Global Conference on Aquaculture 2010

Farming the waters for People and Food

22-25 September 2010, Phuket, Thailand

Disclaimer

Citations

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Our approach: Knowledge and Communications (K&C) focus

- Knowledge critically important to development of aquaculture; eg earliest innovations China/Egypt; 60s &70s "good science" (eg breeding) to more recent challenges (eg diseases)
- Few studies looking at aquaculture development through a knowledge lens; cf other sectors eg business (knowledge economy thinking) and health (knowledge translation) and ICT (eg K4D)

Some aquaculture K&C history

Kyoto 1976: networking and knowledge sharing highlighted

Bangkok 2000: Bangkok Declaration and Strategy includes 3 knowledge elements: Investing in People thro education/training; Investing in R&D and Improving info flow and communications

Phuket 2010: BKD being revisited thro Phuket Consensus

Knowledge & KM

Knowledge is expertise/skills; familiarity gained by experience/education *Oxford dictionary*.

Knowledge management (KM) comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experiences.

KM concepts

2 knowledge management ideas:

"Our ability to learn what we need for tomorrow is more important than what we know today" Siemens, G. Connectivism(2005)

K concept 2

"Experience has long been considered the best teacher of knowledge. Since we cannot experience everything, other people's experiences and hence other people, become the surrogate for knowledge. ***I store my knowledge in my friends*** *is an axiom for collecting knowledge through collecting people."* Stephenson, K., http://www.netform.com/html/icf.pdf

Communications/reach thinking

- Knowledge use is not just outputs but outcomes and impacts, influencing strategies, change.....what knowledge and knowledge with/to whom questions.
- Knowledge translation (KT), Implementation or aquaface thinking more generally.

Research &Knowledge Production:

some supply side estimates

- 42 “aquaculture journals”
  http://ag.arizona.edu/azaqua/extension/journals.htm
- 24,000 “science journals” & 1,350,000 articles published annually(2006 data) **and numbers growing very rapidly** Bjork, B-C., Roos, A. and Lauri, M 2009

Other types of knowledge: farmer, and other stakeholders

- Shrimp farmers know that when it rains and the temperature is high shrimp growth and health conditions are good.
- when it is dry and temperature drops shrimp start having problems and diseases are more common
- Practice and traditional ecological knowledge or farmer knowledge.

Knowledge sharing

- Early days in terms of examination of knowledge sharing processes and their adequacy in meeting the needs of our increasing numbers of aquaculture stakeholders
- Initial work on shared learning around practices (eg BMPs) and other knowledge processes.

Catfish Vietnam: NT Phoung, F B Davy, B Ingram & S S DeSilva

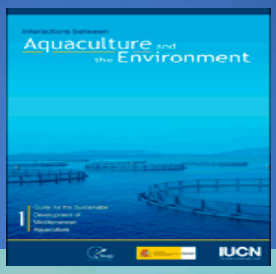
Indian shrimp farming communities: V Bhat & N R Umesh

an example of environmentally sound management of small-scale aquaculture

Salmon farming Chile: R. Infante

Seabass Turkey: G. Yucel-Gier

FEAP (**The Federation of European Aquaculture Producers) & EATIP C.** Hough



Mediterranean red porgy

Farmed red porgy

Asia NACA: Y Derun, S Wilkinson, SS De Silva, F B Davy

Farmer-farmer interactions

Farmer networking

Addressing issues of regional importance

South-South Cooperation

Publications

Specialized training courses

Our initial case based review

- Each case reviewed aspects of the thinking around this conceptual base.
- We have tried to summarize some initial very general lessons learned across the 6 cases just to provide a very rough glimpse of some of our thinking in the slides that follow

Issue Comparison 1 examined through a knowledge-communications lens

Issue	Vietnam	India	Chile
Early history, common starting points, constraints.	Modest production levels via traditional cage culture system in Vietnam and region	Traditional shrimp farming in coastal lagoon systems; disease an increasing problem.	Cage culture in Chile region with very rapid growth over the 90's. Salmon farmers well organized in farmers association and thought to be well positioned against crises

Issue Comparison 2

Issue	Vietnam	India	Chile
What changed? Main current knowledge management uses	Rapid increase in production around 2000 when seed supply/ research knowledge and new pond culture systems & farmer knowledge developed	Marked reduction in disease problems led by new science based BMP cluster approach started in 2000 driven by strong participation, K sharing. Creation of new nat'l organization (NaCSA) guided these changes.	Imported "know how" from main salmon countries as the same companies were involved. Government funded research increasing but with limited impact on aquaculture production (implementation issues)

Issue Comparison 3

Issue	Vietnam	India	Turkey	Chile
Who generates main knowledge; Who disseminates knowledge? Who uses this knowledge?	Farmers, researchers, government develop, share knowledge	Cluster organizations of farmers effective in sharing of knowledge and working with local agencies	Partnerships between University-Farmers and government	Important role of the private sector in the generation of new knowledge; poor incentives for knowledge sharing

Issue Comparison 4

Issue	All	FEAP	NACA
Who generates , disseminates, uses knowledge?	Partnerships between university, farmers and government developing; clusters playing an important role	New forms of knowledge sharing being developed and refined. Knowledge platforms providing improved knowledge dissemination	Training and extension programs, website and a variety of improved sharing and dissemination strategies being implemented eg around BMP s

Comparison 5

Issue	All	Chile	FEAP	NACA
Main Challenges; What is not (yet?) working and potential solutions or innovations in KM; Future implications	Farmer to farmer and social organization shared learning still in early stages of development. Value added marketing and certification coming but takes more time	Disease related knowledge exchange between farms and between companies not open nor rapid. Farmers association as a knowledge sharing platform needs work	Shared learning using platforms or other mechanisms is slowly starting.	Many small scale farmers remain difficult to reach; continue to experiment and learn/adapt; intra regional dissemination; strengthen the science based elements & approaches

Comparison 6

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
Main Challenges	Continued effort on knowledge sharing among better organized farmers and other stakeholders including govt	Improving collaboration & shared learning within & across levels (ie farmer to farmer, state to state and nationally) works	International partnerships communications platform experiences positive and expanding	Increase transparency and efficiency in the transfer of information among companies and between companies and government. Increase sense of the "common good" both public and private	Short history and need more time for shared learning to develop.	Continue blended approach to T&E using new and traditional tools. Give farmer innovations more prominence and disseminate widely. Main problems linked to funding and coping with expanding training needs

Initial lessons learnt -1

- Disease and management problems were a common thread across most cases. Most changes recent; in last 10 years and still on going.
- Initially poor knowledge sharing often driven by market competition (eg Chile case). Now improved knowledge sharing seems to outweigh "market 1st" paradigm

Initial lessons learnt -2

- Strengthened social organization and shared learning among stakeholders provided important benefits to cross major barriers/constraints (eg India water quality-disease link).
- Barriers and wider knowledge sharing tool development including “knowledge platforms & Knowledge brokers” showing benefits.

Other opportunities for shared learning

- Health sciences have recently embarked on a variety of new knowledge directions around knowledge translation and links to policy both globally, regionally and national levels. These experiences offer some interesting opportunities for comparative learning with aquaculture.

Knowledge networking & communications

- Back to our 2 initial quotations.
- Knowledge storage in partners but also in other stakeholders whether competitors or regulators or others.
- CoPS: Increasingly need to adopt a shared learning approach that recognizes the knowledge stored with each and move to new shared learning paradigm based on “good aquaculture neighbours”!

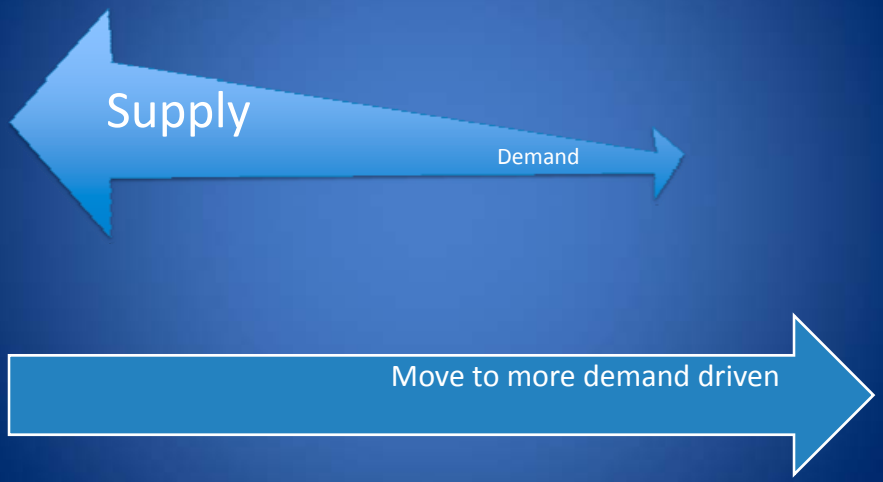
Aquaculture Knowledge management challenges

- Aquaculture = change!
- Knowledge use and translation
- Q: With increasing numbers of stakeholders are their K needs being adequately met?
- Sustainability, BKD and where we are going? Knowledge management will play a key role both in management and its monitoring.

Knowledge Gaps

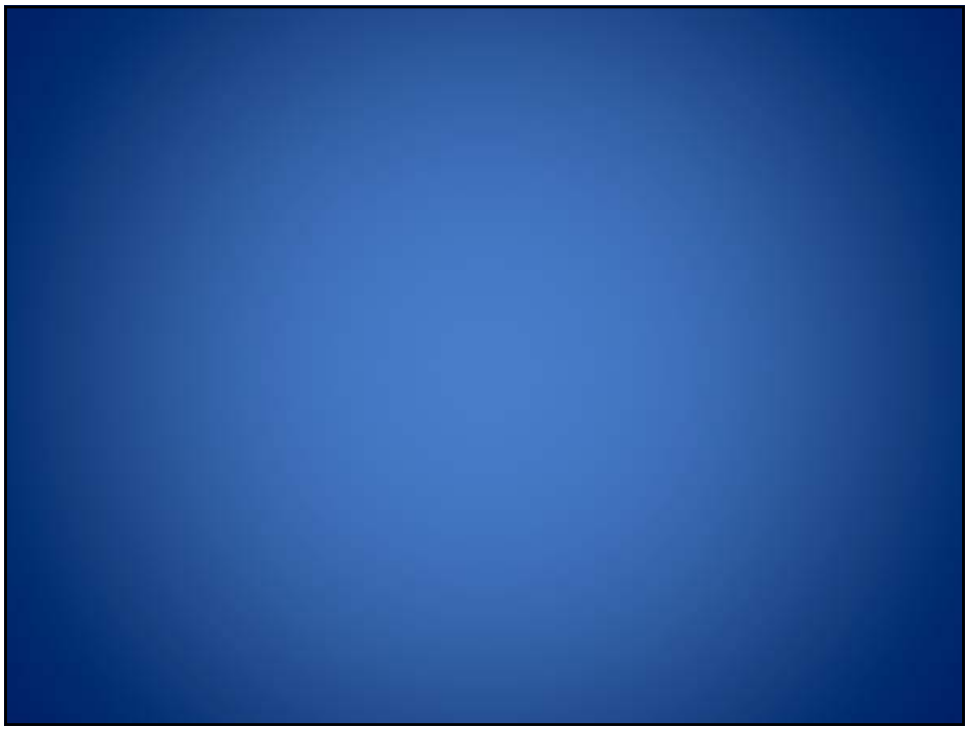
- Limited knowledge examination in general in aquaculture.
- Other forms of knowledge:Traditional knowledge (TEK) studies related to aquaculture seem relatively few; in fact social analysis and social science seems a relative gap. Not clear why this is so.
- Regional disparities in knowledge collection, sharing and management.

Knowledge supply vs demand



Implementation or aquaface thinking

Thanks for your attention



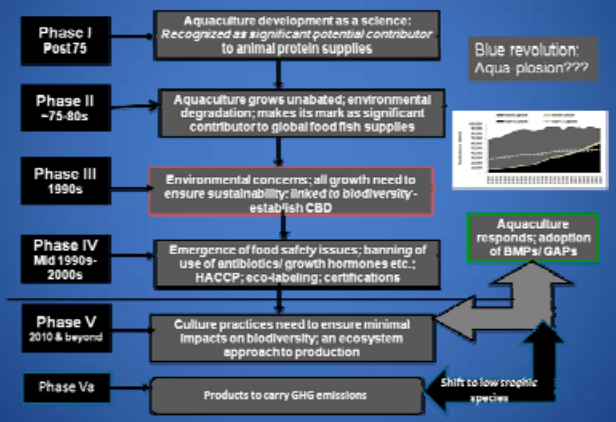
Impact factors in Fisheries

- 1.913 REVIEWS IN FISH BIOLOGY AND FISHERIES
- 1.824 FISH PHYSIOLOGY AND BIOCHEMISTRY
- 1.287 CANADIAN JOURNAL OF FISHERIES AND AQUATIC SCIENCES
- 1.222 REVIEWS IN AQUATIC SCIENCES
- 0.837 AQUACULTURE
- 0.818 FISHERY BULLETIN
- *http://w3.mkk.szie.hu/~fulop/Res/If/If-f.htm*

- 0.798 TRANSACTIONS OF THE AMERICAN FISHERIES SOCIETY
- 0.731 ICES JOURNAL OF MARINE SCIENCE
- 0.691 JOURNAL OF FISH DISEASES
- 0.588 NEW ZEALAND JOURNAL OF MARINE AND FRESHWATER RESEARCH
- 0.585 AUSTRALIAN JOURNAL OF MARINE AND FRESHWATER RESEARCH
- 0.410 AQUACULTURAL ENGINEERING

The Knowledge Value Chain

Growth Phases in Aquaculture



Issue Comparison 1 examined through a knowledge-communications lens

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
Early history, common starting points, constraints.	Modest production levels via traditional cage culture system in Vietnam and region	Traditional shrimp farming in coastal lagoon systems; disease an increasing problem.	Rapid regional growth in Eastern Med of seabass industry ; limited local knowledge tradition in aquaculture .	Cage culture in Chile region with very rapid growth over the 1990's . Salmon farmers well organized in farmers association and thought to be well positioned against crises	Recently established as a regional producer led group. Recognition of knowledge & communication barriers	Early regional body with significant training & extension including partnerships with and cases cited here

Issue Comparison 2

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
What changed? Main current knowledge management uses	Rapid increase in production around 2000 when seed supply/ research knowledge and new pond culture systems & farmer knowledge developed	Marked reduction in disease problems led by new science based BMP collaborative system started in 2000 in AP driven by strong participation and cluster organization of farmers	Similar to other cases where good science played an important role	Imported "know how" from main salmon countries as the same companies were involved. government funded research increasing but with limited impact on aquaculture production	Refining knowledge platform around 5 main KM issues. Strong industry links; use of value chain thinking	Stronger govt and research knowledge links . Regional knowledge sharing (T&E) blended approach to KM; use of internet and new IC technologies with more traditional study tours exchanges etc

Issue Comparison 3

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
Who generates main knowledge; Who disseminates knowledge? Who uses this knowledge?	Farmers, researchers, government develop & sharing & using knowledge	Cluster organizations of farmers effective in sharing of knowledge and working with local agencies	Partnerships between University-Farmers and government	Important role of the private sector in the generation of new knowledge	Knowledge from research shared eg via FEAP platform	Work with farmers at the aqua face; risk assessment initiated; leads to science based BMP development

BD1

Issue Comparison 4

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
Who generates main knowledge? Who disseminates knowledge? Who uses this knowledge?	Farmers, researchers, government develop All the above share All the above use knowledge	COF generate (??) effective in generating and sharing of knowledge. Creation of NaCSA to D.5 work with farmers on certification and int'l marketing.	Partnerships between university, farmers and government developing now	Important role of the production sector in the generation of new knowledge CFO disseminate?	Knowledge platforms providing important link in knowledge dissemination	Working with farme D.4 t the aqua face; risk assessment initiated; eg science based BMP development

Cluster of farmers organizations, farmers associations = CFO

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D.4 Do NACA generates knowledge?? or rather diseminate research?
Soto, 3/09/2010

D.5 not too clear how is this related to knoledge disemination in general
Soto, 3/09/2010

BD1 Brian Davy, 17/09/2010

Comparison 5

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
Main Challenges; What is not (yet?) working and potential solutions or innovations in KM; future implications	Farmer to farmer and social organization shared learning still in early stages of development	Value added marketing and certification coming but takes more time	Limited economics, marketing and now governance & implementation experience. Training and extension needs more effort	Disease related knowledge exchange between farms and between companies not open nor rapid. Farmers association as a knowledge sharing platform needs work	Shared learning using platforms or other mechanisms is slowly starting.	Many small scale farmers remain difficult to reach; continue to experiment and learn/adapt; intra regional dissemination; strengthen the science based elements & approaches

Comparison 6

Issue	Vietnam	India	Turkey	Chile	FEAP	NACA
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D.6 ????
Soto, 3/09/2010

Nepal

K&C and Success thinking (see Table 10.1)

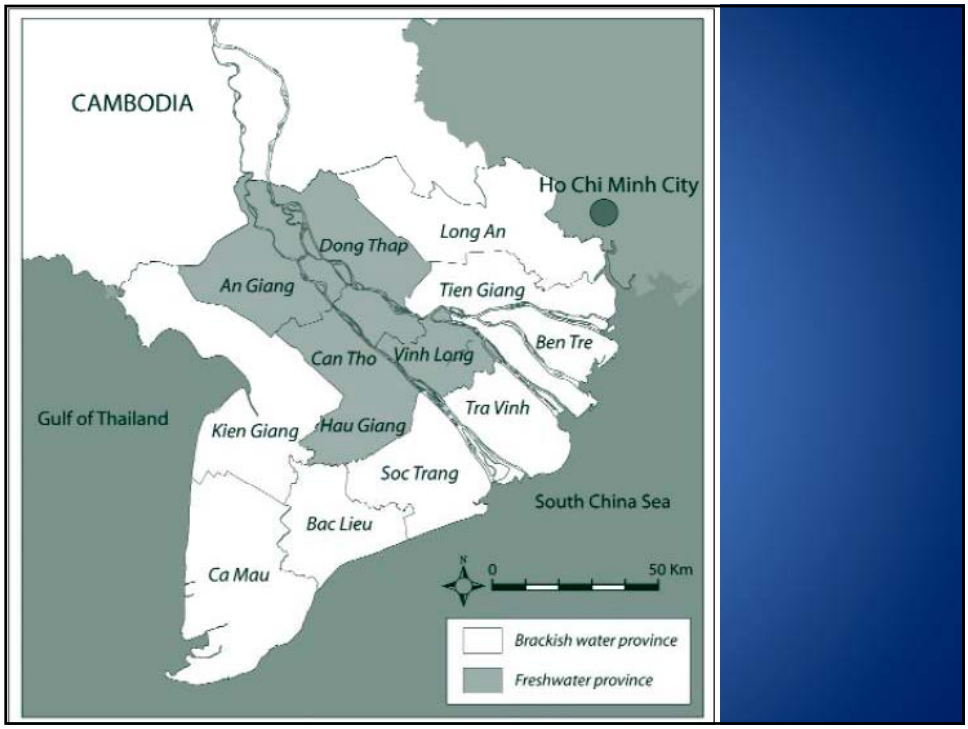

Table 1: The timeline of *tra* catfish seed production development

- Date Important Change Events
- Prior to 2000
- The striped catfish wild larval collection and nursery have started in 1940s. It has become a key activity of a number of farmers since 1954. This activity provided seed stocks for home-pond culture until the beginning of 2000 when the hatchery-reared seed stock became available.
- **Late 1980s: *initial years of research***
- Research on induced spawning of striped catfish was initiated in 1979. The first fingerlings of striped catfish were produced in 1979 by a joint effort of Long Dinh Vocational School, Nong Lam University (Anh, 1979). The initial successes could not be repeated and the research activities were scaled down until 1995. The period of 1978-1980 could be considered as a starting point of the research on induced spawning of striped catfish.
-
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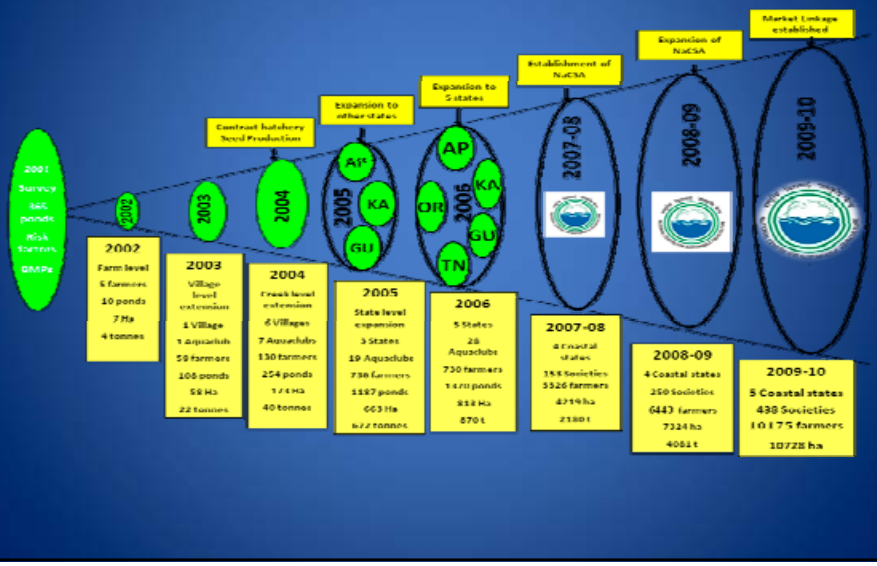
1995-1998: successful years	Research re-initiated in 1995 under European Commission of can Tho University involving French Agricultural Research Centre (CIRAD), Research Institute for Development (IRD) France, Can Tho University and An Giang Fisheries Import-Export Join Stock Company (AGIFISH). The induced spawning technique was successful in 1995 with complete success in the following years.
2004-present: rapid growth years	Striped catfish hatcheries, especially large scale hatcheries from private companies were rapidly established. The hatchery operation technique was mainly transferred or consulted by Can Tho University and Research Institute for Aquaculture (RIA)No. 2. Striped catfish genetic improvement research was initiated in 2002 and the first batch of improved broodstock was obtained and introduced to some selected hatcheries. Recently, seed production technique of striped catfish can be done in most freshwater hatcheries in the Mekong Delta. The technique has also been introduced to other parts of . Consolidation of the sector through the development and adoption of BMPs and a cluster approach to adoption is taking place rapidly. These adoption will enable small scale farmers to remain economically viable and ensure the sustainability of the sector, and most of all ensure market access

Progress of implementation of the concept of cluster farming in India



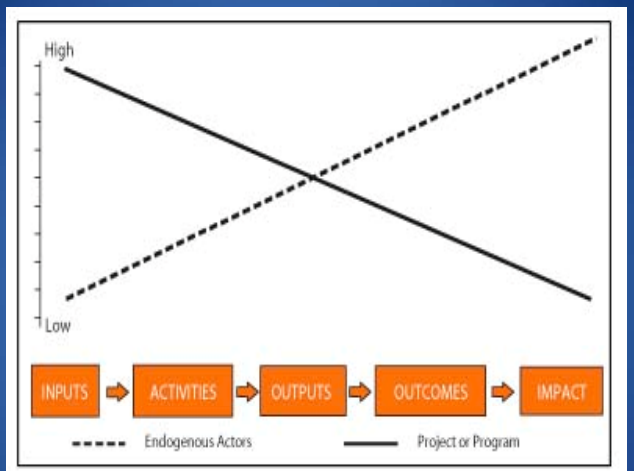


Figure 2. Relative Influence Along the Results Chain
(source: Smutylo 2001)

Figure 1. IISD Influencing Strategy.

Spectrum of Influence

Action	Change	an observed change (decision making, public policy, or process
Active	Using, owning	policymakers are using our frameworks or information to create new policy
	Engaging	joint efforts to research policy options
	Demanding	policymakers request targeted and general information
	Seeking	policymakers seek new information related to our work
Passive	Receiving	influential persons receive our information

More Implementation

- Aquaface (cf coal face) thinking
- Health sciences: