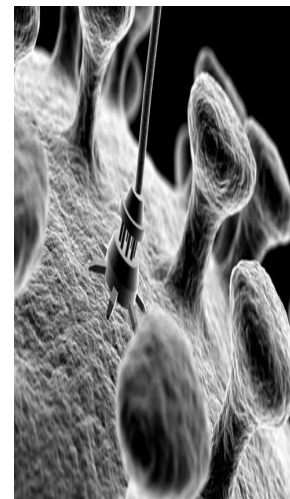


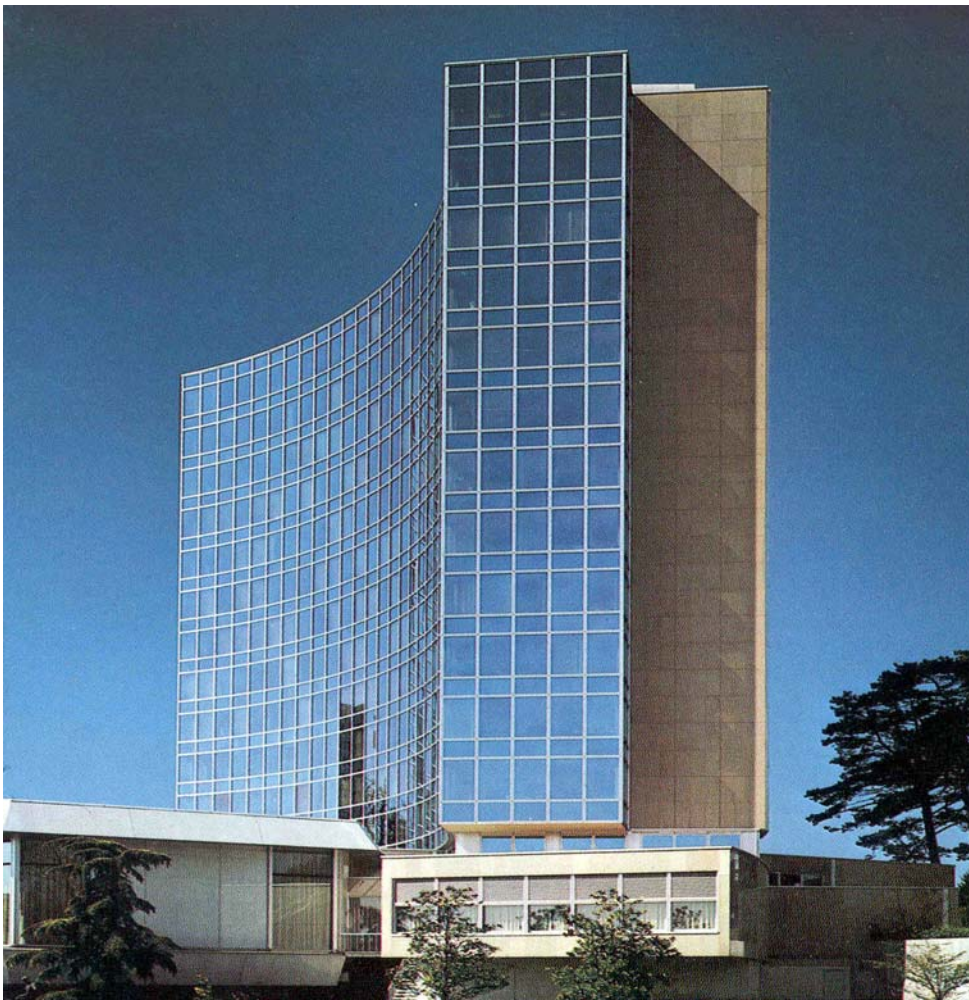
# ■ Developing an Economy One Shrimp at a Time

**Yumiko Hamano**  
Senior Program Officer  
WIPO University Initiative  
Innovation and Technology Transfer Section,  
Patent Division, WIPO

## Outline

- WIPO Overview
- IP Assets and Development
- Different types of IP
- Case Study of Transfer of EST





**WIPO**  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# WIPO

- **One of 16 United Nations Specialized Agencies**
- **Dedicated to developing balanced and accessible intellectual property systems that encourage and reward creativity and contribute to the economic and cultural growth to the benefit of human kind.**
- **Headquarters located in Geneva, Switzerland**
- **185 Member States**
- **Administration of 24 international treaties**
- **Some 1,500 employees**

**WIPO**  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# WIPO

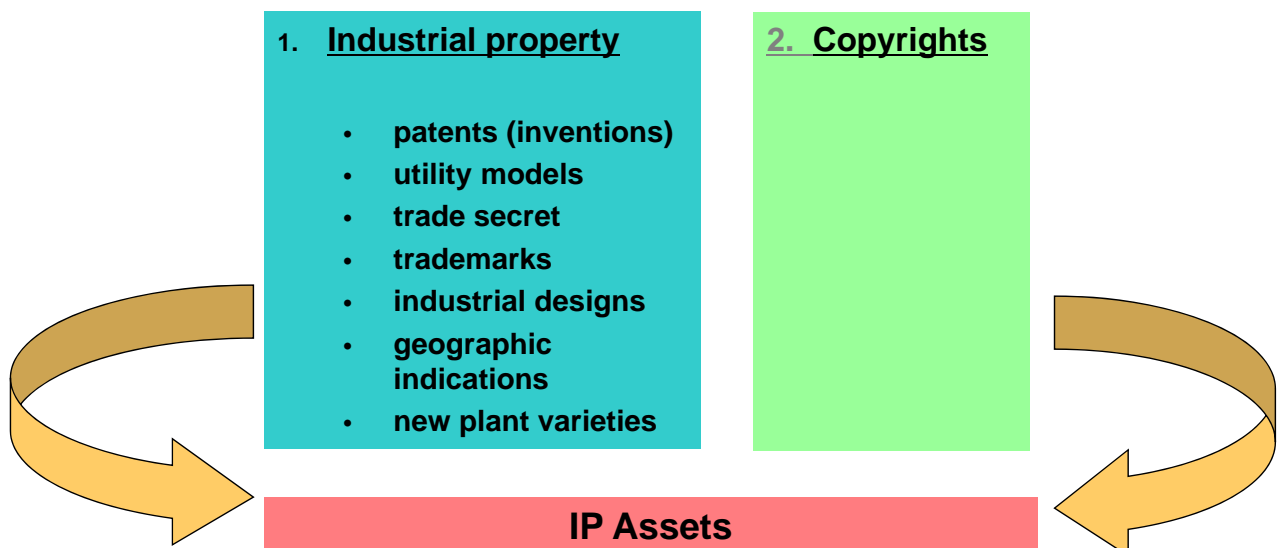
## < Core Activities >

- Promoting understanding of IP and realizing its development potential
- Legal and technical assistance and capacity building
- Facilitating development of IP law and harmonization of it
- Harmonizing national IP legislation and procedures
- Providing services for international applications for industrial property rights
- Facilitating dissemination and exchange of IP information
- Facilitating the resolution of private IP disputes

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

## What Are IP Assets?

Creations of the mind:



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# International Law of IP

- Paris Convention
- Patent Cooperation Treaty (PCT)
- TRIPS Agreement – administered by WTO
- Madrid Agreement (trademarks)
- Hague Agreement (industrial designs)
- Berne Convention (copyrights)
- WIPO Internet Treaties

# Economic Benefits of IP

## Macroeconomic level

- Increase GDP and competitiveness
- Enhance exports of high value
- Stimulate R&D
- Technological advancement
- Reduce brain drain by providing incentives
- Help address national human needs
- Develop national brand and cultural identity and reputation
- Attract beneficial FDI and local investment
- Job creation

# Economic Benefits of IP

## Microeconomic level

- Create portfolios of IP as a source of competitive advantage
- Enhance products and promote brand value
- Enhance corporate value
- Avoid and defend against litigation
- Provide incentives and recognition of creativity

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

© 2010 Yumiko Hamano

## Fortune 500 Companies

Over 80% of market value of Fortune 500 companies is based on their intangible assets

### Intangible assets

(knowledge based assets)

e.g.

- Patents
- Trademarks
- Brand

>

### Tangible assets

(physical assets)

e.g.

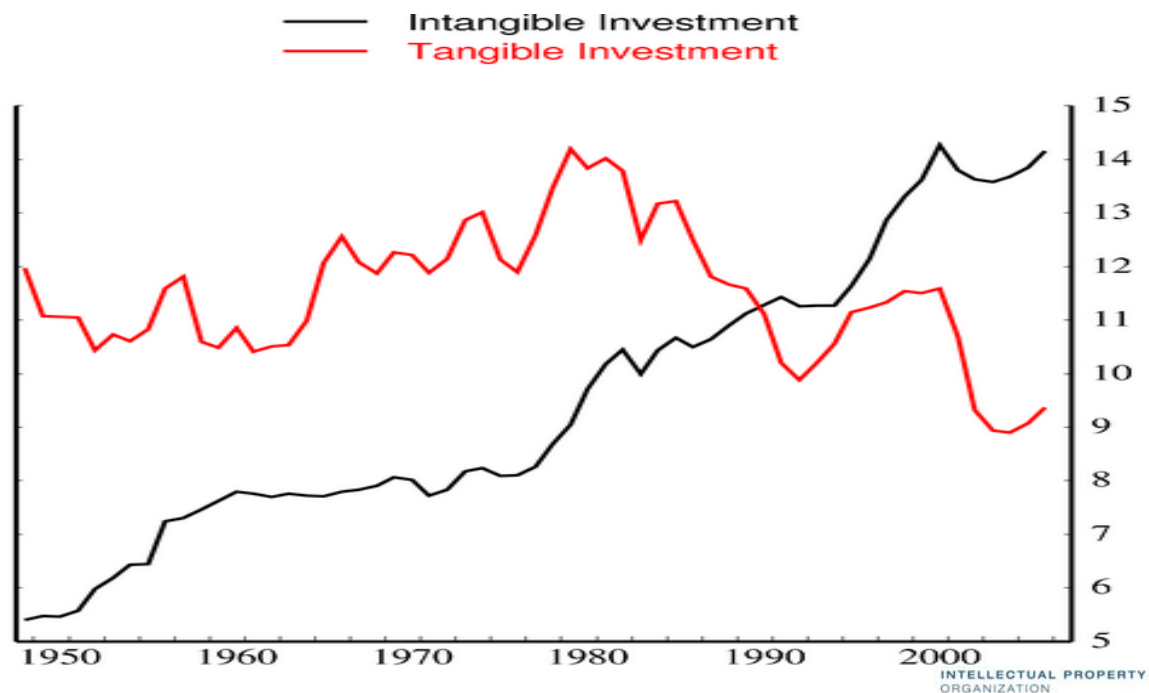
- Real estate
- Equipment
- Cash

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

© 2010 Yumiko Hamano

## Business investment in the US: tangible vs. intangible investment

(% business output)



Source: Corrado, Hulten and Sichel (2005, 2006)

## Innovation and Economic Growth

**The creativity and inventiveness of our people is our country's greatest asset and has always underpinned the UK's economic success.**

**But in an increasingly global world, our ability to invent, design and manufacture the goods and services that people want is more vital to our future prosperity than ever.**

**Innovation, the exploitation of new ideas, is absolutely essential to safeguard and deliver high-quality jobs, successful businesses, better products and services for our consumers, and new, more environmentally friendly processes.**

**Rt. Hon. Tony Blair, Prime Minister**  
Innovation Report 2003

# Patent (1)

- A right granted by a state to an inventor, to exclude others from making, using, selling or importing in the territory without the inventor's consent
- Granted to an invention of process, method, device, machine, compound, composition, and improvements thereof
- In exchange for a disclosure of specification of the invention
- Limited period, 20 years in many countries
- Territorial

# Patent (2)

## Legal Requirements of Patent

- Novelty
- Inventive Step
- Industrial Applicability



# Why are Patents important?

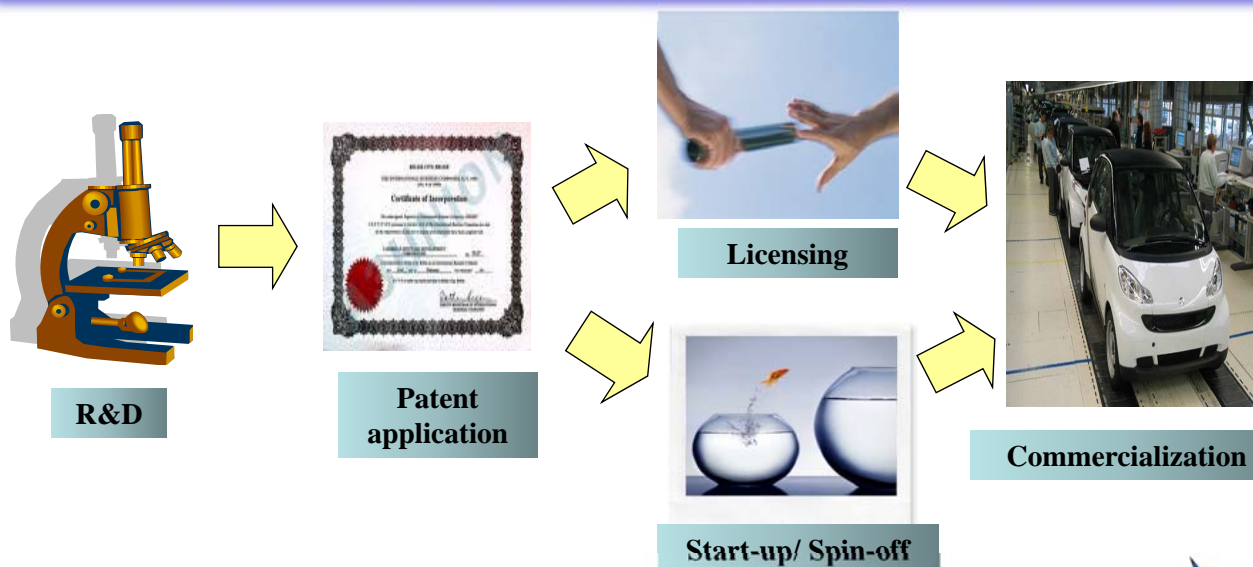
Patents provide **incentives** to individuals by offering them **recognition** for their **creativity** and **material reward** for their marketable inventions. These incentives encourage **innovation**, which assures that the **quality of human life** is continuously enhanced.



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

© 2010 Yumiko Hamano

## From Laboratory to Market



### Technology Transfer

CREATION

PROTECTION

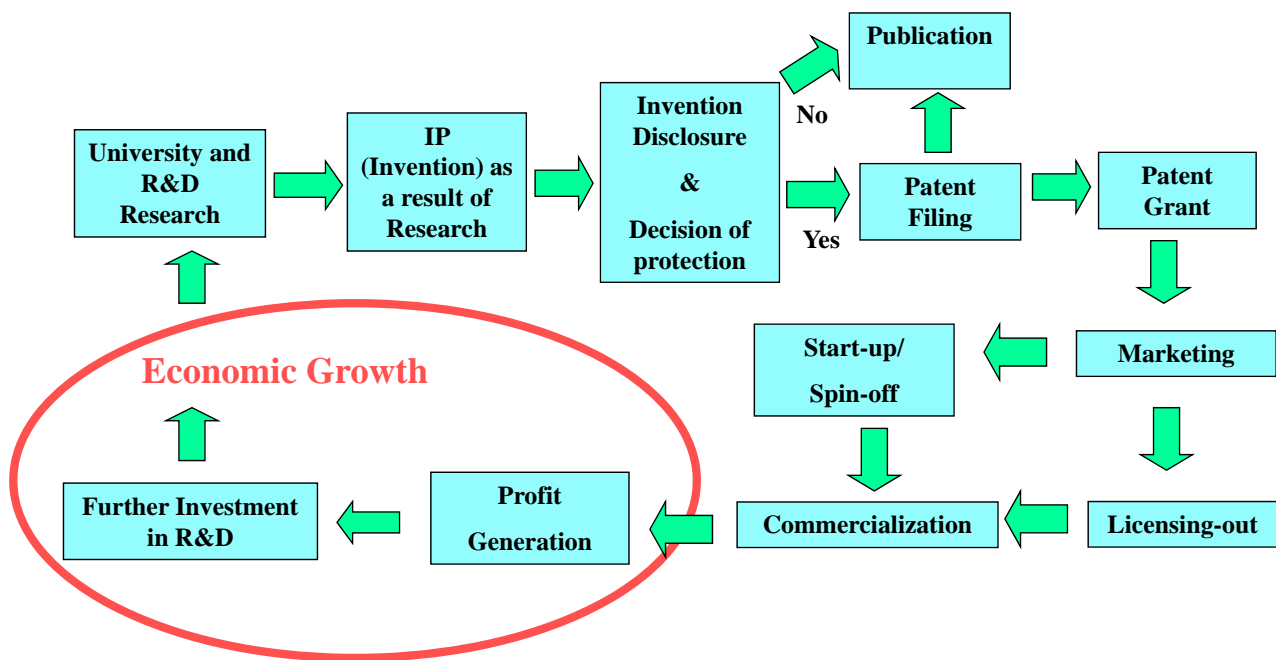
EXPLOITATION

INTELLECTUAL PROPERTY  
ORGANIZATION

Source: Yumiko Hamano, From Laboratory to Market



# Innovation and Economic Growth Cycle



Source: Yumiko Hamano, "Innovation and Economic Growth Cycle"  
WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

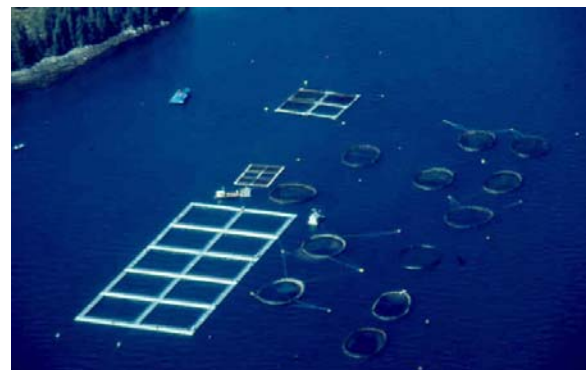
## Case Study

### ■ Technology:

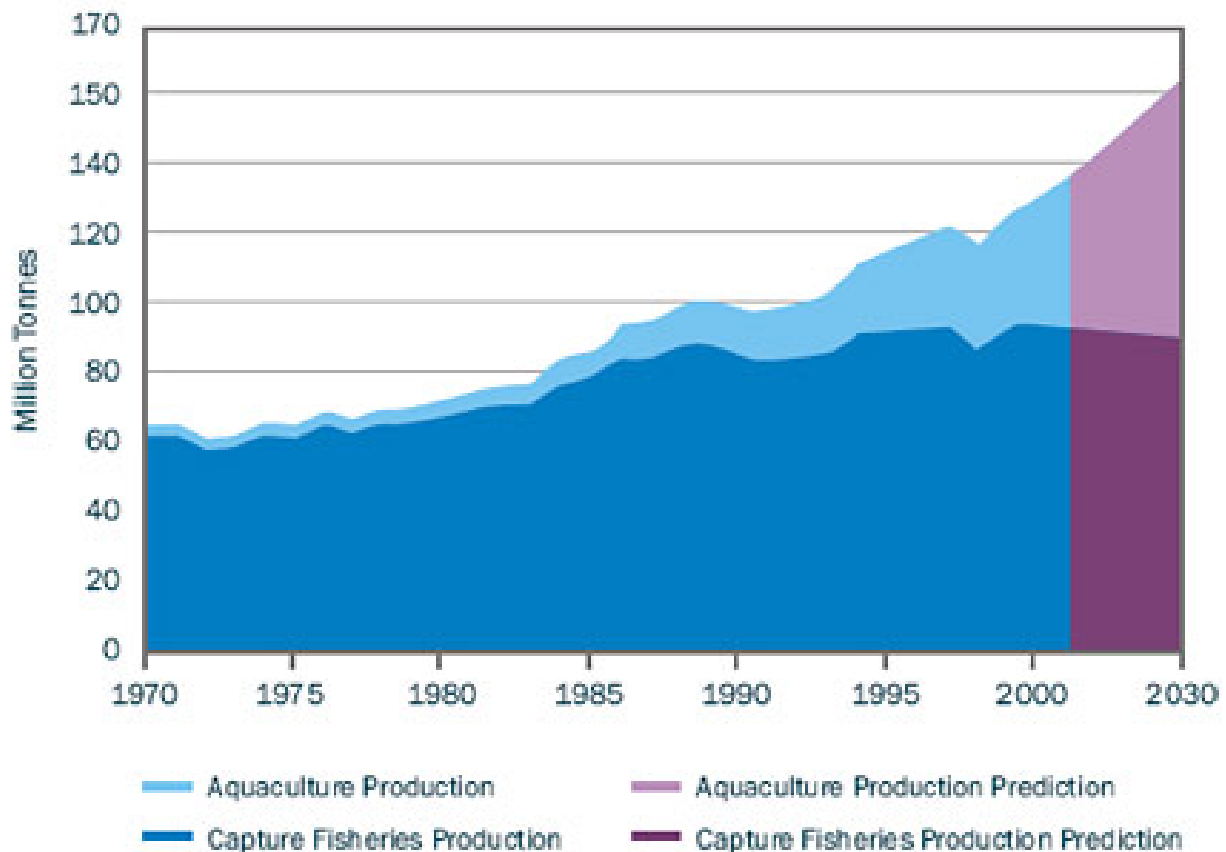
Method of producing and synthesizing some conventional zeolites from kaolin and natural clay minerals for environmental protection and aquaculture

### ■ Institution:

Hanoi University of Technology



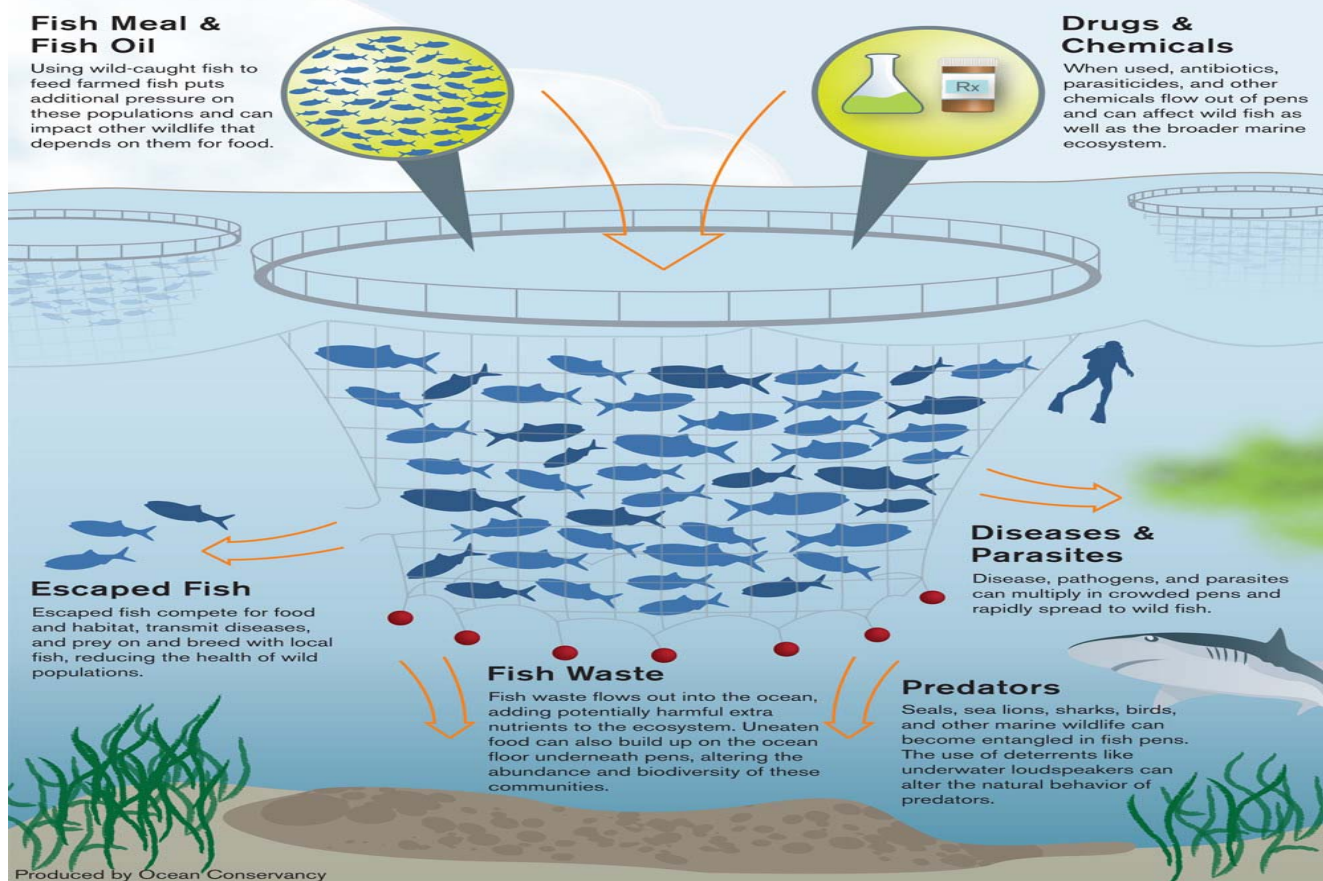
## WORLD FISH PRODUCTION



## Drivers

- Government Policy: reinforcing agriculture, aquaculture and cattle raising in general and shrimp-farming in particular instead of rice cultivation in coastal provinces in Vietnam – important economic strategies
- Challenges: environmentally sound nutrition for shrimps, water purification (clean water quality), high cost zeolite (imported)
- HUT set up in 2006 IP Division under Science and Technology Office
- Research funds: Ministry of Education and Training (MOET) and Ministry of Science and Technology (MOST)

# Environmental Impacts of Open-Ocean Aquaculture



## Research Team

### Key Researchers:

- Dr. Ta Ngoc Don – Organic Chemistry Dept., Faculty of Chemical Technologies, HUT
- Dr. Vu Dao Thang – Laboratory of Oil Chemical Refinery and Catalyst Materials - Faculty of Chemical Technologies, HUT
- Professor Hoang Trong Yem - Organic Chemistry Dept., Faculty of Chemical Technologies, HUT
- Mr. Nguyen Dung - Organic Chemistry Dept., Faculty of Chemical Technologies, HUT
- Mr. Trinh Xuan Bai - Organic Chemistry Dept., Faculty of Chemical Technologies, HUT
- Ms. Nguyen Thi Thoa - Organic Chemistry Dept., Faculty of Chemical Technologies, HUT

## Collaboration

- The Laboratory for Oil Chemical Refinery and Catalyst Materials - Faculty of Chemical Technologies, HUT.
- The Chemical and Rubbery Company (Cosevco) – Central Construction General Company.
- The Fertilizer and Chemical Company of Can Tho, Chemical General Company of Vietnam.



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

## R&D focus

- Synthesizing conventional zeolites and minerals containing zeolite with good absorption capacity, high ion production for environmental protection and aquaculture using natural kaolin in Vietnam
- Building and prototyping as a pilot perfecting the process and transfer to the production line on an industrial scale of 3,000 tones of material per year – replacing imported material
- Expanding the application of zeolites to cultivation, cattle raising, oil processing, and refinery in Vietnam.



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION



## Collaboration

- Ministerial Project: “completion and commercialization of zeolite materials used in environmental protection and aquaculture”.
- Incubation Project: “study to complete the technologies for manufacturing materials of zeolite A, X, P1 transformed from Vietnam’s clay minerals and technologies for manufacturing zeolite A for cattle raising and environmental protection”.

## Intellectual Property

### <Patents and Utility Modes>

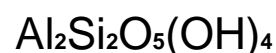
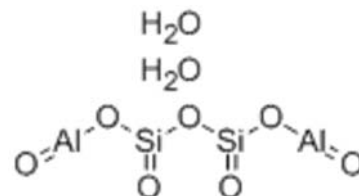


- Method producing zeolite NaP1 from Vietnamese kaolin
- Method producing zeolite NaA from Vietnamese kaolin
- Method producing zeolite NaX from Vietnamese kaolin
- Method producing zeolite KY from Vietnamese kaolin
- Method synthesizing nano-zeolite X materials from kaolin
- Method producing zeolite NaX directly from non-calcined kaolin
- Method producing zeolite NaY directly from non-calcined kaolin
- Method synthesizing zeolite NaA from phlogopit

# Intellectual Property

## <Patents and Utility Modes>

- Method synthesizing zeolite NaP1 from phlogopit
- Method synthesizing zeolite NaX from phlogopit
- Method synthesizing zeolite NaY from phlogopit
- Method producing zeolite 4A from Vietnamese metakaolin
- Method producing zeolite 13X from Vietnamese metakaolin
- Method producing zeolite NaY with the ratio Si/Al=1,9 from Vietnamese metakaolin



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# Intellectual Property

## <Trademarks>



The IP Division has also registered the following trademarks under HUT's ownership for the related products:

- BK-Z13X for environmental treatment (with HUT's logo)
- BK-Z4A for environmental treatment (with HUT's logo)
- BK-ZSR for environmental treatment (with HUT's logo)
- BK-ZCR for additions in cattle raising (with HUT's logo)

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# Advantages of synthetized Zeolite

- **For aquaculture and purifying lake and sea water:** To manage the technologies, two new plants, in Quang Binh province in the central region of Vietnam and Can Tho City in the South of Vietnam, have been set up to produce zeolites using local materials.
- **For agriculture, soil quality improvement:** The results were tested on the rice crop and in sugar-cane plantations in 2005 and 2006
- **For cattle raising (increasing their numbers and quality):** Good results were obtained when using zeolites in the food for pigs, cattles and rabbit rearing in Vinh Phuc City in the North of Vietnam in 2006.
- **For clean fuel manufacturing:** producing ethanol with a concentration higher than 99.5 per cent from low concentration alcohol at a reasonable price.
- **Environmental protection:** treatment of polluted water and air.
- **In oil refining:** chemical transformation of absorption and catalytic substances.

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

## EST Technology Transfer and Commercialization



- HUT and Company X in October 2006 for the transfer of technology for building a factory manufacturing materials containing zeolites for aquaculture with a capacity of 3,000 tones per year in the economic zone of Dinh Vu, Hai Phong province in the North of Vietnam.
- HUT has signed another technology transfer agreement with a Vietnamese company to transfer the technology for building a factory producing materials containing zeolites for manufacturing fertilizer additions with a capacity of 10,000 tones per year

WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

# EST Technology Transfer and Commercialization

- HUT has also signed technology transfer contracts with several provinces in the North of Vietnam (i.e. Ha Tay and Vinh Phuc) for water purification treatment.



WIPO  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

## Lessons Learned and Challenges

- EST has tremendous potential and provides great opportunities
- The University's IP Division personnel lack necessary skills to handle the intellectual property and technology transfer -  
Need strong intellectual property and technology management and strategies
- Need effective collaborations between Government-University-Industry
- Need Government/WIPO assistance in enhance Technology Management Capacity (NOIP and WIPO have collaborated with HUT in organizing seminars on intellectual property and technology transfer: these have raised the awareness/skills of the staff, researchers and students)



**WIPO web site:**

**[www.wipo.int](http://www.wipo.int)**

**WIPO University Initiative web site:**

**[www.wipo.int/uipc/en](http://www.wipo.int/uipc/en)**

**[yumiko.hamano@wipo.int](mailto:yumiko.hamano@wipo.int)**

**WIPO**  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

**Thank you  
for your  
attention**



**WIPO**  
WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION