



### Aquaculture Partnership Building Economy of Scale

By Cam McGrath

CAIRO (IPS)

Combine the experience of Africa's leading freshwater fish producer with that of one of Asia's fastest-growing mariculture sectors. The result? Fisheries experts in Egypt and Vietnam hope it will lead to a robust aquaculture industry that utilises both river and sea to feed growing populations and generate export revenues.

A cooperation agreement between Egypt's General Authority for Fish Resources Development (GAFRD) and Vietnam's Ministry of Agriculture and Rural Development (MARD) inked last May sets a framework for joint fisheries development. The protocol encourages researchers, trainers and quality control technicians in the two countries to share data, and calls for exchange visits of fisheries and aquaculture officials.

Ahmed Salem, general manager of GAFRD, says the partnership aims to leverage the comparative advantages of each country's aquaculture industry to advance the development of commercial fish farming. "The two countries are an ideal match [for technical transfer] as both share a similar economic and social situation, and both offer solutions that do not rely on high technology," Salem told IPS. "Egypt is a leader in freshwater aquaculture, while Vietnam is very developed in mariculture."

Egypt boasts the largest aquaculture industry in Africa, accounting for four out of every five fish farmed on the continent. Egyptian fish farms produced over 700,000 tonnes of finfish in 2009, or about 65 percent of the country's total fish production. GAFRD chairman Mohamed Fathy Osman told IPS that while Egypt has extensive experience in freshwater pond culture and

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### Passing On Demining Skills

By Irwin Loy

KAMPONG CHHNANG, Cambodia (IPS)

Ngoun Thy shuffled through the darkened room. To the right, mortar shells, lined up in a row. To the left, a spool of aged wiring and a pile of metal.

"Anti-tank mines," said Ngoun, a senior instructor at Cambodia's national training centre for demining operations in Kampong Chhnang province. The squat, rusting cylinders had been stacked up in a rough pile. This quiet hall on the outskirts of the provincial capital in central Cambodia could be a showroom for the deadly legacies of war. It is filled with the relics of almost three decades of conflict in this South-east Asian nation: Rusted mines laid by once violent factions; clus-

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### Southern Development Solution

### 'One Million Rural Water Tanks'

By Fabiana Frayssinet

RIO DE JANEIRO (IPS)

Thanks to a simple initiative that is spreading to other countries - the harvesting and storing of rainwater - the image of women trudging through fields carrying heavy water vessels on their heads is gradually becoming a thing of the past.

"Women used to have to walk six or eight kilometres carrying 20 litres of water on their heads," Naidison Baptista, executive coordinator of ASA, an organisation that implements the 'One Million Rural Water Tanks' programme, told IPS. "If they made two trips a day to collect water, they'd cover 24 kilometres or more every day."

ASA stands for Articulação no Semi-Árido Brasileiro (roughly translated, "Networking in Brazil's Semiarid Region"), a forum of over 700 non-governmental organisations from nine north-eastern states (Alagoas, Bahia, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, Rio Grande do Norte, and Sergipe) and two southeastern states (Espírito Santo and Minas Gerais). Drawing on popular wisdom and social mobilisation, ASA has built household water tanks to store rainwater, and has secured financing from the Social Development and Hunger Eradication Ministry.



A family in northeast Brazil proudly displays their water tank.

Credit: Roberta Guimarães, courtesy ASA

The programme relieves women from the task of hauling water, but that's just one of the positive aspects of this initiative aimed at ensuring safe water for one million families - in a region of 24 million inhabitants. "At the end of the day, women would be feeling so tired and low, that things at home would be really difficult. All that changed with the tanks," Baptista said. Having lessened their workload, women now have more time at home for themselves and their families. This has led to an improvement in children's performance at school, and women have been empowered to engage more actively in the life of the community.

According to Baptista, "It's not just about improving the supply of drinking water; it's about improving the

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### MILLENNIUM DEVELOPMENT GOALS



1  
ERADICATE  
EXTREME POVERTY  
AND HUNGER



2  
ACHIEVE UNIVERSAL  
PRIMARY EDUCATION



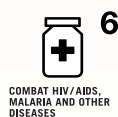
3  
PROMOTE GENDER  
EQUALITY AND  
EMPOWER WOMEN



4  
REDUCE  
CHILD MORTALITY



5  
IMPROVE MATERNAL  
HEALTH



6  
COMBAT HIV/AIDS,  
MALARIA AND OTHER  
DISEASES



7  
ENSURE  
ENVIRONMENTAL  
SUSTAINABILITY



8  
A GLOBAL  
PARTNERSHIP FOR  
DEVELOPMENT



# Mexico: A World Reference In Parasite Control

Emilio Godoy and Raúl Pierri

MEXICO CITY/MONTEVIDEO (IPS)

**A** biological control method used to eradicate screw-worm, a livestock parasite, in the United States, Mexico and Central America, has just been tested successfully in South America, where its adoption is being considered in the countries of the Southern Common Market (Mercosur): Argentina, Brazil, Paraguay and Uruguay.

The screw-worm is the larva of the *cochliomyia hominivorax* fly and feeds on the living flesh of warm blooded animals, including humans. The insect is a native of the tropical zone of the Americas, but it has been spread by international trade to other regions, like North Africa. The female of the fly copulates just once and lays its eggs in any open wound on animals. The larvae literally drill through the tissues, sometimes reaching as far as the bone.

In Uruguay, a livestock-raising country, it is known as the “bichera” worm and it affects 5.7 percent of sheep and 3.4 percent of cattle, according to an official study involving 530 producers. Losses are estimated at 210 million dollars a year, a heavy cost for a small country of 3.4 million people. “It’s a big job to keep it at bay,” cattle rancher Gustavo Rianni, who has 6,000 hectares of land in the northern department (province) of Artigas, on the border with Brazil, told IPS. “In a rainy year, the hooves of sheep soften and the fly lays its eggs there; the worm starts eating away as soon as they are hatched.” “Infected animals stop eating and prefer the shade. They are kept in isolation to avoid spreading the infection, and if they cannot be cured they have to be slaughtered,” Rianni added.

Extermination of this parasite, which can be transmitted from animals to humans, is the goal of the Mexican American Commission for the Eradication of Screw-Worm (COMEXA), established by the United States and Mexico in 1972. The commission produces sterile male flies in its laboratory in Tuxtla Gutiérrez, the capital of the southern Mexican state of Chiapas.

The flies are bred in the laboratory and made sterile by irradiation with caesium 137, a radioactive isotope. Then they are released into the field where they mate with female flies without fertilising them, so they cannot procreate and the species gradually dies out in the area.

Screw-worm was eradicated in the United States in 1966, and in Mexico in 1991. Since then, COMEXA has managed to eliminate local outbreaks of the infection, and to extend eradication to nearly all of Central America,

the Caribbean, and also Libya in North Africa, COMEXA Director Alejandro Parra told IPS.

The sterile insect technique was developed by U.S. entomologists Edward Knipping (1909-2000) and Raymond Bushland (1910-1995) who began research into the problem in 1937. In the 1950s did they hit on the idea of applying short bursts of irradiation that knocked out the reproductive capacity of male flies without affecting their other functions.

A pilot trial using flies sterilised in Mexico was carried out in 2009 in Brazil and Uruguay. The results, which have just been evaluated, are promising.

Between Jan. 23 and May 15, 2009, low-flying aircraft dispersed over 200 million sterilised male flies, brought from Chiapas, over a strip of land



Boxes of live sterile flies are loaded onto a Uruguayan Air Force plane.

Credit: Courtesy of Ricardo Pérez Rama and MGA

100 kilometres long and 60 kilometres wide along the Uruguayan-Brazilian border, centred on the towns of Artigas in Uruguay, and Quaraí in Brazil. “The experiments showed that the technique worked with native strains of fly, and they were useful for training personnel,” the director general of animal health services at the Uruguayan Ministry of Livestock, Agriculture and Fisheries (MGAP), Francisco Muzio, told IPS. “This was a good pilot study for evaluating the possibility of carrying out a regional eradication programme.” The reproductive cycle was interrupted in 40 percent of the fly population on the Brazilian side of the border, where the greatest effect was demonstrated. Sterility over the whole area studied was 25 percent. “All the evidence indicates that this was due to the higher animal density on the Uruguayan side of the border, and especially to the large number of sheep [which are more susceptible to the parasite], whereas on the Brazilian side more land is devoted to farming,” Muzio said.

At a meeting in August this year, researchers concluded that if the programme is continued, the sterile population will effectively outnumber

fertile flies. The pilot trial cost 2.6 million dollars and was supported by the Inter-American Development Bank with a contribution of one million dollars.

Rianni, whose property is within the pilot study area, said the incidence of parasitic disease caused by the fly had fallen among his livestock since the trial. “If it is continued, it could provide a solution. The ministry should continue to invest in this technique,” he said.

Now the researchers want to assess the total size of the native fly population, the usefulness of natural barriers, livestock density and movements, and the incidence of screw-worm in humans, in order to design a regional eradication plan. Representatives from Paraguay and Argentina also took part in the meeting.

Screw-worm not only causes illness and death among livestock, but also spoils leather and creates enormous expense in insecticides, treatments, and the closure of markets to livestock from countries where the infection is rife. According to the United Nations Food and Agriculture Organisation (FAO), in 2000 estimated annual losses were 210 million dollars in Uruguay, 1.77 billion dollars in Brazil and 103 million dollars in Paraguay.

In spite of the fact that the biological control technique uses highly radioactive material, FAO affirms it is not harmful to the environment and is innocuous in human beings. “There has been no evidence of any impact at

all on biodiversity, perhaps because a multitude of fly species occupy the same biological niche,” COMEXA’s Parra said.

After the United States eradicated screw-worm and closed its own sterilisation plant, Mexico became “a world reference centre for technological progress in this area,” he said.

In addition to Mexico and the United States, screw-worm has been eradicated in Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua; and is on the way to extinction in Panama, where there is another facility for sterilising flies. It has also disappeared from Aruba, Curaçao and the Virgin Islands in the Caribbean. However, in South America, only Chile is free of the parasite. In 1988 there was an outbreak in Libya, where the fly was introduced with infected South American sheep. Two hundred cases of the parasite in humans were reported. With help from FAO and the World Bank, COMEXA eradicated the Libyan screw-worms in 1992, after carrying out 50 flights with 1.3 billion sterile flies.



# Organic Gardens from Argentina to Haiti

By Jane Regan and Marcela Valente

BUENOS AIRES/PORT AU PRINCE (IPS)

Neither hurricanes nor floods, nor the devastating January earthquake, or Haiti's chronic political instability managed to wipe out the organic gardening initiative underway in that country since 2005. The seed was planted in Argentina twenty years ago.

Some 13,000 Haitian families - 90,000 people in all - currently work with 23 agronomists in the "ti jaden òganik" (Creole for "small organic garden") project, growing their own food. The goal is to engage one million people in this form of production.

The aim of the programme, which began in Argentina under the name Pro-Huerta and is known in French as Programme d'Autoproduction d'Aliments Frais ("Self-Sufficient Fresh Vegetable Programme"), is to promote organic gardens in both cities and rural areas.

So when the Haitian capital and several smaller cities and towns were devastated by the catastrophic Jan. 12 earthquake - which killed more than 220,000 people and left 1.3 million homeless - some families had their own garden production to fall back on and cover some of their food needs, agronomist Emmanuel Fenelon, director of the programme in Haiti, told IPS.

"Some families told us they were glad they didn't have to stand in line all the time to suffer the humiliation of asking for food," Fenelon said.

The initiative first emerged in Argentina in 1990, where it has since grown to 630,000 gardens and farms distributed in 3,500 urban and rural settings across the South American country. The model has also been replicated in other countries of the region, including Brazil, Colombia, Guatemala and Venezuela.

"We interact in some form or another with places all over the region. There are all sorts of initiatives, which either replicate the model or take some elements from it, and there's also an international course to provide training in other countries," agronomist Roberto Cittadini, Pro-Huerta coordinator in Argentina, told IPS.

But "the Haitian experience has been particularly successful because a great deal has been achieved without considerable inputs or efforts," Cittadini said.

According to Cittadini, with a 100-metre garden a family can grow enough food to cover its needs, but a space half that size is

also good. And community or church plots can be used too.

All anybody needs to do to get started is take a short instruction course, which typically involves eight half-day classes, but varies according to local circumstances. "Although the target beneficiaries are vulnerable families, this is not a welfare-style programme; it requires their active engagement," Cittadini said.

A programme coordinator works with a technical team in each province to inform the population about the programme, distribute seeds, tools and handbooks, and monitor progress on the gardens with the help of volunteers who do follow-up work.

In 2003, Pro-Huerta was included in Argentina's National Food Security Strategy. Despite being a large food producer, 18 percent of the Argentine population had basic unsatisfied needs in 2001, and today more than three percent of the country's 40.5 million people are living in extreme poverty, according to official figures.

These organic gardens are also sprouting in schools, prisons, community soup kitchens and senior citizen groups.

Food is mostly grown for personal consumption, but trade networks have also emerged. "This is agro-ecological production: no chemicals are used, pest control is done naturally and the soil is allowed to recover through crop rotation," Cittadini said.

In Haiti, where some 2.4 million of the country's nine million people are considered "food insecure" and half the food consumed in the country is imported, these small gardens are making a difference, the programme's agronomists say.

"It's impressive. Many women tell us that they no longer need to buy parsley or cabbage. I know we're having an impact," said Fenelon, the first agronomist to join the programme, which is housed in the Haitian headquarters of the Inter-American Institute for Cooperation on Agriculture (IICA) and is also backed by the governments of Spain and Canada.

In addition to working with women's, youth, and peasant organisations, as well as churches, the programme's agronomists cooperate with the Agriculture and Functional Literacy Ministries - training colleagues, literacy teachers, promoters and volunteers.

Young adults who are just now learning to read and write in Creole - one of Haiti's two official languages, but the only one spoken by

all Haitians - receive a colourfully illustrated booklet showing a family planting their garden.

The booklet, based on a similar one from Argentina, uses drawings to show how to start the planting process in boxes, discarded tubs or old tires; how to rotate crops; how to make compost; and other gardening techniques.

Pro-Huerta was brought to Haiti in 2005, after Argentina sent military and police forces to take part in the United Nations Stabilisation Mission (MINUSTAH).

Today the programme operates in six of Haiti's ten departments or provinces: Artibonite, Centre, Northeast, North, West and South. It is also expected to be launched soon in the Northwest department - with the support of the governments of Colombia and Barbados. National authorities are hoping to reach one million people by 2013.

Towards meeting that goal, a delegation headed by Haiti's agriculture minister, Joanas Gué, travelled to Argentina in late September and visited several organic farms and gardens that have made progress in local seed production, poultry raising and water management.

Pro-Huerta "is probably the most successful example of South-South cooperation," Argentine foreign minister Héctor Timerman said.

Argentine engineers Francisco Zelaya and David Arias Paz continued their visits to Haiti, even after the January earthquake, staying in tents, and "they did an excellent job with Fenelon, making it possible for the programme to thrive despite the odds," Cittadini said.

"Lately we've been training families to produce their own seeds, good seeds," Fenelon said. "This is an important step towards assuring food security and food sovereignty."

Seeds are a flashpoint issue in Haiti. Following the earthquake, the agroindustrial giant Monsanto donated four million dollars worth of hybrid maize and vegetable seeds to the government, sparking outcries and protests, including the burning of mounds of seeds. As it turned out, the seeds were not really donated but offered to farmers for a fee.

Fenelon says his country has no use for hybrid seeds. "With programs like Pro-Huerta, we can help Haitian farmers improve their own seeds, their nutrition and their economic situation, all at the same time," he concluded.



# Cuba, Brazil Unite for Africa's Health

By Patricia Grogg\*

HAVANA (IPS)

The risk of meningitis outbreaks rises during the dry season - December to June - in some 20 countries of sub-Saharan Africa. Meningitis in the region is often deadly, though the disease can be prevented with vaccination.

Nana Diallo, 45, has her children vaccinated whenever possible. "It's one of the diseases that frightens me the most, because the person can be left blind or mute," the spice vendor told IPS at the Bozola market in Bamako, capital of Mali.

Diallo's children may have been immunised with some of the 1.94 million doses of the vaccine that arrived in this West African country in 2007 - produced specially in laboratories in Cuba and Brazil. They provide immunity for just two or three years.

Meningococcal meningitis is a bacterial infection of the membrane surrounding the brain and the spinal cord. It can cause severe brain damage and in 50 percent of the cases where it is not treated with antibiotics it results in death.

Climate conditions in the dry season favour an epidemic - and they also favour poverty, overcrowding and constant human transit, contributing to a precarious immunological state - World Health Organisation (WHO) specialist Alejandro Costa told IPS by phone from Geneva.

When outbreaks occur, vaccines are needed immediately for treatment. But because the meningococcal meningitis epidemic is concentrated in a very impoverished part of the world, the big pharmaceutical laboratories have little incentive to cover demand.

In mid-2006, the WHO was forced to send out an S.O.S. for production of the polysaccharide vaccine against types A and C in what is known as Africa's "meningitis belt", a band that stretches across 23 countries, from Senegal in the west to Ethiopia in the east, home to 430 million people.

The Sanofi Pasteur company - at the time the only manufacturer of the vaccine - planned to discontinue production, although in

the end it only cut back, explained Costa, the WHO scientist in charge of vaccine readiness for epidemics.

In response to the WHO call, two public entities, the Finlay Institute of Cuba and Brazil's Bio-Manguinhos Immunobiological Institute, joined forces to produce the Men AC vaccine.

The collaboration was successful because of the political will of both countries and because the operational infrastructure already existed between the Cuban biotech institute and the Brazilian government's

produced by Cuba and Brazil costs about 95 cents on the dollar, while the polysaccharide for A, C, W135 and Y - manufactured by transnational pharma labs - costs between 15 and 20 dollars per dose.

More than 11.5 million Men AC vaccines have been delivered so far, and the goal is to reach 15 million by the end of the year. From 2007 to 2009, the largest shipments went to Mali, Ethiopia, Burkina Faso, Nigeria, Niger and Chad, according to Bio-Manguinhos records.

The vaccines generally are acquired by the WHO itself, the United Nations Children's Fund (UNICEF), Médecins Sans Frontières, and the International Red Cross. In addition, each country purchases some vaccines, depending on their budget resources available.

The epidemic is recurrent in the meningitis belt, said Costa. Every three or four years there are major outbreaks, with 50,000 to 80,000 cases, followed by years of smaller outbreaks.

In 2009, 14 countries that implemented a tighter monitoring system reported a total of 78,416 cases and 4,053 deaths.

So far in 2010 fewer cases have been reported than in 2009, but the death rate is higher. From Jul. 5 to Aug. 1, the WHO recorded 275 cases and 21 deaths in 14 countries.

"We are truly grateful for the efforts of Brazil and Cuba, who responded in an extraordinary way. This South-South cooperation has few such successful precedents," said Costa. "In a short time they were able to produce a vaccine at the lowest cost, which contributed to reducing the cases of meningitis," the WHO expert remarked.

But measuring the impact of the vaccine is not easy, said Costa, because it is often applied in reactive campaigns in the midst of an epidemic, and does not cover the entire population.

Furthermore, the polysaccharide vaccines provide protection for just two or three years, and cannot be given to children under age two.

Finlay is working now to include type W135 meningitis in a vaccine it hopes to have ready by April. They are aiming for a price that would allow the WHO to begin



Technicians work in Cuba to produce meningitis vaccines for Africa. Credit: Jorge Luis Baños/IPS

Fiocruz, to which Bio-Manguinhos belongs, according to Ramón Barberá, Finlay vice-president for production.

"It was a victory of unity. I'm sure the Brazilians are very proud of this work and of having achieved it with Cuba," Barberá told IPS.

The Finlay Institute produces the active ingredients of the vaccine and sends them to Brazil for processing - which includes filling, lyophilisation (freeze-drying), packaging, labelling, and quality control.

To reach this point, Finlay remodelled and set up a new production plant for vaccines based on current standards. It began operating this new, self-funded lab in late 2008.

This Cuba-Brazil partnership, "based on the two institutions' commitment to public health," allowed them to supply the region in record time and at realistic prices, Bio-Manguinhos Production Advisor Elaine Maria Teles told IPS.

A dose of the Men AC polysaccharide

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## West Africa

# Powerful New Vaccine Makes Its Debut

By Brahim Ouédraogo and Terna Gyuse

OUAGADOUGOU/CAPE TOWN (IPS) Some 1.2 million people in Mali, Niger and Burkina Faso received a dose of a new vaccine against meningitis during the month of September. Manufactured in India, MenAfriVac offers health authorities a powerful weapon against a deadly disease.

Between 1995 and 1997, a severe epidemic infected 250,000 people in “the meningitis belt”, which extends across sub-Saharan Africa from Senegal in the west to Ethiopia in the East, killing 25,000.

Mali, Niger and Burkina Faso are at the heart of the affected region, and all three countries are involved in the latest phase of the introduction of the new vaccine. Where the previous vaccine offered immunity for just three years, the MenAfriVac protects for ten years and can be given to people aged from one to 29 years of age.

“It’s a great victory to be able to launch this test. This campaign will allow us to master meningitis epidemics which contribute enormously to [the deaths] of children under five as well as older ones,” said Hervé Periès, the representative of the United Nations Children’s Fund in Burkina Faso.

It’s a victory that has harnessed the capability of Indian pharmaceutical companies to produce advanced drugs at an affordable price.

According to Dr. Prasad Kulkarni of the Serum Institute of India Ltd. (SII), which manufactures MenAfriVac, the company was approached by the Meningitis Vaccine Project (MVP) in 2002 about developing a vaccine against group A meningitis for sub-

Saharan Africa.

Kulkarni says several multinational pharmaceutical companies had already declined an invitation from the MVP - a partnership between WHO and the non-profit organisation PATH (Program for Appropriate Technology in Health) - because with group A meningococcus essentially non-existent in industrialised countries, the cost of devoting resources to this project rather than something more lucrative was deemed too high.

“Serum Institute’s company policy is dedicated to making affordable vaccines available to the children of the world,” says Kulkarni. “Therefore developing a meningococcal conjugate vaccine fit into our business strategy and philanthropic philosophy, and we told MVP that we could manufacture the vaccine in volume at a cost that would not exceed US \$0.50 per dose.”

The vaccine is produced at SII using technology developed at the U.S. Food and Drug Administration’s Center for Biologics Evaluation and Research (CBER). SII scaled up the process for commercial manufacturing.

“Transferring the conjugation technology from CBER to SII was probably the greatest challenge, but acquiring this know-how gave SII the opportunity to add a better product and replace a polysaccharide vaccine that does not work very well,” Kulkarni told IPS.

Dr. Marie-Pierre Preziosi, who works with WHO’s Product Development and Research Team of the Immunization, Vaccines and Biologicals Department, says MenAfriVac has many advantages over the previous vaccine, beginning with the longer

protection it confers. “It [also] confers ‘memory’, that is, if a person is immunised and meets with the bacteria or the agent of the disease again later on, the body will remember and will react better. And it works in younger children. All in all it’s a very good tool for prevention that we have in hand.”

The vaccine was approved by the Drugs Controller General of India in December 2009 - and MenAfriVac is a useful addition to India’s drug arsenal as well, as there have been outbreaks of group A meningitis in South Asia in the past 30 years. The vaccine was pre-qualified by the World Health Organisation in June 2010.

SII will provide 25 million doses of MenAfriVac over the next ten years. According to the MVP, each dose will cost around 40 cents, compared to 10-20 dollar cost of the vaccine elsewhere in the world, or 100 dollars for a tetravalent vaccine in the U.S.

Burkina Faso alone needs 14 million dollars to immunise the part of its population that is most at risk. In December, 70 percent of the 15 million Burkinabés will be vaccinated, covering the reservoir population for the disease. The country’s health minister explains that the remaining 30 percent of the population should then enjoy de facto protection.

According to WHO, 500 million dollars will be needed to vaccinate the at-risk population under 29 years of age across sub-Saharan Africa; the agency is working to mobilise this money from donor countries and institutions.

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replacing the current bivalent (AC) vaccine for the trivalent ACW135 to protect against the three types of meningitis most prevalent in the region.

“We are not in a completely desperate situation, but if there is an epidemic and if most of the cases are caused by type W135, we won’t have enough vaccines,” warned Costa. The GlaxoSmithKline corporation stopped producing the trivalent vaccine, he noted.

“Ideally, the ACW135 [trivalent] vaccine would be ready a bit sooner, in February, because the epidemics begin in January,” he added.

Costa believes the greater challenge for the Cuban-Brazilian partnership is to find a conjugate vaccine, which combines a polysaccharide antigen with a carrier protein to achieve longer-term immunity to meningitis. Applied to an entire population through a routine health programme, it could put an end to the epidemic, he said.

The commercial vice-president of the Finlay Institute, Francisco Domínguez, confirmed to IPS that they are “working on conjugate vaccines for the different disease types.”

The global market does have a conjugate tetravalent vaccine (A, C, W135 and Y)

available, produced by Sanofi Pasteur, but it is authorised only for people between the ages of 11 and 25. There is also a recently trademarked vaccine by the pharma giant Novartis, but the three doses needed to protect one person cost around 300 dollars, said Costa.

Meanwhile, in September, pilot campaigns began in Mali, Niger and Burkina Faso for a conjugate A vaccine, the MenAfriVac, developed by a laboratory in India.

\*With reporting from Fabiana Frayssinet in Rio de Janeiro and Soumaila T. Diarra in Bamako.



*continued from page 1 Aquaculture Partnership...*

tilapia breeding, it is new to the field of mariculture and is seeking guidance in breeding and processing saltwater aquatic species. “Mariculture only contributes about five percent to our total fish production,” he said, “but I think it is the future of aquaculture in Egypt, either through cage culture or offshore fish farming. For certain, we will need foreign expertise in marine breeding and incubation techniques to develop this field.”

Vietnam has over two decades of experience in mariculture and is reported to have more than 40,000 offshore cages, mainly for lobster culture. Private operators also utilise the tropical country’s 3,200 kilometres of coastline to farm shrimp, mollusks, cobia and grouper.

Under the bilateral agreement, Vietnam is providing training courses for Egyptian cadres on open sea and cage breeding of marine finfish and shellfish. In return, Egyptian technicians are assisting the country in improving the productivity and quality of its freshwater fish farms.

Vietnam has established a vibrant export trade in seafood and river catfish. It now hopes to become a major player in the tilapia market.

Analysts say Egypt’s extensive experience in tilapia breeding and small-scale pond management could prove invaluable to small Vietnamese fish farmers.

“Egypt is the second largest tilapia producer in the world after China, and has significant experience in hatchery operations, pond farming and raising tilapia,” says Gamal El-Naggar, a research coordinator for the Malaysia-based WorldFish Center.

Much of this work has been carried out at Egypt’s national aquaculture research centre in Abbassa, 70 kilometres northeast of Cairo. Scientists there have developed a new strain of tilapia capable of 20 percent faster growth than the commercial baseline. While the strain is not yet available to commercial producers, the centre’s published work in stock selection and nutrition-

***Analysts say Egypt’s extensive experience in tilapia breeding and small-scale pond management could prove invaluable to small Vietnamese fish farmers.***

al regimes is proving invaluable to small-scale tilapia farmers in developing countries.

“Most of the centre’s work is directed at semi-intensive pond systems,” says El-Naggar. “The reason is because about 80 to 90 percent of all tilapia production is based on this system.”

Vietnam is reportedly seeking Egyptian expertise to facilitate its shift to pond culture in an

attempt to improve the quality of its freshwater products. Consumer groups in several countries, including Egypt, have accused Vietnamese catfish cage farmers of raising their fish in the heavily polluted water of the Mekong River.

While Vietnamese officials have played down the contamination risk, the allegations have prompted them to re-evaluate quality control, particularly among the small farms and processing plants that make up 60 percent of the country’s aquaculture industry.

“The processes of producing, processing and packaging need to establish uniform standards,” Cao Duc Phat, Vietnam’s Minister of Agriculture and Rural Development, said last year in an interview carried in Tien Phong newspaper. “We need to reorganise our production and consumption process. Institutions and individuals that pollute the environment must be punished or even forced to shut down.”

Meanwhile, Egyptian producers hope to benefit from Vietnam’s superior processing and marketing techniques. Egypt has just a handful of fish processing plants compared to over 750 in Vietnam. The plants process fresh fish to produce filets and fish meal, as well as dozens of value-added products for export.

“Egypt doesn’t have a lot of processing plant for fish, because Egyptians usually eat their fish fresh,” explains aquaculture consultant Sherif Sadek. “We could benefit from better utilisation and reduce our reliance on imported fish meal.”

*continued from page 1 Water Tanks...*

quality of life.” He says there’s something that sets this programme apart from others, a “political” difference that he considers crucial. “The goal is to build a process that enhances living conditions in the semiarid environment, so that people can adapt to it, instead of attempting to combat droughts,” he said.

For centuries Brazil implemented drought-combating programmes aimed at distributing water, benefiting big business, and clearing the authorities’ “consciences, by hiring workers who were starving from the effects of the droughts, and putting them to work on large infrastructure projects on property owned by the rich,” Baptista said. “This drought-combating approach only results in a concentration of power and wealth, and provides welfare-based solutions to water shortage problems,” he said.

The water tank programme has an entirely different aim. To begin with, it “makes water widely available and doesn’t concentrate it among a handful of people.” Also, it doesn’t attempt to

fight drought in the country’s northeast, where “it is a naturally-occurring phenomenon.” Instead, it seeks to “develop strategies that will allow the people of the semiarid region to live

***‘The investment required is negligible compared to other large works... one unit costs some 700 to 1,052 dollars.’***

in that environment, by creating ways to collect enough water for everyone,” Baptista said.

ASA has calculated that a 40-square-metre rooftop is large enough to fill a 16,000-litre tank of water collected through clean drainage pipes that connect to the tank. The water is then chlorinated, and the tanks are sealed shut to prevent children from opening them, for safety reasons.

A total of 294,949 tanks were built from Jun. 1, 2000 to Aug. 31 of this year, engaging 313,994 families - and 273,124 people received training in water resource management. The programme operates through committees formed in 1,076 municipalities throughout the region, according to ASA data.

The investment required is negligible compared to other large works, Crispim Moreira, national secretary of nutrition and food security at the Social Development Ministry, said. Building one unit costs some 700 to 1,052 dollars, depending on local prices.

But according to Moreira, the biggest difference this initiative has compared to traditional solutions is how it engages families and communi-

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*continued from page 6 Water Tanks...*

ties in the construction of the water tanks.

The process starts with the community discussing and deciding which families will be given priority, based on the number of children, the presence of elderly family members, and whether the household it is headed by a woman or not. The second stage is the building of the tank itself, which takes about five days of work and involves one construction worker from the project working together with the beneficiary family.

“This is different from a process where a company comes, drills a hole, sets up the tank, and leaves. By building the tank themselves, the families

are achieving something, they’re not receiving a handout,” Baptista said. This initiative, by contrast, emerged from the community itself. “The tanks were not designed in a laboratory, they’re based on actual experiences of communities with a tradition of harvesting rainwater. ASA drew on that tradition and perfected this technology,” he said.

“A lot of people say that this programme is all the region needs to be able to live decently and with their heads held high,” Moreira said.

Already, three countries in the region - Paraguay, Bolivia and Haiti - have contacted the Social

Development Ministry to learn more about the ‘One Million Water Tanks’ programme. Personnel from Moreira’s division have provided training for colleagues in Paraguay and Bolivia for the building of 50 water tanks that will serve as the basis for technology transfer. In Haiti’s case, preliminary visits have been conducted. For its part, ASA is participating in a global exchange of experiences in community water management, with organisations from Paraguay, Bolivia and Argentina, under the coordination of the Avina Foundation.

*continued from page 1 Demining Skills...*

ter bombs dropped in the millions as part of the U.S. government’s secretive campaign over Cambodia in the early 1970s.

But for officials with the government’s demining operation, the Cambodian Mine Action Centre (CMAC), this room also represents hope. Each of the former weapons has been painstakingly unearthed, disarmed, then left here as a reminder.

Cambodia is one of the most contaminated countries in the world when it comes to land mines and unexploded ordnance (UXO). But with almost two decades of experience slowly cleaning away that legacy from contaminated rice fields and jungle brush across the country, Cambodian authorities have also become reluctant experts. And officials here are hoping to use that expertise to help other developing countries afflicted with similar problems.

Cambodian demining experts have participated in peace-keeping operations as part of United Nations missions in countries like Sudan. Cambodia is also offering its experience at the strategic level. In September, a delegation from Colombia is expected to visit Cambodia as part of an ongoing training.

Roath Kanith, CMAC’s director of training, research and development, compares the landmine situation in Colombia with what Cambodia faced a dozen years ago.

“Before 1998, Cambodia was partly secure, partly insecure,” Roath said. “It’s the same thing in Colombia. Part of the country is secure, but part of the country is not under government control. So we can share the information we learned.”

Advocates see this kind of South-South partnership among developing countries as a way to reduce aid dependence on developed nations.

Roath, however, said such information exchange-

negotiated in Cambodia, to a national organisation with more than 2,300 demining experts today. As CMAC grew, it also grew less reliant on foreign expertise. Roath said there were more than 100 foreign technical advisers at CMAC when he started working there 12 years ago. Now, he estimates, there are “two or three” throughout the entire organisation.

Heng Ratana, CMAC’s director general and an advisor to the prime minister, said it makes sense for the country’s largest demining operation to be as independent as possible. “We have had many short-term technical advisers in the past. They can speak very good English... but maybe not so sure about technical skills and experience in the field,” Heng said. “So I think promoting UXO-affected countries to share their experiences among themselves is very important.”

The significance of landmines and UXO in Cambodia cannot be overstated. Surveys have estimated that almost half of the country’s villages were affected

by land mines. The mere threat that a stretch of land may be contaminated has rendered entire plots of arable land too dangerous to farm.

Indeed, landmines are seen as such a barrier standing in the way of the country’s development that Cambodia has included mine eradication as one of the specific targets under its Millennium Development Goals programme aimed at ending poverty by 2015.



Ngoun Thy, a senior instructor at the Cambodian Mine Action Centre, holds the remnants of a once deadly cluster bomb.

Credit: Irwin Loy/IPS

es make fiscal - and moral - sense. “Remember that Cambodia has received the support of the world community for almost 20 years. I think it’s time for Cambodia to pay back to the world,” he said. “Even if we don’t have the money to pay directly to mine operations, we can at least export our knowledge and experience.”

CMAC itself has grown from a small demining project in the early 1990s, as peace was being



## Triangular Cooperation

# Sharing Expertise on Integrated Waste Management

Danilo Valladares\*

GUATEMALA CITY (IPS)

Guatemala has more than 700,000 clandestine garbage dumps. But a growing network of public and private sector employees are receiving training in integrated waste management that they in turn pass on to others, as part of a unique cooperation initiative with Mexico and Germany. Red Giresol Guatemala - the "Guatemalan network of environmental promoters for prevention and integrated management of solid waste" - emerged in 2006 from a "triangular cooperation" agreement between the governments of these three countries, with initial funding of less than 200,000 dollars.

The partners - Germany's GTZ development agency, the environment ministries of Mexico and Guatemala, and Guatemala's National Commission on Solid Waste - designed the programme to train local and national public employees and private sector personnel involved in the fields of environment and sanitation to be environmental promoters or outreach workers.

The promoters receive 140 hours of classroom training in areas like environmental education, waste management, storage and transportation, and techniques for reducing, reusing and recycling waste.

"We want to raise the level and technical expertise of the people dealing with the issue of solid waste in this country," the head of Red Giresol Guatemala, Julio Urías, told IPS.

So far, 62 promoters have graduated from the course, and 45 are currently taking the classes given by the Red Giresol. In turn, the environmental promoters offer advice and training to local authorities and others in the field of integrated waste management, with the resultant multiplier effect. According to Red Giresol, more than 7,000 people around the country have received training and advice

from the promoters.

"We have replicated the network at the local level, and have trained some 70 people in this area since 2008," environmental promoter Erick Urrutia, an agronomic engineer who is an environment ministry delegate in the northwestern Guatemalan province of Quiché, told IPS.

In an alliance with NGOs, Urrutia provided technical support for the construction of waste treatment plants in Chajul and Nebaj - two municipalities in Quiché that were hit hard by the 1960-1996 armed conflict.

*'The aim of Red Giresol is to become a permanent source of training and expertise in specialised areas.'*

Another promoter, environmental engineer José Luis Dubón, participated in a waste management project in the impoverished rural community of San Antonio Aguas Calientes, population 10,500 - one of the few municipalities in this Central American country to have an integrated solid waste management plan in place. The villagers separate organic from inorganic waste, and twice-a-week garbage is collected in the area, which is located more than 1,500 metres above sea level in the central province of Sacatepéquez.

At the treatment plant, which processes some 40 tonnes of waste a month, inorganic materials are further separated and classified, and the organic waste is used to produce compost, Sergio Gómez, from the village of San Antonio, explained to IPS. The compost

is stored up and sold, and waste products like glass and plastic are sold for recycling.

Guatemala's 14 million people produce 1.26 million tonnes of garbage a year, according to the Centre for Urban and Regional Studies and the Municipal Information System. And the National Commission on Solid Waste reports that there are more than 700,000 clandestine dumps in the country.

The aim of Red Giresol is to become a permanent source of training and expertise in specialised areas, Milena Ramírez, a health ministry employee, told IPS.

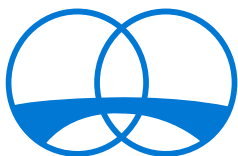
Not only government employees receive training from the network. Eduardo Aguilar, who was trained as an environmental promoter, works for the Basic Port company that handles solid waste from ships that anchor in Puerto Barrios, a Caribbean port in the northeastern province of Izabal. Thanks to the training he received, he drew up "a guide to management of solid waste for the ships that dock in Guatemalan ports", based on the International Convention for the Prevention of Pollution from Ships.

Triangular cooperation involves joint projects between a donor country (Germany in this case), an emerging economy (Mexico), and a less developed country.

In the case of Red Giresol, successful bilateral cooperation between Germany and Mexico is being expanded to other Latin American countries: the Dominican Republic, Ecuador and El Salvador, besides Guatemala.

In Mexico, Red Giresol has trained 220 promoters since 2004, who have been "promoting integrated waste management in municipalities. The network has taken on a dynamic of its own," Axel Macht, director of GTZ's programme for environmental, urban and industrial management in Mexico, told IPS.

\* Additional reporting by Emilio Godoy in Mexico City.



### South-South Solutions: Media Briefs

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