

# / ACADEMIC PARTNERSHIPS FOR DEVELOPMENT WITH VIETNAM /



ACADÉMIE  
DE RECHERCHE ET  
D'ENSEIGNEMENT  
SUPÉRIEUR



FÉDÉRATION  
WALLONIE-BRUXELLES

WITH THE SUPPORT OF  
THE BELGIAN  
DEVELOPMENT COOPERATION **.be**

ARES - Academy for Research and Higher Education / Académie de Recherche et d'Enseignement supérieur,



Académie de Recherche et d'Enseignement supérieur - ARES  
Rue Royale 180  
1000 Bruxelles  
Belgique

# CONTENTS

IN THE FIELD OF ACADEMIC COOPERATION FOR DEVELOPMENT, VIETNAM IS ONE OF THE MOST IMPORTANT AND STRATEGIC PARTNER COUNTRIES FOR THE FRENCH-SPEAKING HIGHER EDUCATION INSTITUTIONS OF BELGIUM.

WITH AN ANNUAL BUDGET REACHING SOME 1.7M€, ARES FUNDS DIFFERENT TYPES OF PROJECTS IN VIETNAM, WITH THE OVERALL OBJECTIVE OF FOSTERING HIGHER EDUCATION AND RESEARCH FOR DEVELOPMENT AND SUPPORTING PARTNER INSTITUTIONS AS KEY DEVELOPMENT PLAYERS IN THE COUNTRY.

OVERVIEW OF SOME OF OUR SHARED PROJECTS.

- / 01. CONTEXT & PRIORITIES
- / 02. INSTITUTIONAL SUPPORT
- / 03. TOWARDS MORE ENVIRONMENTALLY FRIENDLY AND HEALTHY AQUAFARMING IN VIETNAM
- / 04. ECO-FRIENDLY AQUACULTURE IS POSSIBLE!
- / 05. BRAND NEW LIBRARIES AT THE VNUA & PNTU
- / 06. IMPROVING HUMAN RESOURCES FOR A SUSTAINABLE RURAL DEVELOPMENT
- / 07. SETTING UP THE FIRST FOOD SECURITY MASTER OF SOUTH-EAST ASIA
- / 08. WHAT LIEM IS WORKING ON CHANGES FOR HEALTHCARE IN VIETNAM
- / 09. UNIVERSITY MEDICAL TRAINING: USING THE BELGIAN MODEL
- / 10. NGUYET, UCL PHD STUDENT
- / 11. MAKING A DIFFERENCE FOR CHILDREN WITH LEARNING DIFFICULTIES
- / 12. CHILDREN WITH DIGESTIVE PATHOLOGIES CAN NOW COUNT ON BETTER TREATMENT
- / 13. DEVELOPING A WASTE WATER CLEANING SYSTEM
- / 14. BETTER FARMERS' INCOME WITH ANIMAL FECES!
- / 15. TACKLING CHRONIC RESPIRATORY DISEASES IN HO CHI MINH CITY



# / 01. CONTEXT & PRIORITIES

- » VIETNAM IS THE THIRD MOST IMPORTANT PARTNER COUNTRY FOR ARES, AFTER DR CONGO AND BENIN AND THE FIRST IN SOUTH-EAST ASIA.
- » FOCAL POINTS OF ARES' ACTION ARE TWO INSTITUTIONAL SUPPORT PROGRAMMES CENTRED ON AGRICULTURAL SCIENCES AND HEALTH.
- » THREE MAIN LINES OF ACTION CONSISTENT WITH THE NATIONAL DEVELOPMENT STRATEGY AND THE MAIN ORIENTATIONS OF THE BELGIAN DEVELOPMENT COOPERATION IN VIETNAM: GREEN GROWTH, HEALTH AND INNOVATION.

## 01.1 / BUILDING CAPACITIES TOGETHER

Vietnam has been a principal partner country for ARES in the field of academic cooperation for development since 1998. In terms of investment, it is the third most important partner country, after DR Congo and Benin and the first in South-East Asia.

In partnership with the Higher Education Institutions of the Federation Wallonia-Brussels, Belgium, several types of initiatives are supported both in terms of expertise and in terms of financial support: institutional support, collaborative research projects, training projects, etc. These programmes cover several sectors, among which some priority sectors of the Belgian Development Cooperation: agriculture and environment including livestock farming and sustainable water management, rural economy and health.

Strategically, ARES chose to link its work with the national context of each of its 20 focus countries taking into account the national higher education landscape, the national strategies for poverty reduction. Activities are also promoted and carried out in coherence and collaboration with those of Belgian cooperation and those developed by other stakeholders of development cooperation with a core objective of strengthening higher education institutions as key players for sustainable human development.

Various activities have been developed, the focal points of which are the two Institutional Support programmes with Vietnam National University of Agriculture in Hanoi and Pham Ngoc Thach University in Ho Chi Minh City centred respectively on agricultural sciences and health. By focusing on the improvement of research and training capacities in two institutions bringing a large number of students to the north as well as the south of the country, these two programmes are in line with the Belgian Indicative Development Programme 2011-2015 thanks to the pursuit of a cross-cutting objective of capacity building as well as with the philosophy of the process of improvement of higher education defined by Vietnam.

## 01.2 / WHICH PRIORITIES ?

Along with the Institutional Support programme, ARES promotes in Vietnam research and training projects that are related to a limited number of focus themes for development.

They break down into the three following lines of action that are consistent with the national development strategy.



### / MANAGEMENT & PROTECTION OF NATURAL RESOURCES

This includes agriculture, breeding, aquaculture, water-related issues with a strong component in environmental protection, for example:

- » Investigating and mitigating the consequences of climate change on Vietnam environment and population.
- » Predicting the impact of further agro-industrial development on global pollution.
- » Searching for more sustainable plant and animal production methods, shifting from food security to food safety.



### / URBAN & RURAL DEVELOPMENT

... on of the two priority of the Vietnamese government, linked with the Institutional Support programme with VNUA.



### / HEALTH

The health sector has generated a lot of interest from Belgian and Vietnamese HEIs since the outset of the cooperation between ARES and Vietnam. It remains a constant that can contribute to guaranteeing improvement of the quality of healthcare and health infrastructure in a sustainable way in Vietnam, and improving the living conditions of the population.



### / ECONOMIC DIVERSIFICATION

... which includes projects proposing innovative initiatives, creating jobs and fostering local entrepreneurship.

# / 02.

## INSTITUTIONAL SUPPORT

### VIETNAM UNIVERSITY OF AGRICULTURE - HANOI PHAM NGOC THACH UNIVERSITY- HO CHI MINH CITY

**ONE OF THE MAJOR CHALLENGES FACING THE COUNTRY IS THE VIETNAMESE POPULATION. THE VIETNAMESE DEMOGRAPHIC, CHARACTERISED BY THE YOUTH OF THE POPULATION (56% UNDER 30 Y/O), WITH ABOUT A MILLION YOUNG PEOPLE ARRIVING INTO THE JOBS MARKET EACH YEAR, CALLS FOR IMPROVEMENTS ON BOTH THE INSUFFICIENT JOB CREATION AND THE DETERIORATION OF QUALIFICATIONS AMONGST THE YOUNG.**

Training in the field of higher education and research has always been a priority in Vietnam's development strategy. Improving capabilities on the human resources level involved in university teaching remains a major concern of the national economy as a whole. Consequently, research should become an essential component of the mission of universities in Vietnam. The involvement of teachers from universities in research programs should be encouraged.

Two Vietnamese universities are supported through this cooperation scheme: Vietnamese University of Agriculture in Hanoi and Pham Ngoc Thach University in Ho Chi Minh City, with which higher education institutions of the Federation Wallonie-Brussels, Belgium, carry out two of their main institutional partnerships.

Institutional Support aims to contribute to the strengthening of the whole partner institution, in its teaching, research and community engagement dimensions, as well as in its administrative management.

Institutional Support scheme relies on the very needs expressed by the partners, based on their strategic development plans, but also on thematics of common interest between the parties. This reciprocity requirement aims at a qualifying co-operation, and a partnership that goes beyond the limits of the simple donor-recipient pattern.

Eventually, centered on high level capacity building, on sustainable reinforcement of research or teaching capacities, and on the social impact of the academic action, the Institutional Support model requires long term approaches and cycles of 10 to 15 years.

# VIETNAM UNIVERSITY OF AGRICULTURE

## RESEARCH AND TRAINING SUPPORT IN A UNIVERSITY WITH VERY YOUNG TEACHING STAFF.

### INSTITUTIONAL CONTEXT

The Vietnam National University of Agriculture (VNUA) is one of 14 institutions recognised as «Key Universities» on a national scale, and the only agricultural university to receive this status. Its objective in particular was by 2020 to become a poly-specialised university including all sectors directly and indirectly related to agriculture, rural development and the environment, including issues related to climate change. The partnership between ARES and VNUA was established in 1997.

Several obstacles impede the development of VNUA and its research. The teaching staff, which have increased by 20% between 2007 and 2011, count for a very high proportion of young people (under 35 y/o) whose qualification remains extremely concerning as a third of teachers have a bachelors degree and just one quarter are at PhD level. In addition, this relatively young workforce are generally reluctant to get involved in research projects alongside teaching, mostly due to a lack of incentive for carrying out research

in comparison to those with grants for teaching. Moreover, agriculture is often seen as a traditional sector which leads to a certain unwillingness for change.

### INTERVENTION

Institutional Support is to reinforce and strengthen the overall development strategy of VNUA which revolved around 3 principles:

1. training adapted to the needs of society,
2. conducting research and transferring the knowledge,
3. a reform of the administration which creates ideal training conditions.

The focus of the program is on:

- stimulating young teachers to carry out research with a view to improving the research capacities of young academic staff;
- increasing staff who have obtained a PhD which international recognition (40% of the total);
- improving the laboratories, libraries and related facilities in order to develop quality research;
- increasing the quantity and the quality of interdisciplinary and inter-institutional research projects involving young people;
- strengthening the participation of the institution in national and international networks.



# PHAM NGOC THACH UNIVERSITY

**A CONTINUATION OF PREVIOUS  
PROGRAM ACTIVITIES TO MEET  
VIETNAMESE STANDARDS.**

## **INSTITUTIONAL CONTEXT**

The Pham Ngoc Thach university (PNTU) is a new university (established in 1989), with a young faculty and fairly flexible programs and training. Improving of the quality of training has always been a challenge for the PNTU. This goal has also been at the centre of institutional academic cooperation programs with ARES since 1997.

## **INTERVENTION**

A gradual withdrawal program was developed within the PNTU. The specific objective of this program is to strengthen the training capacity within the PNTU to meet the accreditation standards in Vietnam. The expected results for the said « phasing-out » program are:

- » The introduction of accreditation standards for teaching and learning methods. Despite the evolution of these teaching methods. The PNTU does not yet have an accredited system to control the quality of these and meet the national and regional standards. Given the unprecedented increase in entry admittances in first year of medicine, the university needs to be supported in adapting their teaching methods and the assessment of their students due to this congested student body.
- » The support for research projects are focussed on clinical medicine, fundamental medicine, community health and nursing departments. Researchers work in isolation, with no institutional research policy, and on varied subjects. It is necessary to define a research policy within a university, to put in place the guidelines and common issues in strategic areas of research and to develop a research support team.
- » To establish a system to control the quality and assessment in the training sector, for research and for university management.

Thus, due to the skills of Belgian universities and the support of ARES, the three-year « phasing-out » program, focussed on the three results mentioned above, will consolidate achievements from previous programs and will give the PNTU sustainable foundations for its future developments.



# **/ 03. TOWARDS A MORE ENVIRONMENTALLY FRIENDLY AND HEALTHY AQUAFARMING IN VIETNAM**

Patrick KESTEMONT, Université de Namur

NGUYEN Thanh Phuong, Can Tho University

**AQUAFARMING IS EXTREMELY IMPORTANT IN VIETNAM, FOR FOOD PRODUCTION AND THE ECONOMY. IT IS THE THIRD LARGEST EXPORT, AFTER TEXTILES AND OIL. VIETNAMESE AQUAFARMING INCLUDES RIVER FISH FARMING. THE MAIN BREEDS ARE CATFISH, BETTER KNOWN AS “PANGASIUS”, CARP AND TILAPIAS, AND OTHERS SPECIES PRODUCED IN THE SAME WAY, ALONGSIDE RICE, PIGS OR DUCKS. MARINE AQUAFARMING IS LARGELY DOMINATED BY THE PRODUCTION OF PRAWNS, INCLUDING THE TIGER PRAWN, WHICH IS EXPORTED TO THE WEST. THE FARMING OF MANY OTHER SPECIES OF CRUSTACEAN AND FISH HAS BEEN MASTERED, AND IS ALSO ON THE RISE.**

**THE RISE OF PANGASIUUS HAS BEEN SPECTACULAR, AND IS OFTEN CITED AS AN EXAMPLE OF AN AQUAFARMING “SUCCESS STORY”: THE ANNUAL PRODUCTION OF THIS FISH HAS GONE FROM A FEW THOUSAND TONS IN 1995 TO MORE THAN 1.3 MILLION TONS SINCE THE YEAR 2010. THIS RISE HAS UNFORTUNATELY CAUSED ENVIRONMENTAL AND SANITARY PROBLEMS.**

As with any type of farming, the intensive farming of these fish can cause illnesses requiring the use of medication. Also, waste from high density aquafarms causes organic pollution problems in the surrounding area. Waste treatment plants are often set up in fish farms, to reduce the farm's pollution impact.

The problem of aquafarming products being contaminated by chemical, antibiotic or anti-parasitic substances has hindered South-East Asia, including Vietnam, exporting these products to European countries or Northern America.

This is what University Cooperation projects involving Can Tho University, in the Mekong delta, and Université de Namur (in partnership with Université de Liège, and more recently Université catholique de Louvain (UCL-Woluwé)) are working on, thanks to financial support from ARES.

These projects aim to put in place sustainable aquafarming methods that respect the environment, and limit the use of antibiotic treatments and other chemical medical substances.

This is done through finding out how fast these substances contaminate fish and how long it takes to decontaminate, and the consequences these chemical substances can have on their physiology and health. They research alternatives for classic treatments, using substances that reinforce fish's immune systems and their in-built capacity to defend themselves against bacterial infection. Studies done as part of the “Deltaquasafe” project revealed the efficiency of substances like lipopolysaccharides of bacterial origin (LPS) or products which cause the expulsion of intestinal worms like levamisole. They may be used instead of antibiotics.

A new project (AquaBioActive), launched in July 2015, aims to identify bioactive

compounds present in natural plant extracts and which possess properties allowing them to be used instead of antibiotics in aquafarms. They could also be used to reinforce the conservation of aquafarming products and reduce oxidative stress, in the fish and the customer.

These projects aim to improve aquafarming techniques in Vietnam, by promoting a more environmentally friendly and healthy approach, but also improve academic and scientific skills at the Aquafarming and Fishing College (Can Tho University). This will mainly be done through research training (three PhD theses have been done and backed up by Vietnamese researchers during the Deltaquasafe project. There was also a PhD thesis done by a Belgian researcher).



**/ 04.**

**« ECO-FRIENDLY  
AQUACULTURE IS  
POSSIBLE! »**

**HANG, UNAMUR PHD STUDENT**



*I completed my Phd under the supervision of Prof. Patrick Kestemont through Deltaquasafe project, which was financed by ARES. During my Phd, I have gained a good expertise in the field of fish immunology, base on in vitro and in vivo approaches, as well as the capacity to apply molecular and physiological tools to assess the immune responses of fish receiving immunostimulatory compound.*

*The aquaculture in Vietnam is coping with many problems that include outbreak diseases. The chemicals or antibiotics are applied quite extensively to control bacterial or parasitic populations, sometimes under improper management. The application of chemicals and antibiotics to pond culture is expensive and undesirable because it brings a lot of disadvantages such as bioaccumulation on fish, human carryover, pollution... Moreover, the widespread use of antibiotics leads to the development of antibiotic resistant bacteria, destabilization of helpful bacterial population in environment and immunosuppression on fish.*

*The results from my thesis showed that the use of immunostimulant (LPS, levamisole) can replace antibiotics and chemicals in striped catfish culture in the Mekong Delta.*

*That shows that it's possible to use immunostimulants as environmentally-friendly prophylactic and preventive solutions for aquaculture in Vietnam. Moreover, immunostimulants may be used as adjuvants for reducing stress symptoms in vaccinated fish.*

*The results of this study are expected to contribute significantly to the development of the aquaculture sector in my country. »*

# / 05. BRAND NEW LIBRARIES AT THE VNUA & PNTU

Nicole PETIT  
Université Saint-Louis - Bruxelles

From 2005, the library at the Vietnam National University of Agriculture (VNUA) opted for an openness policy, through direct access to its documentary resources.

On the 11th of October 2006, completely renovated rooms were opened as part of the celebrations for the VNUA's 50th anniversary. A significant step towards the modernisation of the library led to a more autonomous and more active relationship between the user and the services. Following this, local teams were hard at work: there was a lot of technical work and they got new IT equipment. They also got rid of a lot of books that were hardly ever borrowed or obsolete. 16,000 titles in direct access were also reclassified, using the Decimal Dewey Classification (DDC).

In 2007, notices added to a collective digital LIBOL catalogue (Vietnamese system) allowed faculty libraries and the central library to network with each other. The campus got to see what resources it had more easily.

In February 2008, the Pham Ngoc Thach University (PNTU) in Ho Chi Minh City also renovated its library spaces. The space was redesigned, it got new synergies to present collections systematically classified in direct access, and a digital management system was installed.

These strong signals show the modernisation of the libraries at our partner universities, thanks to the help of the ARES' experts in documentary resources.



# **/ 06. IMPROVING HUMAN RESOURCES FOR A SUSTAINABLE RURAL DEVELOPMENT**

Philippe LEBAILLY  
Université de Liège

**RURAL DEVELOPMENT AND POVERTY REDUCTION ARE STRATEGICALLY IMPORTANT TO THE VIETNAMESE GOVERNMENT. FARMING IS VERY IMPORTANT TO VIETNAM: THE SECTOR STILL REPRESENTS 20% OF THE COUNTRY'S GROSS DOMESTIC PRODUCT (GDP), AND AROUND 70% OF THE POPULATION WORKS IN FARMING.**

**THE IMPROVEMENT OF HUMAN RESOURCES IS CONSIDERED INDISPENSABLE TO THE CONTINUATION OF ECONOMIC DEVELOPMENT. THE PROTECTION OF THE ENVIRONMENT, REDUCING VULNERABILITY TO NATURAL RISKS AND THE IMPROVEMENT OF LIVING CONDITIONS ARE ALSO PRIORITIES. THIS IS WHY ARES WORKS IN RURAL DEVELOPMENT.**

The Institutional Support program between ARES and the Vietnam National University of Agriculture (VNUA) focuses on young teachers at the VNUA, by involving them in the development of quality research. This research aims to train teachers and support rural development.

This partnership focuses on the exchange of expertise between teachers and researchers, prioritizing the integration of their respective disciplines into a pluri- and interdisciplinary approach to rural development. In Vietnam, this pluridisciplinary approach mainly focuses on small village farms, from production to the transformation and commercialisation of farming products, within the current increasingly free market.

One of the biggest tasks remains creating sustainability, on a social and environmental level.

Interventions by ARES over the last few years have followed this logic.

As an example, PhD research was done on the milk branch across the price range in the Moc Chau district (Son La province), in North Vietnam.

This led to an increase in the decision power of around 500 farmers, and the proposal of a management system to reduce milk production costs for around a hundred of them.

In the Hung Yen province, the Tu Dan and Yen Phu communes have specialised in the production of tolomane vermicelli, which is a traditional homemade product often consumed during celebrations. This traditional food is made from canna flour (Canna Edulis Ker). This branch, which floats the local economy, affects a multitude of actors.

Research at this level has led to a better understanding of how those who work in the tolomane vermicelli branch adapt to current economic, social and environmental conditions in the two working villages. It has also improved production conditions for around 90 rural entrepreneurs.

During more than 15 years of collaboration, ARES' interventions in rural development have allowed around 20 teacher-researchers to do a PhD thesis on themes allowing an improvement in living conditions in rural areas. Since 2009, around 90 students, including 48 women, received a grant for an International Master in Economy and Rural Sociology in Hanoi. Today, they have graduated, and have important positions in supporting the sustainable development of the Vietnamese countryside.





# **/ 07. SETTING UP THE FIRST FOOD SECURITY MASTER FOR STUDENTS & PROFESSIONALS, AND BEYOND...**

Marie-Louise SCIPPO  
Université de Liège

NGUYEN Thi Thanh Thuy  
Vietnam National University of Agriculture

**THE PROBLEM OF FOOD SECURITY AFFECTS ALL THE COUNTRIES IN SOUTH-EAST ASIA. IN FACT, DUE TO A HIGH DEMAND IN FOOD PRODUCTS CAUSED BY A RAPID INCREASE IN THE POPULATION, THE FOOD PRODUCTION CHAIN IS VERY LITTLE OR BADLY CONTROLLED IN THIS REGION, FROM COMMERCIAL FARMING TO THE COMMERCIALISATION OF PRODUCTS.**

The lack of training for food security staff also contributes to a bad control of the food chain. Vietnam is also affected. That's why the "Master in Food technology, Safety and Quality Management", the 1st food security master in the region for students and professionals, was created at Vietnam National University of Agriculture (VNUA). Another Vietnamese institution, the Hanoi University of Sciences and Technologies, and two Cambodian institutions, the Institute of Technology of Cambodian (ITC) and the Royal University of Agriculture (RUA) are also involved in this training.

With the backing of this partnership, which let them develop food security skills, the four institutions are today part of a new project, Erasmus+.

This project, financed by the European Union, aims to improve the relationship between universities and the professional world in the food security domain, develop teacher's skills in the sector by putting in place regional training modules, and reinforce relationships between universities in South-Eastern Asian countries.



## LIEM WAS THE FIRST TO GET A PHD IN FAMILY MEDECINE IN VIETNAM

### / 08. WHAT LIEM IS WORKING ON CHANGES FOR HEALTHCARE IN VIETNAM

Didier GIET, Université de Liège  
Liem, ULg PhD student

*Liem's research compares healthcare in rural and urban areas, in Vietnam and Belgium. The data Liem has collected shows how Vietnamese patients heavily rely on pharmacists or hospitals, due to the absence of local medical professionals.*

*From exposé to exposé, Liem has argued and provided scientific proof that it is urgent to improve family medicine in his country. He defended his thesis with panache and conviction in 2013, becoming the first to obtain the grade of PhD with a family medicine thesis in Vietnam.*

*Today, Liem contributes to the development of family medicine, which has recently become a priority for sanitary authorities in Vietnam. »*

« **OUR JOINT HISTORY STARTED IN HO CHI MINH CITY IN 2008: LIEM APPLIED FOR A PHD GRANT AS PART OF AN ACTIVITY THAT AIMS TO SUPPORT THE CREATION OF A FAMILY MEDICINE DEPARTMENT AT PHAM NGOC THACH UNIVERSITY (PNTU).**

*Improving family medicine in Vietnam contributes to solving the huge problems faced by the healthcare system. These are the overcrowding of hospitals, and the absence of an efficient "first line" in healthcare.*



# **/ 09. UNIVERSITY MEDICAL TRAINING: USING THE BELGIAN MODEL**

Dominique BRON  
Université libre de Bruxelles

HO PHAM Thuc Lan  
Pham Ngoc Thach University

**UNIVERSITY MEDICAL TRAINING AND WORK EXPERIENCE IN HOSPITALS ARE ESSENTIAL FOR TRAINING DOCTORS AS WELL AS POSSIBLE. USING THE BELGIAN MODEL, DOCTORS/ TEACHERS AT THE ARES INSTITUTIONAL SUPPORT PROGRAM HAVE CONTRIBUTED TO A COLLABORATION PROGRAM, ALONG WITH TEACHERS AT THE PHAM NGOC THACH UNIVERSITY (PNTU) IN HO CHI MINH CITY AND SPECIALIST HOSPITAL DOCTORS, PARTICULARLY THOSE AT THE BLOOD AND TRANSFUSION HOSPITAL (BTH).**



To improve the training of future doctors in Vietnam, a team of teachers from the PNTU and teachers from Belgian universities have worked together to create a model for a hospital-university convention. It aims, among other things, to allow medical students to train in their clinical practice.

After these conventions were signed, more than 1000 students were able to do work experience in a hospital, allowing them to improve their medical skills. Many doctors are also involved in translation and clinical research programs.



**« THE PROJECT HAS  
OPENED DOOR FOR  
VIETNAMESE DOCTORS  
AND HELPED THEM TO  
CONNECT TO THE REAL  
SCIENTIFIC WORLD. »**

**NGUYET, UCL PHD STUDENT**

« I was granted a scholarship to study as a PhD student in Belgium from 2012 to 2014. During this time, I had the opportunity to work with experienced professors and researchers.

*The project aimed to early detect chronic kidney disease and abnormalities of urinary tract among children. Approximately 4500 children in two districts of Ho Chi Minh City were screened. Many medical doctors and medical staffs from two district hospitals were trained to use dipstick as a screening tool.*

*A microbiological laboratory, that was equipped in the district hospital of Can Gio, a remote area, has facilitated the diagnostic of urinary tract infection, not only in children but also in adults.*

*With the help of the laboratory, doctors can now prescribe antibiotics rationally and therefore ameliorate the antibiotics resistance situation.*

*The project has opened door for Vietnamese doctors and helped them to connect to the real scientific world.*

*Two articles related to my work were published in international journals. I can now help young researchers in Children's Hospital 2 of Ho Chi Minh City in this domain.»*

## / 11. MAKING A DIFFERENCE FOR **CHILDREN WITH LEARNING DIFFICULTIES**

Alain CONTENT  
Université libre de Bruxelles

DOAN Van-Dieu  
Ho Chi Minh City University of Pedagogy

**IN 2004, WHILE A COLLABORATIVE RESEARCH PROGRAM FINANCED BY ARES WAS BEING SET UP, CALLED THE “CREATION OF A SPECIALISED TRAINING, RESEARCH AND CONSULTATION CENTRE FOR THE TREATMENT OF LEARNING DIFFICULTIES AT THE HO CHI MINH CITY UNIVERSITY OF PEDAGOGY”, THE CONCEPT OF LEARNING DIFFICULTIES DIDN’T EXIST IN VIETNAM AND CHILDREN SUFFERING FROM THEM WERE GENERALLY EXCLUDED FROM THE SCHOOL SYSTEM. WITHOUT AN ADAPTED PROGRAM, THEIR DIFFICULTIES BECAME A HUGE HANDICAP.**



During this project, 21 people (researchers, trainers and consultants) were trained in learning difficulties, and gained new skills in the field. This led to the creation of a learning difficulties evaluation team at the University of Pedagogy, which is made up of medical professionals. New tools for evaluating learning difficulties were created, and adapted to the Vietnamese language. These tools are used by professionals at the centre, who advise parents of children with learning difficulties. Thanks to consultations at the centre, children with difficulties can be transferred and continue their schooling in the classic system.

Since the centre was set up, two other consultation centres have been opened in Ho Chi Minh City (one in a school and one in a hospital). In April 2013, the centre enlarged its national education teacher training activities.

# / 12. CHILDREN WITH DIGESTIVE PATHOLOGIES CAN NOW COUNT ON BETTER TREATMENT

Raymond REDING  
Université catholique de Louvain

TRAN Dong  
Nhi-Dong2-Grall hospital

**IN 2004, THE INFANT MORTALITY RATE WAS SIX TIMES HIGHER THAN IN BELGIUM. SEVERAL STUDIES DONE IN THE FIELD HAVE SHOWN AN INCREASED OCCURRENCE OF ANORECTAL MALFORMATIONS IN VIETNAMESE CHILDREN, AND AN ABNORMALLY HIGH DEATH RATE DUE TO DIGESTIVE PATHOLOGIES.**

Faced with this, the challenge for the teams at the Nhi-Dong2-Grall hospital, the Université catholique de Louvain (UCL) and the Université libre de Bruxelles (ULB) is to improve the treatment of children with digestive pathologies. In particular, they have



started to develop a pluri-disciplinary approach (medical, surgical, nutritional, anesthetic and radiological).

At the end of the five years it took to set up the project, a surgical unit was created at the hospital, and 87 doctors and 34 nurses were trained.

Thanks to the improvement in these skills, the quality of healthcare has been improved: the number of beds, number of consultations per day and number of operations at the hospital have all increased. Also, the hospital's function has improved through pluri-disciplinary staff meetings and dynamic cooperation between the hospital and the Pham Ngoc Thach University (PNTU).

## / 13. DEVELOPING A WASTE WATER CLEANING SYSTEM

Alain VANDEWOUWER  
Université de Mons

LE VAN Cat  
Vietnam Academy of Science & Technology

The problem of cleaning waste water is particularly important in a country like Vietnam, whose population is growing rapidly, especially in urban zones. The few installations constructed are rapidly overworked.

As part of the VALEAUTAQUA project, the Laboratory of Environmental Chemistry at the Vietnam Academy of Science and Technology (VAST) has put a new technology in place, which allows the elimination of nitrates in waste water. An excess of nitrates can be harmful to health and the environment.

Today, this new waste treatment system is used by both the public sector, for example in several hospitals, and the private sector. In particular, a pork production farm, whose environmental nitrate emission norms were revised upwards in 2013, is trying to optimise the existing system.

## / 14. « BETTER FARMERS' INCOME WITH ANIMAL FECES! »




Hoa, UCL PhD Student

« The general aim of my PhD thesis was to contribute to better productivity of sandy soils in the coastal area of Thua Thien Hue province, with special emphasis on organic matter management in farms. With the results obtained from the thesis, we informed the farmers from the coastal area about conditions and methods of collecting animal feces and of

*processing organic residues and manures, such as composting, using more exogenous organic materials.*

*We also have developed other projects aimed to use organic resources in the Central area of Vietnam, to spread the results, improve awareness of farmers in using organic manure and improve soil fertility. The results of these works helped farmers in using efficiently organic resources and applying proper rates and types of organic amendments. With this practice, crops yields increased and income of farmers in the region also has been improved due to the application of efficient techniques.*

*Farmers can now efficiently use natural resources management in order to ensure a sustainable development, food security and ecosystem health in Vietnam. »*

A black metal kettle sits on a traditional wood-burning stove. The stove is made of metal and has a pile of white ash on top. The background is a dark, textured wall. The text is overlaid on the left side of the image.

# **/ 15. TACKLING CHRONIC RESPIRATORY DISEASES IN HO CHI MINH CITY**

Olivier MICHEL, Université libre de Bruxelles

NGUYEN The Dung, Pham Ngoch Thach University

**AFFECTING MORE THAN A BILLION INHABITANTS, CHRONIC RESPIRATORY ILLNESSES ARE ONE OF THE WORLD HEALTH ORGANISATION'S FOUR PRIORITIES. THESE ILLNESSES INCLUDE, AMONG OTHERS, ASTHMA, CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND PROFESSIONAL LUNG DISEASES.**



**THE MAIN CAUSES OF CHRONIC RESPIRATORY ILLNESSES ARE SMOKING, SMOG, ATMOSPHERIC POLLUTION, PROFESSIONAL CAUSES AND TUBERCULOSIS SEQUELAE. VIETNAM HAS ALL OF THESE RISK FACTORS. THE HIGH INCREASE IN CHRONIC RESPIRATORY ILLNESSES IN VIETNAM HAS HAD A NEGATIVE IMPACT ON THE COUNTRY'S SOCIO-ECONOMIC DEVELOPMENT, PARTICULARLY AS IT MAINLY AFFECTS THE WORKING POPULATION.**

This is the reason behind the project involving the Université libre de Bruxelles (ULB) and the Pham Ngoch Thach University (PNTU), which aims to identify, prevent and treat chronic respiratory illnesses in Ho Chi Minh City, particularly at the PNTU and Pham Ngoch Thach hospital. It will also study the link between pollution in a town and chronic respiratory illnesses, and propose methods to prevent and cure them.

After providing Pham Ngoch Thach hospital with everything it needs to measure lung function and training the technical and medical teams, the project has evaluated more than 600 patients suffering from chronic respiratory illnesses. The analysis of the data has shown more than half of

Vietnamese patients with chronic respiratory illnesses have chronic obstructive pulmonary disease, an incurable disease that remains difficult to treat.

Most of the men are smokers, which shows how important it is to put preventive measures in place to fight these illnesses.

On the other hand, 10% of men and most of the women suffering from chronic obstructive pulmonary disease don't smoke and are mainly exposed to domestic (smog) and professional pollutants.

With technical and scientific support from the ULB, an investigation into what induces these different illnesses is currently underway. It will analyse biological parameters along air traffic routes.

The Science Faculty at Université de Liège (ULg) and the Industrial University at Ho Chi Minh City worked together to measure pollution factors in more than 100 towns between 2013 and 2015. It was a thorough analysis that measured several parameters (temperature, humidity, CO and SO<sub>2</sub>, airborne particles, toxins dose) during a chosen timeframe (from 36 hours to 21

days). Chronic respiratory illnesses will be tested and evaluated in 400 towns, and then associated with pollution factors. Finally, improvement measures will be put in place in some selected towns, and then validated.

At the end of the project (2017), the results will be released during a conclusion seminar for professionals, and then to the population, before being published in a scientific journal.



## CREDITS

Fanny Bernard (p. 2, 12, 14, 19)

Michel Hérin (p. 17)

All other photos are by the authors



ACADÉMIE  
DE RECHERCHE ET  
D'ENSEIGNEMENT  
SUPÉRIEUR

The Academy for Higher Education and Research (Académie de Recherche et d'Enseignement supérieur – ARES) is the federation of the French-speaking higher education institutions of Belgium. As a public interest body, it is responsible for supporting these institutions regarding their teaching, research and community service missions.

It brings together 6 universities, 20 university colleges, 16 colleges of arts and 100 social advancement higher education institutions. It organizes the dialogue between these institutions of higher education and promotes collaborations nationally and internationally.

As a unique platform, ARES carries out the global coordination for the higher education sector in the Federation Wallonia-Brussels, Belgium. It particularly ensures the consistency of the provision of training and its labour market relevance; it supports its higher education institutions in their advocacy efforts and international relations and makes recommendations about scientific or artistic research policy.

ARES provides information about higher education in the Federation Wallonia-Brussels, Belgium. It also coordinates the commitment made by the institutions regarding lifelong learning, student success promotion or development cooperation.

Finally, ARES collects and processes a set of scientific and statistical data related to the sector in order to monitor, evaluate and improve practices with a concern for the quality of teaching and support offered to the near 200,000 students registered in the higher education institutions.

**For more information:**  
[WWW.ARES-AC.BE](http://WWW.ARES-AC.BE)



ACADÉMIE  
DE RECHERCHE ET  
D'ENSEIGNEMENT  
SUPÉRIEUR

—  
RUE ROYALE 180  
1000 BRUXELLES  
BELGIQUE

T +32 2 225 45 11  
F +32 2 225 45 05

WWW.ARES-AC.BE  
—

WITH THE SUPPORT OF  
THE BELGIAN  
DEVELOPMENT COOPERATION **.be**