United Nations
Educational, Scientific and
Cultural Organization

Asia-Pacific
Water Forum

UNESCO-IHE
Institute for Water Education

SWITCH-in-Asia

An Integrated and Innovative Programme towards Sustainable Water Management in Asian Cities

UNESCO Office, Jakarta
October, 2009

Polluted rivers

Background

With increasing global change pressures, existing limitations, unsustainability factors and risks inherent to conventional urban water management (UWM), cities will increasingly experience difficulties in efficiently managing scarcer and less reliable water resources. Further challenges lie ahead, such as satisfying water uses/services and waste water disposal, without creating serious environmental, social and/or economic damage. This situation will further be aggravated by the ever-increasing 'Syndromes of Global Change' pressures. In order to meet these challenges, SWITCH-*in-Asia* calls for a paradigm shift in UWM. There is a need to convert ad-hoc actions and responses (problem and incident driven) into coherent, holistic, and consolidated approaches (sustainability driven). This need drives the adoption of an integrated programme approach, referred to as 'SWITCH-*in-Asia*', as presented in this programme description.

During the 4th World Water Forum in Mexico in March 2006, the EU and UNESCO-IHE launched the SWITCH initiative, a world-wide innovative urban water management project, implemented through a 33 partner consortium. The Asia and Pacific region being home to over 60% of the world population, having the highest number of people without access to water supply and sanitation (62 and 74% respectively), and showing the most rapid destruction of water resources in terms of quality and quantity, called upon a region-specific SWITCH programme in the frame of **SWITCH-*in-Asia*.**

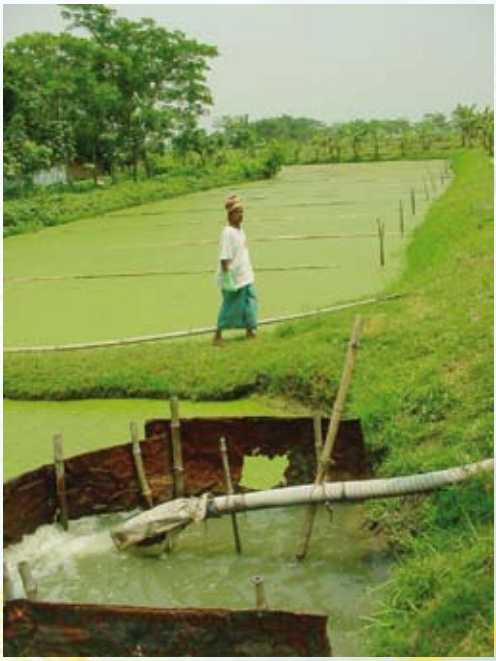
SWITCH-*in-Asia*,

a Regional Water Programme for Asia and the Pacific

Objectives

The SWITCH-*in-Asia* Programme is a visionary programme that addresses the unsustainability aspects of current urban water management practices by developing and testing innovative solutions and approaches that contribute to the development of effective and sustainable urban water management (UWM) schemes in Asian Cities. The approach will be to develop efficient and interactive urban water systems and services (city level) in the context of the city's geographical and ecological setting (river basin level), which are robust, yet flexible and adjustable to a range of global change pressures (global level).

In order to achieve its objectives, the programme will be implemented along three components, namely a) Action Research, b) Demonstration and c) Capacity Building/ Awareness Raising. The project components are described in the next page.



Duckweed pond as an example of ecotechnology

Project Components

a) Action Research

The Action Research component will develop new science-based indicators to express the sustainability level of urban water systems (qualitatively and quantitatively), as well as the associated risks. It will also generate new technical know-how in a wide range of areas, such as stormwater control under conditions of uncertainty, stormwater source control, eco-hydrology concepts, sustainable water and sanitation approaches based on recycling and reuse (including ecotechnologies), soil-aquifer treatment systems among others.

b) Demonstration

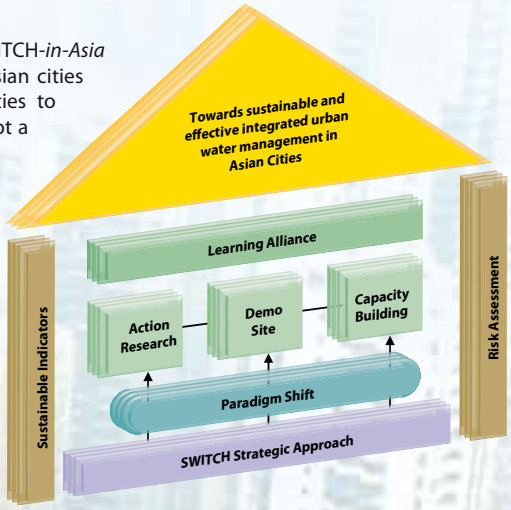
The improved urban water management efficiencies, technologies and approaches resulting from SWITCH-*in-Asia* will be demonstrated through the Demonstration component of the project. Here, new and innovative approaches for sustainable UWM will be tested and showcased on a real life scale, in a segment of the city or through interventions in the catchment (affecting UWM in the city).

Green School

c) Capacity Building/Awareness Raising

The Capacity Building/Awareness Raising component of SWITCH-*in-Asia* aims at creating awareness on water-related challenges in Asian cities and developing the corresponding human resource capacities to effectively address these challenges. The programme will adopt a strong awareness raising and education approach through communities and schools involvement, including the development of the so called 'Green School' concept. The 'Green School' concept combines a Water Supply and Sanitation programme with Education for Sustainable Development approaches, which includes subjects such as Water and Environment, Hygiene and Health, as well as Food and Nutrition.

The SWITCH-*in-Asia* overall approach and methodology is schematically presented in the figure besides



Schematic presentation of the SWITCH-in-Asia approach and methodology

Box 1. Participating Countries in SWITCH-*in-Asia*

The regional programme will be developed through a number of national projects in selected countries and cities throughout the region, each demonstrating concrete aspects of innovation towards sustainable UWM. A preliminary list of possible countries participating in SWITCH-*in-Asia* include the following*:

Australia, Bangladesh, Cambodia, China, India, Indonesia, Japan, Kiribati, Korea (Rep of), Malaysia, Nepal, the Philippines, Samoa, Singapore, Timor-Leste and Vietnam.

**SWITCH-in-Asia is an open-ended initiative and invites additional countries in the region to join at any time during the implementation. Please contact us for more information (contact info at the end of the brochure).*

Box 2. Possible topics for SWITCH-*in-Asia*

Furthermore, following topics will be developed throughout the region: ecotechnologies for water and sanitation, ecohydrology for water quality improvement, cleaner production, waterscapes for stormwater management, urban agriculture, groundwater recharge, coastal water, delta-cities, green schools, water education/capacity building, demand management and water reuse, strategic planning for IUWM and sustainability assessments.

SWITCH-in-Asia's National Components

Country-based Interventions

A list of possible countries and topics can be found in the boxes 1 and 2. The first national project of this regional programme is currently being developed in Indonesia and is briefly described below.

More information on the Indonesian Component workshop, including the report, the list of participants as well as the presentations can be downloaded from the following link:

http://ihpnagoyaforum.org/download/switch/

(*Please note: the programme is referred to as SWITCH-IPA in the workshop material, and not as SWITCH-in-Asia, due to its recent change of name*).

Learning Alliance

Each national project will establish a Learning Alliance, where all stakeholders and partners get together on the development of all aspects of the demonstration project. Similarly, the national projects will also be interconnected through a Learning Alliance, for the effective exchange of results, approaches, lessons learned, best practices, while this platform will also serve to develop joint action research, capacity building, awareness raising and training programmes. Furthermore, by bringing water researchers, urban water managers, urban planners, decision makers, development agencies and multilateral finance organisations together (from both industrialized and developing countries), and by carrying out demonstrations, SWITCH-*in-Asia* could significantly contribute to 'switch' the current ad-hoc and problem-driven approaches in water-vulnerable cities in the region towards a visionary and strategic approach to sustainable 'Water in Asian Cities' prepared to deal with increasing global change pressures.

Modalities and Timeline

A Regional SWITCH-*in-Asia* Partnership Workshop, including a wide range of potential partners and stakeholders will be held in December 2009 in order to discuss the further development of the regional programme, including the identification of national demonstration sites and partnerships. The Regional Workshop will discuss and agree on the scope and the themes of the action research, the demonstration and the capacity building and awareness raising components of the programme. This will include the development of a clear and focused agenda for the action research programme and a good spread of specific demonstration themes over the various National Projects. For more information on the partnership workshop; please see contacts on the last page of the brochure.

From early 2010 onwards, SWITCH-*in-Asia* will officially start with a first selection of National Projects and partners. The preliminary timeline for the development of SWITCH-*in-Asia* is presented below:

2009

- **January–May:** Development of the programme concept
- **May:** Workshop on the Indonesian Component of SWITCH-*in-Asia*
- **May-December:** Development of the Indonesian Project Component
- **December:** Regional Workshop and partnership development

2010

- **May:** Start of SWITCH-*in-Asia*'s Indonesian Component and establishment of the National Learning Alliance
- **Late 2010:** Start of another 4 National Projects and establishment of the Regional Learning Alliance

2011

- Development and initiation of an additional 5 National Projects

2011 – 2015

Full implementation of SWITCH-*in-Asia*, and development of additional National Projects

PROJECT EXAMPLE

Ecotechnologies for Sustainable Water and Sanitation Services for Healthy People and Healthy Environment in selected countries

Project Location

Selected sites in Cambodia, Indonesia, the Philippines, Timor-Leste, and Vietnam

Programme Objectives

The overall project objective is to contribute to sustainable development and to general well-being of people in the target region by promoting the wise use of water and environmental resources. This will be achieved via the improvement of water quality, water and sanitation services, and public health situation. The project will also develop and implement awareness raising and environmental education programmes, aimed at decision makers, and target community groups (e.g. schools and community organizations). The aim is to improve environmental awareness, water use efficiencies, waste management practices, hygiene and public health awareness.

The project on 'Ecotechnologies' will be developed and implemented in selected areas in Cambodia, Indonesia, the Philippines, Timor-Leste, and Vietnam. The project has the following Specific Objectives:

1. To develop and implement eco-technologies for water supply and sanitation (WSS), which aim at rational use of water, and permit effluent treatment in combination with resource recovery and reuse.
2. To develop a school water and sanitation programme, which adopts the same concepts of rational use, resource recovery and reuse, linked to the development of a 'green school' concept.

Partners

The programme requires a broad consortium of partners, representing Government agencies, municipal authorities, city planners, UN agencies, and bilateral agencies. Proposed partners include the Ministry of Public Works, Ministry of National Education, UNESCO, other UN agencies (UNICEF, Habitat), Provincial and local authorities (e.g. Municipal Councils), selected universities and research institutes in these countries.

Duration

Phase I: 2010 - 2013 (action research, demonstration projects, and awareness raising)
Phase II: 2013 – 2015 (replication and up-scaling)

Estimated Budget

Phase I: 4 to 9 million US$ per Country
Total budget: 55 million US$

Background

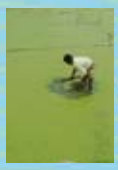
This project proposes the development of Ecotechnologies for WSS, which will be low cost, provide a range of additional incentives to communities and users, and prevent the destruction of water and environmental resources and the spread of pathogens. The programme on Ecotechnologies for Sustainable Water Supply and Sanitation will be implemented in selected countries in South-East Asia.

Brief project description

The project will contribute to the development of sustainable solutions for water resource protection, pollution abatement and water and sanitation services delivery. This will be achieved by adopting a strategy that considers the municipal water cycle and the individual components of this cycle in the context of sustainability. The strategic approach is to combine sanitation and hygiene objectives with effluent treatment and reuse options, which lead to the stimulation of local agriculture and aquaculture activities for food production and income generation.

The main outputs of this project are summarized below:

- Improved water and sanitation services via the development and implementation of ecotechnologies for water and sanitation
- An active school water and sanitation programme, which adopts the same concepts of rational use and reuse, and links this also to the school curriculum in the context of Education for Sustainable Development (ESD) will contribute to the development of a 'Green School' concept
- Improved Solid Waste Management (SWM) practices for the protection of the water resources
- A series of full scale demonstration of innovative UMW practices that will serve as a template for replication elsewhere
- Sustainable UWM practices
- Improved water quantity management (floods, droughts)
- Updated university curricula
- ESD applications



The SWITCH Programme is an integrated and innovative programme for the development of sustainable water management approaches for cities, and is planned to be implemented at five different geographical levels:

SWITCH	Global
SWITCH-*in-Asia*	Asia and the Pacific
SWITCH-*in-Africa*	Africa
SWITCH-*in-LAC*	Latin America and the Caribbean
SWITCH-*in-Arab States*	Arab Region

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