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MANDANA UNIVERSITY

4th INTERNATIONAL RIVER SUMMIT

**RAISING AWARENESS,
COMMITMENT AND RESOURCES
FOR THE RIVERS**

November 22 - 24, 2018
Mandaue City
Cebu, Philippines

REGISTER NOW!

5,400php
Early Bird Fee
5,700php
Regular Fee

3,400php
Student Fee

5,300php
Organizational Fee

Rick Heikoop


- Senior lecturer Urban Water Management at Rotterdam University of Applied Sciences
- Co-initiator of Wetskills: since 2010 we organized 31 water challenges in 19 different countries with 600+ participants
- You can reach me at t.h.heikoop@hr.nl

Egypt Pyramids

Canada Niagara falls

Wetskills Taiwan

Borobudur Indonesia



Parking Lot. More fun in the
Philippines

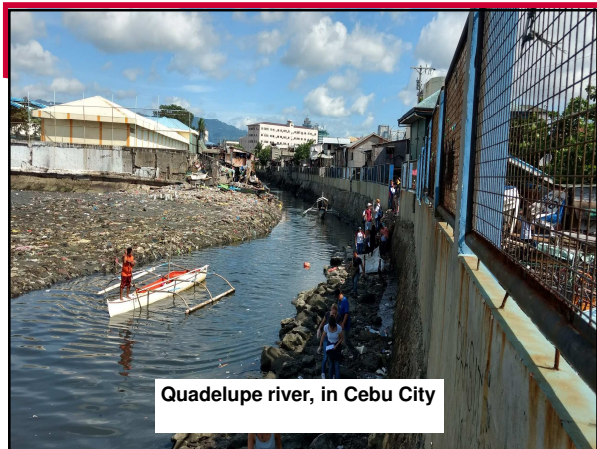
My favorite local delicacy: Balud





My favorite local delicacy: Balud





The wicked problems are clear and well known!

Flooding and lack of drainage capacity

CEBU

The wicked problems are clear and well known!

Lack of waste management

Lack of enforcement

Lack of discipline

CEBU

Special Report: 70% of Cebu drainage clogged with trash (2nd of 3 parts)

SPRAWLING RIVER: The Guadalupe River exits through Barangay Pasi (left) and drains in Cebu City, much narrowed by the

The wicked problems are clear and well known!

WATER WORLD

Dozens of Philippine rivers destroyed by pollution:

by Staff Writers
Manila (AFP) April 2, 2008

Fifty rivers in the Philippines have been destroyed because people are using them to dump their rubbish, leaving some ecologically dead, an official said Wednesday.

Of the country's 421 major rivers and 20 large river basins, 50 are "highly degraded because of man's abuse and neglect," Environment and Natural Resources Secretary Joselito Atienza said in a statement.

"History tells us that rivers have played an important role in the country's economic

Pollution of our river systems



A glimpse of the Netherlands

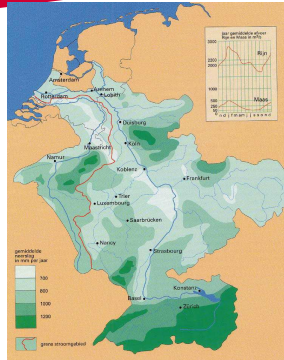


North-South
300 km

East- West 200 km



Rhine- Meuse - Scheldt delta – catchment area EU rivers had similar pollution problems



City of Rotterdam Water Challenges

How to solve these wicked problems?

Wicked problems:



Wenger E. (2001). Communities of Practice. International Encyclopedia of the Social & Behavioral Sciences. 2339-2342.

Community of Practice:

Domain. A shared domain of interest. Membership implied commitment to the domain and willingness to collaborate with the partners

Community. Members of a specific domain interact in shared activities, help each other, and share information with each other.

Practitioners. Communities develop their practice through a variety of methods, including: discussing developments, visiting other members, mapping knowledge and identifying gaps of knowledge

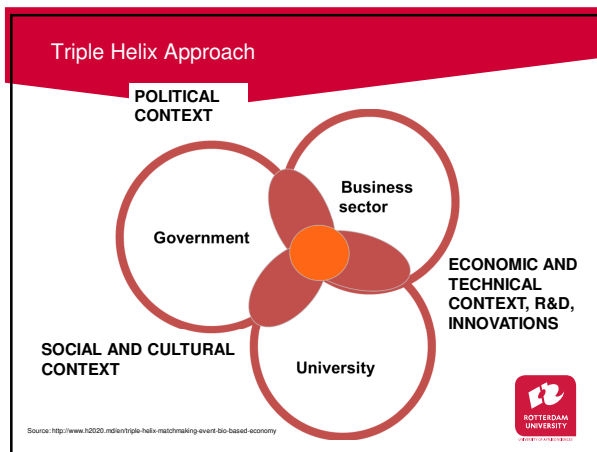
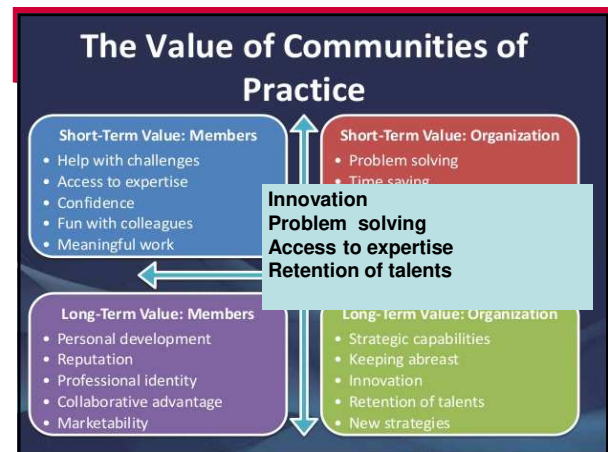
Communities of Practice

"Groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly."

Etienne Wenger (2006)



RDM
CENTRE
OF EXPERTISE



Best Practice . : Plastic Soup problem in curriculum. Flood Free Manila Challenge in 2016, Cebu City Scan 2017

Plastic Soup Challenge
from pollution to solution

Modulewijzer: 100% online & 100% gratis
Bereikbaarheid: 24 uur per dag
Publicatiedatum: 15 september 2017
Auteurs: J. van der Vlist, J. van der Vlist, J. van der Vlist
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Flood Free Manila Challenge

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Best Practice: Butuanon River Scan 2018

Butuanon River Scan 2018

Organizing Partners:
Rotterdam University of Applied Sciences
University of San Carlos
Haze University of Applied Sciences
City of Mandau
November 11-24 2018

USC, Dutch students pitch in for Butuanon River rehab

Legend:
Butuanon River
Measurements

Best Practice 2: Butuanon River Scan 2018

Butuanon River Scan 2018

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USC, Dutch students pitch in for Butuanon River rehab

Legend:
Butuanon River
Measurements

Triple helix partners



Best Practice 2: Student with passion becomes expert

Vertical Helophyte Filter System

Vertical Helophyte Filter System

Community with 'landmines' in Davao.

Vertical Helophyte Filter System:

- Low cost
- Low tech
- Nature based
- No chemicals

Lechon & piggery

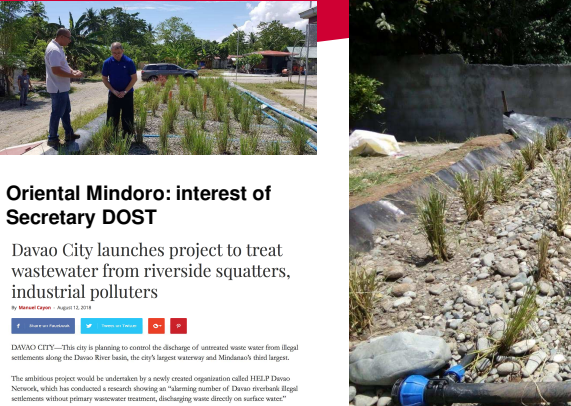
3 BEST LECHON RESTAURANTS IN CEBU

How to start Piggery Business

Vertical Helophyte Filter System for piggery

Used in Davao and other places for:

- Piggery
- Poultry
- SME's
- No more direct discharge in the river



Oriental Mindoro: interest of Secretary DOST

Davao City launches project to treat wastewater from riverside squatters, industrial polluters

by Rosalyn Reyes August 13, 2017

DAVAO CITY—This city is planning to control the discharge of untreated waste water from illegal settlements along the Davao River basin, the city's largest waterway and Mindanao's third largest.

The ambitious project would be undertaken by a newly created organization called HELP Davao Network, which has conducted a research showing an "alarming number of Davao riverbank illegal settlements without primary wastewater treatment, discharging waste directly on surface waters."


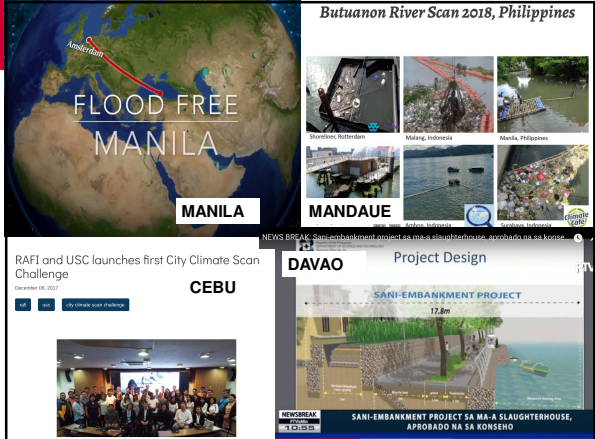
Take home message to address problems in your LGU:

- Identify your local wicked problem / domain
- Identify your community members / stakeholders
- Create a triple helix collaboration



Take home message

- Identify your local wicked problem / domain
- Identify your community members / stakeholders
- Create a triple helix collaboration
- **University:** integrate problems in your curricula
- **LGU:** bring your problems to the university
- **Private:** bring your problems to the university

Butuanon River Scan 2018, Philippines

FLOOD FREE MANILA

MANILA

MANDAUE

DAVAO

CEBU

Project Design

SANI-EMBANKMENT PROJECT

SANI-EMBANKMENT PROJECT SA MA-A SLAUGHTERHOUSE, APROBADO NA SA KONSEHO



Butuanon River Scan 2018, Philippines

FLOOD FREE MANILA

LET'S WORK TOGETHER!!

MANILA

MANDAUE

DAVAO

CEBU

Project Design

SANI-EMBANKMENT PROJECT

SANI-EMBANKMENT PROJECT SA MA-A SLAUGHTERHOUSE, APROBADO NA SA KONSEHO