



# Technologies for improved monitoring and management of water

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UN Environment-DHI Centre  
on Water and Environment



# UNEP-DHI Partnership – Centre for Water and Environment

- A United Nations Environment Programme (UNEP) collaboration centre
- Supporting UNEP's freshwater work in assisting developing countries in implementing environmentally sound policies and practices for 25 years
- Work ranges from global policy to on-the-ground project implementation
- Drawing on a range of DHI experts for inputs on a needs-basis
- UNEP-DHI is proud to be one of the founding partners of the CTCN



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# DHI in brief



We're an independent, private and not-for-profit organisation



Our people are highly qualified

80% of our 1,100 employees hold an Masters or a Doctorate degree



Our knowledge represents years of dedicated research

20% of our resources are allocated to R&D to enhance our knowledge and innovation



We make this knowledge globally accessible

through offices in 30 countries and project work in +150

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# Our areas of expertise



Aquaculture and agriculture



Energy



Climate change



Coast and marine



Surface and ground water



Urban water



Industry



Environment and ecosystems



Product safety and environmental risk

**Our in-house facilities and tools:** Physical scale model testing, laboratories, ballast water centres, survey and monitoring systems for field studies

# UNEP-DHI/DHI Current Status

	Description
<b>Indonesia</b>	Flood modelling to inform the Giant Seawall Project
<b>Mauritius</b>	Sand replenishment initiative
<b>Mauritius</b>	Port vulnerability study
<b>Thailand</b>	Flood modelling and management in Bangkok
<b>Ghana</b>	Localization of DSS flood and drought management tools (CTCN exploring GCF possibilities)
<b>Uganda/Lake Vic</b>	Localization of DSS flood and drought management tools
<b>Laos</b>	Climate vulnerability assessment and ecosystem-based adaptation in 6 Laotian cities (In support of GCF proposal)
<b>Myanmar</b>	Data and information generation and dissemination for climate change adaptation (CTCN exploring GCF possibilities)
<b>Georgia</b>	Assessment of flood mitigation measures in Tbilisi

# Tbilisi: Assessment of Flood Mitigation Measures

## Challenges:

- Seasonal rivers and streams covered and piped, land developed
- Piped sections lack volume to deal with flash floods
- Heavy rains can cause serious damage and threaten life in different parts of Tbilisi

## Planned actions:

- Situational analysis and data collection
- Modelling of flooding scenarios (where)
- Adaptation and mitigation measures recommended – based on hazard maps, and identification of vulnerable structures

## Planned impacts:

- 1:** Trained local staff with upgraded skillsets (on-the-job)
- 2:** Short term: Enabled appropriate contingency planning
- 3:** Long term: Improved spatial and land development planning



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# Bangkok: Strengthening Flood Warning Systems

## Challenges:

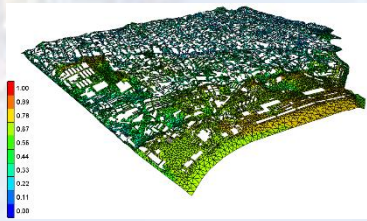
- Increased frequency and severity of flooding (e.g. in 2010 and 2011)
- Future projections indicate extreme rainfall events are likely to increase
- Impacts on both lives and economy expected to be severe

## Actions:

- Mapping of existing drainage in target area
- Building hydraulic drainage models for flood scenario analysis
- Validation of monitoring system design including configuration of web-based information system

## Planned impacts:

- 1: Increased safety and transportation efficiency for the 500,000 people who live in and commute through the targeted area
- 2: Improved municipal planning to reduce loss of economic productivity and property due to flooding
- 3: Exploration of potential for deployment throughout other Bangkok areas



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# Ghana: Drought Early Warning and Forecasting System

## Challenges:

- Heavy reliance on agriculture
- Agriculture is predominantly rainfed
- Decreasing mean annual rainfall

## Actions:

- Introduce, adjust and pilot forecasting system
- Strengthen drought mgmt. collaboration among national and local institutions
- Design roadmap to scale-up deployment of technology (GCF Concept Note)

## Planned impacts:

- 1:** Improved information to help farmers proactively take adaptive measures
- 2:** Reduced crop losses and improved livelihoods/economy
- 3:** Contribution to various Sustainable Development Goals



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# Myanmar: Strengthened drought and flood management through improved information availability

## Challenges:

- Growth opportunities relate to improved water management within the agricultural sector
- Addressing crop production, weather forecasting, adaptation to extreme flood and drought events, water storage

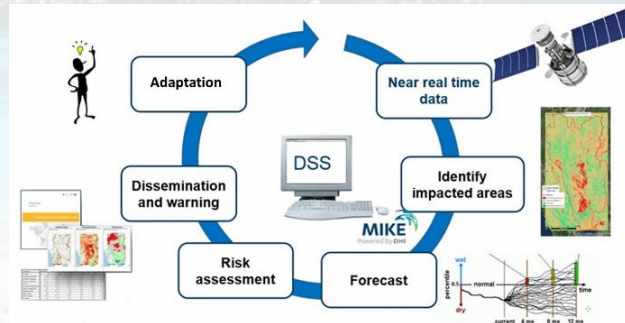


## Planned actions:

- Assessment of technology information need and validation
- Development of a flood and drought mgmt. portal
- Validation of functionality with stakeholders

## Desired impact:

- Access to data strengthens all water resources related planning
- Building-on/supporting other government and donor efforts
- Economic growth, improved and secure livelihoods



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# Laos: Ecosystem-based Adaptation for Urban Development

## Challenges:

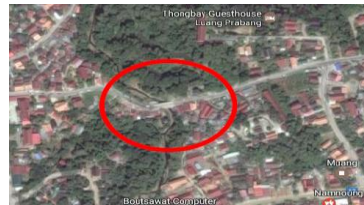
- Rapid urban development
- No quantitative assessment of climate risks at city level
- Physical and economic window of opportunity for EBA rapidly closing
- GCF project proposal needs strengthening

## Planned actions:

- Substantive information identifying, prioritizing and designing adaptation options in 6 cities
- Recommend a set of costed, high impact and viable ecosystem based adaptation options
- Refinement of GCF proposal

## Planned impacts:

- 1:** Laying the ground for the GCF supported work
- 2:** Introduction and enhancement of Green Infrastructure for improved water supply and flood mgmt.
- 3:** Long term: Proper spatial and land development planning, improved economic stability



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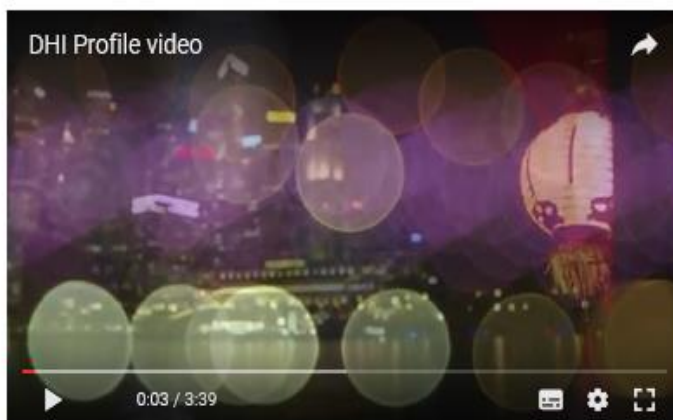
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DHI are the first people you should call when you have a tough challenge to solve in a water environment – be it a river, a reservoir, an ocean, a coastline, within a city or a factory.

Our knowledge of water environments is second-to-none. It represents 50 years of dedicated research and real-life experience from more than 140 countries. We strive to make this knowledge globally accessible to clients and partners by channelling it through our local teams and unique software.

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# Thank you!

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