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INOW ASIA

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Hanoi University of Science – Vietnam National University (HUS)	Vietnam
Can Tho University (CTU)	Vietnam
National University of Laos (NUOL)	Laos
Souphanouvong University (SU)	Laos
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Abstract

This document presents the results of the SWOT (strengths, weaknesses, opportunities and threats) regarding the PC's HEIs current water postgraduate programs (master and PhD) programs. The analysis has been elaborated with the information gathered in deliverables 2, 3, 4 and 7, and serves for the planning of the INOWASIA module programmes (WP2).

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Contents

Abstract	4
Document History	5
SWOT ANALYSIS	8

Acronyms

PC	Partner Country
HEIs	Higher Education Institutions
WoLL	Water Oriented Living Labs
APC	Academic Professional Committee

SWOT ANALYSIS

A SWOT analysis for each PC HEI has been elaborated with a detailed evaluation of the strengths, weaknesses, opportunities and threats regarding water postgraduate (master and PhD) current information (offer, expertise, potential students, sustainability...) gathered in deliverables 2, 3, 4 and 7, and serves for the planning of the INOWASIA module programmes (WP2). The SWOT analysis for each Asian university is presented below (in table form).

Can Tho University - CTU

STRENGTHS	WEAKNESS
<p>A large number of master and PhD programs related to water. As a result, approximately one-four of the graduate programs are related to the water field.</p> <p>The water-related formation is taught by CTU lecturers who were trained at high ranking universities in the Netherlands, Germany, the USA, Japan, etc.</p> <p>Benchmark University in Vietnam, and Southeast Asia on water and natural resources.</p> <p>The water-related topics that are the strength of CTU consist of water management, wastewater treatment technologies, flood management, hydraulic engineering, hydrodynamic modeling, etc.</p> <p>Implication of different water actors: including actors of Mekong delta. Support from enterprises, institutions and other stakeholders for student PhD funding.</p> <p>Some programs forming part of a joint degree or any regional and/or international programs (e.g. international program within VLIR-Network (Belgium)).</p>	<p>Lack of social experts involved in the programs.</p> <p>More interdisciplinarity is needed between science/technology/social sciences (including social aspects, economics, politics, governance, ...).</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to introduce innovative/complementary water topics modules (eg. Water and tourism management) in different existing programs.</p> <p>About 10 topics identified in the Inowasia project could be incorporated at short term in the existing programs.</p> <p>Due to the high expertise and tradition on water, it seems viable to implement a specific Master on water at midterm.</p>	<p>The current challenge that the MSc programs are facing is a decreasing number of students so some MSc programs cannot be started.</p> <p>Too many offers can reduce the number of students per Master or PhD Program.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>

UNIVERSITY OF SCIENCE – NATIONAL VIETNAM UNIVERSITY (HUS-VNU)

STRENGTHS	WEAKNESS
<p>Very big University with a lot of students and a benchmark on a lot of disciplines.</p> <p>A large number of master and PhD programs related to water/environment.</p> <p>High expertise in chemical/environmental science and engineering.</p> <p>Based in Hanoi, where a lot of the ministries companies are based.</p>	<p>Lack of social experts involved in the programs. More interdisciplinarity is needed between science/technology/social sciences (including social aspects, economics, politics, governance, ...).</p> <p>Few regional/international joint programs on the masters and OGD related to water/environment.</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to introduce innovative/complementary water topics modules (eg. Water and smart cities, Wastewater treatment design) in existing programs.</p> <p>About 6 topics identified in the Inowasia project could be incorporated at short term in the existing programs.</p> <p>Due to the high research capacities, labs and expertise, it seems viable to implement a PHD program exclusively on water (focus on water technologies).</p>	<p>The number of students for the MSc programs due to competence.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>

INSTITUTE OF TECHNOLOGY OF CAMBODIA (ITC)	
STRENGTHS	WEAKNESS
<p>Benchmark on techno in Cambodia and region.</p> <p>From 2018, there exists a master program specifically on Water Urban and Sanitation supported by EU/France.</p> <p>High and diversified water expertise staff with PhD study background from various countries such as Europe, Japan, Thailand, Philippine...</p> <p>The students can have internships for conducting their research at school or at industry during their research thesis.</p> <p>Facilities: laboratories to support the research and teaching such as hydrology, soil, hydraulic, water and environment, GIS, topography laboratory.</p> <p>Strong teamwork: our researchers have conducted many research projects related to water and environment</p>	<p>Lack of social experts involved in the programs. More interdisciplinarity is needed between science/technology/social sciences (including social aspects, economics, politics, governance, ...).</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to introduce innovative/complementary water topics modules (eg. Water resource recovery, Water economy and entrepreneurship) in the existing programs.</p> <p>About 10 topics identified in the Inowasia project could be incorporated at short term in the existing programs.</p> <p>Inowasia through the WoLL, the APC network and the planned internships with enterprises, ITC could reinforce the current water programs thanks to the involvement of different actor's and dissemination.</p>	<p>Sustainability of the Master and PhD program of water and environment depends on financial sponsor because it is a full-time program.</p> <p>The future challenges of the Master and PhD programs is the sponsor shortage. Most of the alumni requested for the part-time program and we did not offer this program yet.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>

NATIONAL UNIVERSITY OF BATTAMBANG (NUBB)	
STRENGTHS	WEAKNESS
<p>A lot of research and benchmarking in agriculture in Cambodia.</p> <p>High expertise in water quality monitoring and assessment.</p> <p>3 programs related to the environment with some water topics.</p> <p>Very active in Erasmus + and other projects.</p>	<p>Limited research funds to support master and PhD research thesis. Scholarship to pay the tuition fee.</p> <p>Limited human resource in the related fields of sciences. Qualified teachers to teach both theory and practical work are hard to find, mostly available in Phnom Penh (capital).</p> <p>Inadequate laboratories facilities and equipment for teaching and learning and research.</p> <p>Few regional/international joint programs on the masters and OGD related to water/environment.</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to introduce innovative/complementary water topics modules (e.g. Management tools-ICTs for water management) in existing programs.</p> <p>About 6 topics identified in the Inowasia project could be incorporated at short term in the existing programs.</p> <p>Agriculture is one of the most important activities in Cambodia and the most water demanding sector, and due to the location and background NUBB can be positioned as a benchmark university in water-agriculture- sustainability in Cambodia and region.</p> <p>Due to the high research capacities, labs and expertise, it seems viable to implement a PHD program exclusively on water-agriculture at short/mid term,</p>	<p>The number of students for the MSc programs due to the Phnom Penh (capital) competence.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>

NATIONAL UNIVERSITY OF LAOS (NUOL)	
STRENGTHS	WEAKNESS
<p>Main university in Laos.</p> <p>3 programs related to the environment with some water topics.</p> <p>High expertise in water quality monitoring and assessment.</p> <p>Located in the capital where most of the minister's and enterprises of Laos are based.</p>	<p>Lack of social experts involved in the programs. More interdisciplinarity is needed between science/technology/social sciences (including social aspects, economics, politics, governance, ...).</p> <p>Few regional/international joint programs on the masters and OGD related to water/environment.</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to introduce innovative/complementary water topics modules (e.g. Water biodiversity conservation, Innovative technologies and new trends on sanitation) in existing programs.</p> <p>About 3 topics identified in the Inowasia project could be incorporated at short term in the existing programs.</p> <p>To become a reference in water quality and monitoring in Laos.</p> <p>Due to the high research capacities, the new WoLL launched by Inowasia, it seems viable to implement a PHD program exclusively on water (focus on water quality and monitoring) at short/mid-term.</p>	<p>The number of students for the MSc programs.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>

SOUPHANOUVONG UNIVERSITY (SU)	
STRENGTHS	WEAKNESS
<p>High expertise in ecology, agriculture. 1 environment program with water related topics.</p> <p>Young and dynamic university.</p>	<p>Limited number of experts on the water sector.</p> <p>Inadequate laboratories facilities and equipment for teaching and learning and research.</p> <p>Few regional/international joint programs on the masters and OGD related to water/environment.</p> <p>Few Internships on the master programs.</p>
OPPORTUNITIES	THREATS
<p>Inowasia has great opportunities to reinforce the existing water related program and introduce innovative/complementary water topics modules (e.g. Nature based solution for water management and resilient, Sustainable water management in agriculture: rural and urban areas).</p> <p>Opportunity to form SU professors on water by Inowasia.</p> <p>Agriculture is one of the most important activities in Laos and the most water demanding sector, and due to the location and background SU can be positioned as a benchmark university in water-agriculture- sustainability in Laos and region.</p> <p>The university has plans to cooperate with Thailand that can be reinforced by the APC members of Thailand.</p>	<p>The number of students for the MSc programs due to Vientiane (capital) competence.</p> <p>All programs are with classical teaching methodologies, hence introducing a new methodology such as Problem Based Learning can be challenging for professors. A lot of formation and awareness is needed.</p>