The project was effective in introducing, raising awareness, increasing capacity of the Asia Pacific countries on the concept of eco-efficient water infrastructure. The project achieved good results by:

- performing the relevant researches and making them materialize in the country project and pilot projects in the context of Asia-Pacific
- implementing country capacity building programs
- implementing four pilot projects
- developing communication strategies including the Ecowin website, running in-country workshops, presentation in international forums, and publication of communication products.

As a whole, the project resulted in the following outcomes:

- 6 Researches
- 8 country capacity building programmes
- 4 pilot demonstration projects in 4 countries
- 3 Regional workshops in 2008-2010
- Development of website (www.ecowaterinfra.org: No of visitors are 3,999 as of October 2011)
- Newsletter and CDs

The variety of mechanisms to cater to different stakeholders was one of the critical success factors for the project, as a whole, which led to the high impact of the project on developing countries.

6.2 Role of UNESCAP

The role of ESCAP in the scoping/inception, oversight, management and motivation, amongst others was critical to the success of the project. The partnership between ESCAP and the relevant organisations in the respective countries was deemed to be instrumental in the achievement of the objectives, outputs and outcomes. ESCAP encouraged the countries to achieve greater outcomes than what was expected or initially scoped for the project (within the timeframe and the budget).

ESCAP organized events in collaboration with regional institutions and returned budget savings into the project – this led to the project creating a more impact.

6.3 Role of the donor, KOICA

Through the initiative of ESCAP, the Asia-Pacific Region was able to establish the basic foundation for eco-efficient water infrastructure. The support from the government of Korea on ***green growth,*** has benefited significantly the developing countries. The development of national strategies, guidelines, action plans (road maps), the implementation of case studies to show the proof-of-concept and training/networking events to discuss ideas, were just amongst the benefits provided by the support of KOICA.

As such, the visibility of the government of Korea and the KOICA was highlighted by ESCAP and the different countries in their reports, papers, website, projects and other communication media. This indicated the gratitude the countries have towards KOICA and ESCAP.

One-on-one interviews with the pilot projects reiterated the appreciation to both KOICA and UNESCAP. This has also been augmented with written thank-you letters from the different Ministers and political leaders of some countries, including, Mongolia, Philippines, Nepal and Bhutan.

All participating countries expressed their hope to get continued assistance to concretize the concept of eco-efficiency in water infrastructure into actions.

Ministers in Mongolia, Philippines, Bhutan and Nepal sent the appreciation letters to the ESCAP and the KOICA for the support to promote the eco-efficient water infrastructure development.

6.4 Recommendations

Based on Figure 2, the project was successful in terms of:

- Process (project management, partnership, donor)
- Effects (activities and outcomes achieving the set objectives)
- Impact (led to a reform in developing countries in relation to eco-efficient water infrastructure)

The three recommendations from this evaluation are made based on the above components:

- **Process.** Continued support to *transition from knowledge*

(research/strategies/action plans) *to actions* (operationalization of the concept) in the various developing countries. This would further foster the learning process and enhance awareness on the concept of "green growth".

- **Effects.** Eco-efficient water infrastructure is clearly defined as an integrated approach to ecological and economic efficiency that aims to maximise the value of water related services, optimise use of natural resources and minimise impacts on ecosystems (www.ecowaterinfra.org/ecowin/). As such, in considering this approach or integrating this approach in existing initiatives of the countries, due diligence needs to be done to address the basic necessities of water supply, wastewater management, flood prevention, river protection using multi-functional mechanisms/processes. For example to embed the concept effectively in River Basin management, the other functions (e.g. water supply) need to be facilitated. The approach is a continuum to ultimately achieve a healthy lifestyle and well-being. This continuum needs to be taken into consideration in the scoping of pilot studies.
- **Impacts.** A robust Monitoring and Evaluation framework (incorporating key performance indicators) is critical to track the success of a project. Pilot projects will benefit with a clearly outlined M and E framework.

Appendix 1. Example of questions to be used for the Evaluation Matrix.

Project Logic Components		**Criteria**				
		Relevance	Effectiveness	Efficiency	Sustainability	Impact
Process	Project Management		Did the management of the project facilitate the achievement of the project goals?	Did project management facilitate the efficiency of capacity building during the implementation of the project?		
	Funding		Was funding sufficient to achieve the over-all project goals?	Was funding sufficient to facilitate efficient capacity building during the implementation of the project?		
	Recognition of Sponsors		Were the sponsors and partners given due recognition in the achievement of the project goals?	Were the sponsors and partners efficiently recognised?		
Outputs	Workshop outputs, reports, etc.	Were the outputs sufficient to achieve the project goals?				
	Case Studies	Did the case studies outputs instrumental in achieving the project goals?				

Outcomes	Individual		Has the project resulted capacity building?	Did the project result in lessons and recommendations for future activities
	Institutional		Has the project resulted in Institutional building?	Has the project contributed to a comprehensive policy framework and strategic actions for eco-efficient water infrastructure development
	Country		Has the project achieved the goal for the country?	