

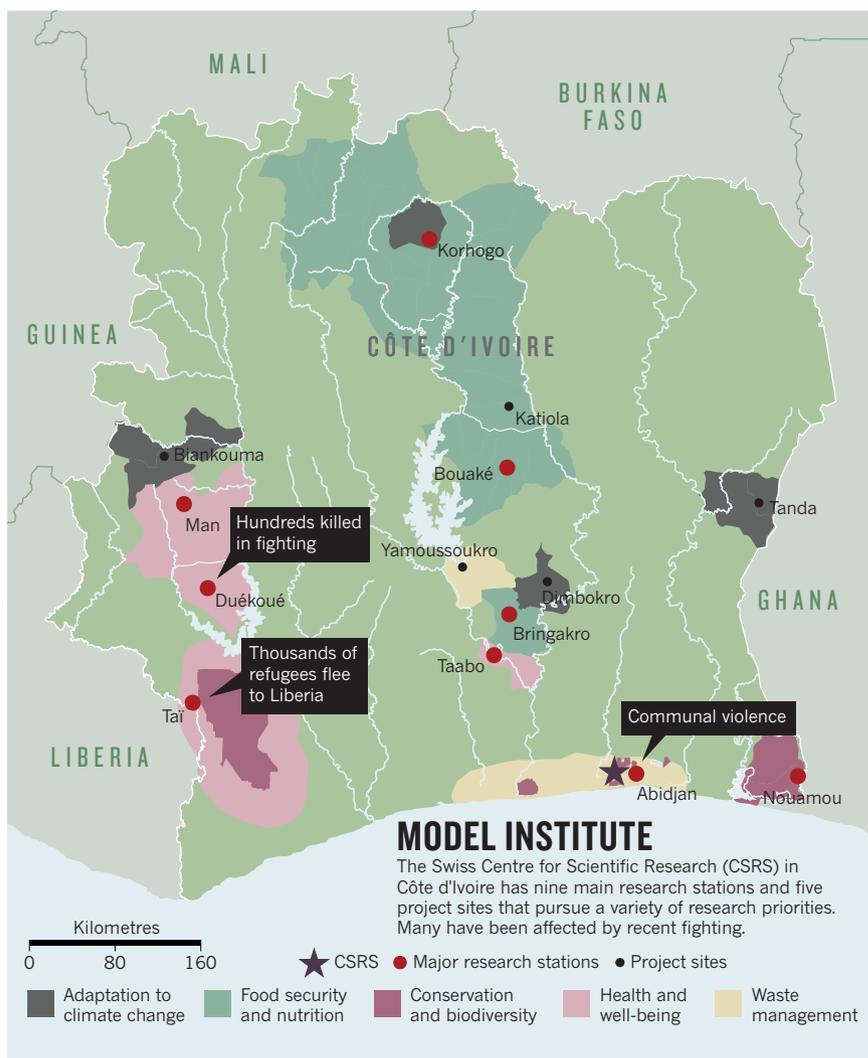
Prime Minister Stephen Harper committed Can\$20 million (US\$20 million) towards AIMS centres in South Africa, Senegal, Ghana, Nigeria and Ethiopia or Tanzania over the next five years. The Next Einstein Initiative also won a Google Project 10¹⁰⁰ award of US\$2 million towards construction costs for the centres. And Google gave US\$1 million dollars for scholarships. The government of Senegal committed 656 million francs (US\$1.4 million) in cash and land towards AIMS–Senegal. In Ghana, 7 hectares of land was donated by a diaspora organization, and the president committed 2.7 million cedi (US\$1.5 million) towards construction of AIMS–Ghana.

A full scholarship at AIMS costs just US\$10,000 a year, one-fifth of the cost of educating a graduate student in Europe or North America. This simple calculation underlies our One for Many programme. The idea is that a university in the developed world contributes the cost of one graduate fellowship on their campus to support many students studying at an AIMS centre. This is an excellent way for the university to engage with Africa at a manageable cost. Its faculty can visit to teach, and it recruits AIMS alumni to its PhD programmes. Just ten institutions are needed to support the entire scholarship costs of a new AIMS centre. So far, five Canadian universities and one French university have joined, and many more have expressed an interest.

Launching 15 AIMS centres will cost US\$120 million over the next ten years. We think this is a bargain — just 0.03% of the projected international aid to Africa over that period. But convincing donors to support advanced education is hard. To them I say, “Who will teach the next generation of teachers?” And “How will Africa ever develop without a technical base?” Without such investments, the long-term prospects for the continent are meagre. When compared with India and China (each of which has half a million science and technology graduates a year), 750 skilled graduates is the bare minimum Africa needs.

The idea for the Next Einstein Initiative came from AIMS students. In 2007, I was lecturing at the Institute on how Einstein described the whole cosmos with an equation. I said, as an aside, “Of course, we hope there will be an Einstein among you.” I explained how Einstein too came from a disadvantaged group, the Jews, and, with his peers, revolutionized physics. Next day, Esra was giving a talk to a prospective donor. She ended by saying: “We want the next Einstein to be an African.” ■ [SEE EDITORIAL P.542 AND NEWS FEATURE P.555](#)

Neil Turok is director of the Perimeter Institute for Theoretical Physics, Waterloo, Canada, and founder of the African Institute for Mathematical Sciences–South Africa. e-mail: nturok@perimeterinstitute.ca



Research in a war zone

Bassirou Bonfoh and others offer lessons from a West African institute that has survived ten years of conflict.

Côte d'Ivoire, formerly the economic powerhouse of West Africa, slid into a decade of serious civil unrest starting with a *coup d'état* in December 1999. Armed conflict in September 2002, spurred by power struggles for the presidency, split the country into a rebel-controlled central, north and west region, and a government-controlled south and east. Research and development projects ceased for several weeks, and many institutions were closed or looted. Instability and uncertainty became a way of life for those who stayed behind. Then, in November 2010, contested presidential elections led to more than 1,000 deaths and displaced several hundred thousand people. Universities, courts, police stations and banks were closed or plundered

and many enterprises were looted. Only now is stability slowly returning, with the installation of President Alassane Ouattara in May this year.

Over the past decade, many international partners have pulled out of Côte d'Ivoire, leaving the scientific community in tatters. A notable exception is the Swiss Centre for Scientific Research (CSRS), at which several of us work, which was able to maintain essential research and support activities at its headquarters and most of its project sites throughout the recent crisis.



SCIENCE IN AFRICA

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Being based in a forest 17 kilometres from the centre of the city of Abidjan (see map), where the worst fighting took place, helped, as did our experience with earlier crises and our contingency plans, such as relocating some office staff to Ghana. As the crisis reached its peak towards the end of March 2011, the CSRS was visited by militia searching for vehicles, fuel, money and food. After the staff explained the role of the research centre with diplomatic status, the militia seized 200 litres of diesel but otherwise left peacefully.

As the CSRS prepares to celebrate its sixtieth anniversary this September, we reflect on its scientific achievements and on the realities of conducting science in a conflict-ridden society. Years of running the centre persuade us (as the directorate of the CSRS, the Swiss Academy of Sciences in Bern and the Swiss Tropical and Public Health Institute (Swiss TPH) in Basel) that research closely connected with translation into policy, strategies and action — what we call ‘science in action’ — is a valuable complement to humanitarian aid in strengthening communities. We have also learned that multiple local and international partnerships are key to a sustainable enterprise. We could not have done it alone.

FROM FIELD STATION TO RESEARCH CENTRE

The CSRS was founded in 1951 to enable researchers from Switzerland to do fieldwork in tropical science and biomedicine. Adhering to the principles of research partnership set out by the Swiss Commission for Research Partnership with Developing Countries¹ (see ‘Partnership principles’), the CSRS started to attract African researchers from Côte d’Ivoire wanting to do masters degrees and doctorates. Since 2000, more than 20 MSc and 25 PhD candidates from African and European universities have graduated from the centre; three-quarters of them are African. The field station evolved first into a project site, then into a dedicated research, training and resource centre for sustainable development partnered with other African institutions (see ‘Evolving priorities’).

At the same time, the CSRS established itself as an international, autonomous trust based on the successful governance model used by the Ifakara Health Institute in Tanzania². This model involves a flexible mix of public and private partners embedded within national research agendas and under the guidance of an international board of trustees. Many other institutions across Africa have adopted this model, including the African Malaria Network Trust in Tanzania, the Manhiça Health Research Centre in Mozambique and the International Clinical Epidemiology Network Trust in New Delhi.

The CSRS started out with a focus on

biodiversity, then broadened its portfolio to include conservation biology, nutrition and food security, epidemiology and health, before finally incorporating urban environment and climate change. Directorships have also changed from predominantly Swiss leaders to recognized African scientists. By its fiftieth anniversary in 2001, the CSRS had become a centre of excellence mostly under African leadership and embedded in national and regional research, teaching and technology networks.

Given the range of problems to be solved globally and within sub-Saharan Africa, the centre is strongly committed to practical

“One village chief wept with relief that his community had not been abandoned.”

application of its research. It has responded to local and regional priorities such as food security, neglected tropical diseases and malaria, conservation biology, biodiversity and urbanization. We believe that having such a broad range of interests helped our long-term survival. Our strong links with local communities gave us compelling arguments for staying when others chose to leave and provided protection and basis for progress, particularly in the toughest times.

Almost by definition, research in conflict settings entails risks to life, property and intellectual property — a halted project is a considerable loss. The CSRS continually assesses the risks to its staff against standards set by the United Nations and the Swiss embassy, and on the advice of project leaders and partners within Côte d’Ivoire and abroad. As the post-election crisis looked set to escalate, the CSRS asked foreign

students to leave the country. For seasoned researchers, however, the decision to stay on was ultimately a personal one. So far, none of our scientists has been harmed, although one researcher’s home was looted while he was travelling.

Even in the absence of conflict, research in Africa is a complex proposition. Laboratories and equipment are often inadequate; national funding schemes are lacking and those at the international level are ill-understood and underexploited; there are no advanced training and mentoring programmes and few local research positions for trainees. There is therefore little incentive for students to go into science.

Because we maintained projects and strengthened institutional development during the crisis, we have been able to seek a new generation of major projects and programmes. Most recently, the CSRS took the lead in establishing the ‘Afrique One’ consortium (www.afriqueone.net) to support African researchers who work on animal diseases that can be transmitted to humans, which make up many of the emerging and re-emerging diseases in Africa. Research sustainability arises from investment in infrastructure and the continual building of research groups that can attract grants to support their activities.

IN GOOD TIMES AND BAD

None of what we have achieved in Côte d’Ivoire would have been possible if our research partners had not maintained their support during the crisis. For example, a collaboration between the CSRS, the University of Cocody in Abidjan and the Swiss TPH focusing on the epidemiology and control of neglected tropical diseases and malaria since the mid-1990s continued to achieve an international standard of research. It showed, for instance, that the antimalarial drugs artesunate and mefloquine are safe and efficacious against schistosomiasis³.

Similarly, in July 2003, less than a year after armed conflict broke out, and in consultation with local and international partners, the CSRS relaunched several community projects aimed at assessing health and food security in rebel-controlled sites in the centre, north and west of the country^{4,5}. When scientists who left at the height of the rebellion returned, one village chief wept with relief that his community had not been abandoned.

Another long-term international partnership that could not have operated without local support is one between the CSRS and universities in France and Scotland to examine primate vocal behaviour in Tai National Park, the largest remaining virgin rainforest in West Africa. The Tai Monkey Project described the call system of the Campbell’s monkey (*Cercopithecus campbelli*), which may be the most complex example of

GUIDELINES

Partnership principles

Guidelines from the Swiss Commission for Research Partnership with Developing Countries framed these 11 principles for the establishment of research partnerships.

- Decide on objectives together
- Build mutual trust
- Share information; develop networks
- Share responsibility
- Create transparency
- Monitor and evaluate collaboration
- Disseminate results
- Apply results
- Share profits equitably
- Increase research capacity
- Build on achievements

EVOLVING PRIORITIES

As the CSRS developed from a basic field station into a dedicated research, training and resource centre, its portfolio expanded, its infrastructure became more elaborate and its training facilities became more involved.

IMAGES FROM CSRS



FIELD STATION (1–3 years)

Core portfolio

Informal alliance of projects with a narrow thematic focus

Infrastructure

Very basic, driven by external projects

Capacity and training

Foreign fellows pursue fieldwork with short-term, ad hoc training



PROJECT SITE (4–12 years)

Core portfolio

Small- and medium-sized projects with a broad thematic focus

Infrastructure

Basic laboratory facilities and offices, including library

Capacity and training

National and foreign fellows pursue research at different levels (MSc, PhD)



RESEARCH CENTRE (>12 years)

Core portfolio

Projects have a broad thematic and geographic focus

Infrastructure

Specialized laboratory and offices with modern technology

Capacity and training

Alliances, consortia and research networks needing human-resources and mentoring support

‘proto-syntax’ in animal communication known⁶, providing new insight into the evolution of human language.

During the post-election crisis, rangers deserted the national park, fearing for their safety. This left the scientists and their teams at significant risk from shifting power struggles between mercenaries and forces loyal to the elected president. There was also a risk of poaching and of villagers looting the field station. Luckily, whoever was in power at a given moment agreed to protect the field station. Nonetheless, the risk from poachers to animals involved in long-term studies remains high in good and bad times.

An example of a local community with strong links to the CSRS is Bringakro, an experimental agricultural site in central Côte d'Ivoire. Established in the early 1990s, the site tested new crop varieties, drip-irrigation agriculture to enhance crop yields and strategies for minimizing post-harvest losses. By early in the millennium, and with partners from the International Institute of Tropical Agriculture in Nigeria, the Swiss Federal Institute of Technology in Zurich and the private sector, we introduced a variety

of yam and cassava called ‘yavo’ that more people were prepared to eat, reducing waste of a nutritious staple across West Africa.

SURVIVAL SKILLS

In all these projects, we have been careful to steer clear of involvement in local politics. Maintaining neutrality is pivotal to assuring that work continues during political turmoil. Perhaps the Swiss mentality of trying to stay impartial has been helpful in negotiating with local partners, as has the fact that the nation has no history as a colonial power to strain relationships. We also made sure that all projects were led or co-led by Africans from different parts of Côte d'Ivoire; we have not had to parachute in expertise from overseas.

Since 2000, many international organizations have either left the country or ceased operations temporarily. The CSRS kept going. Abandoning it would be like abandoning family members; we would consider it only if researchers' lives were directly threatened or if our security advisers really pushed for evacuations. We strongly hope we will celebrate many more anniversaries. The main lesson from our first 60 years is that

successful research partnerships depend on long-term commitment and adhering to the partnership principles. Today, the CSRS is ready to pursue and intensify its activities for the benefit of Côte d'Ivoire and the region. ■

Bassirou Bonfoh, Giovanna Raso, Inza Koné and Daouda Dao are at the *Swiss Centre for Scientific Research (CSRS)* Abidjan, Côte d'Ivoire; **Olivier Girardin** is at the *Fondation Rurale Interjurassienne, Courtemelon, Switzerland*; **Guéladio Cissé, Jakob Zinsstag, Jürg Utzinger and Marcel Tanner** are at the *Swiss Tropical and Public Health Institute in Basel, Switzerland*. e-mail: marcel.tanner@unibas.ch and bassirou.bonfoh@csrs.ci

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