



Professor Marcel Tanner, Director STI. (Photo J. Pelikan)

It is always a great pleasure to introduce the Biennial Report to our staff members, collaborators, governing body, colleagues, friends of the STI, and the interested general public in Switzerland and abroad. We see production of the Report not only as part of our reporting duty but also a way of thanking you all for your support and interest. It also gives us a chance to show how the STI has developed in key areas such as research, teaching/training and direct service support, within our overall mandate to contribute to health development at the local, national and international level.

We hope the Report stimulates your interest in and support of our activities. Our collaborators are always ready to provide more detailed information about specific projects and achievements and can be contacted directly or through our website ([www.sti.ch](http://www.sti.ch)).

### Developments and highlights

The biennium was marked by a more streamlined pursuit of our strategic axes in the fields of (i) innovation, (ii) validation and (iii) application of public health tools, approaches and strategies through research, teaching and training, and direct provision of services. The annual retreat of all STI project leaders has helped to consolidate our iterative mode of working along those strategic axes and has led to major achievements at all levels, as reflected in the Report. Comparing these achievements against our midterm goals (see the box on page 5) and strategic objectives (see the box on p. 7), which also incorporate the recommendations of our external reviewers, indicates that most of the goals can be realised as projected.

The STI is now firmly established as an institute for international health with an attractive portfolio characterised by academic excellence and national as well as international standards of high quality, accredited service and consultancies. The STI's profile was further enhanced

during the reporting period by the naming of two WHO collaborating centres: the WHO Collaborating Centre for Health Systems Development within the Swiss Centre for International Health (SCIH; see section 12) and the WHO Collaborating Centre for Research and Capacity Building in Environment and Tropical Public Health within the Department of Public Health and Epidemiology (see section 9). The STI's range of activities from basic research to public health policy and application is well recognised at the international level. We are particularly proud not only that the STI has a major focus on communicable diseases such as malaria, trypanosomiasis, mycobacteria, meningitis, HIV/AIDS and a variety of helminths (schistosomiasis, food-borne trematodes), but also that we have become equally active and sought after in the area of health systems strengthening, including understanding the social, cultural and economic contexts that govern health and social systems. In this context, we are pleased to announce that through the SCIH our role as Local Fund Agent for the Global Fund to Fight AIDS, Tuberculosis and Malaria has been consolidated in 9 countries and will soon be extended to at least 16. The STI has also become deeply involved in providing consultation to the European Economic Community. As reflected in the various following sections, the STI is further and effectively linked to most Global Health Initiatives, which helps to ensure that results generated through research are taken into account at the policy and implementation level. These significant achievements are made possible by the productive interplay between research on health systems strengthening and our service support for health systems as well as our consultancy services. Consequently, the STI has been able to cement its leading position in international health development.

The STI further developed its competence in clinical and diagnostic services within the national health care delivery system as an official reference centre for parasitology, travel and tropical medicine. Section 13 reflects the broad range of services provided in terms of patients, consultant contact time and the number of samples processed. The fields of emerging diseases and zoonoses gained special emphasis and will continue to develop. At the international level, the medical department and the diagnostic centre are very actively involved in training courses at all levels. Most courses take place in disease endemic areas and therefore drive home to participants the realities of resource-constrained health systems.

As planned, the SCIH's Pharmaceutical Medicine unit (PMU) enlarged its portfolio for conducting, monitoring and auditing clinical trials. In addition to its long-standing involvement in trypanosomiasis, the unit is now also more active in areas of malaria drug and vaccine development. In addition, the PMU formed a clinical trial partnership in Kinshasa, Democratic Republic of the Congo, that brings together the School of Public Health of the University of Kinshasa and a private charity hospital to start a coherent process for developing clinical trial and intervention capacity in the middle of Africa, where so far there have been no major research and trial centres despite a high burden of disease.

Our participation as leader of a work package within the Swiss National Science Foundation (SNSF) and the Swiss Agency for Development and Cooperation (SDC)-funded National Centre of Excellence in Research (NCCR) "North-South: mitigating syndromes of global change" enabled us to firmly establish teams of biomedical and social scientists as well as public health practitioners

### Midterm goals of the STI: 2008–2011

The STI expects to realise the following innovative contributions and midterm goals within its 4-years plan:

- Molecular and cell biological basics to understand the host-parasite interaction in malaria, meningitis, Buruli ulcer and trypanosomiasis.
- Development and validation (phases II and III) of at least 2 further malaria vaccine candidates.
- Identification of vaccine candidates including possible clinical evaluation (phase I) for malaria and Buruli ulcer.
- Preclinical and clinical development of at least 3 new active agents against malaria and sleeping sickness, and identification of new lead compounds against neglected diseases such as mycobacteria, food-borne trematodes and schistosomiasis.
- Microarray technologies for the identification and characterisation of fever types in different endemic areas.
- New approaches to comprehend the spatiotemporal dynamics of the epidemiology of infectious diseases.
- Molecular epidemiological and evolutionary biological findings on zoonoses, meningitis and tuberculosis.
- The importance of metabonomics for understanding host-parasite interactions at the individual and population level.
- New approaches for understanding vulnerability and resilience with reference to public health interventions.
- To obtain findings on the determinants of health behaviour of populations with different social, cultural and economic backgrounds with the goal of increasing the accessibility, appropriateness and equitable distribution of health systems.
- Methods of comprehending the effectiveness and equitable distribution of health systems.
- Modelling the effectiveness and cost-effectiveness of interventions against infectious diseases, especially the integrated fight against malaria.
- Setup and evaluation of at least one integrated project for each of the following: fight against malaria, schistosomiasis and food-borne trematodes.
- Generalisation of the one health concept for health systems in the Sahel region.
- New methodological approaches for efficient health impact assessment, including validation within endemic areas.
- Understanding systems and standardised methods to further implement strategies for poverty reduction through health interventions in urban and rural areas.

centred on two key areas of activities from among vulnerability and livelihoods/poverty alleviation, health economics, health systems, interventions and global health initiatives, and zoonoses. It has proven to be a unique and stimulating working experience that not only brought STI units across departments into close interaction but also generated new avenues of activities, as reflected in the respective sections.

The STI's activities in the field of malaria research and control currently represent a comprehensive portfolio that ranges from innovation to validation to effective public health application. This is reflected in our contributions to innovating new malaria vaccines as well as to clinical development plans for existing vaccines, drugs and diagnostics. We have also contributed either directly or supportively to policy formulation and public health action as evidenced, for example, by our role in scaling up the use of insecticide-treated bednets to the national level, in developing new diagnostic strategies, in improving access to treatment, and in integrating control activities in urban and rural areas in Africa and Asia. We also see our concentrated activities in malaria as our response to and support of the paradigm shift from malaria control to malaria eradication following declarations made at the Gates Malaria Forum in October 2007 and subsequent support voiced by World Health Organization (WHO), the Board of the Roll Back Malaria Partnership and many other institutions. Accordingly, the STI hosted a malaria symposium in December 2007 and became an active member of the Swiss Malaria Group created by SDC. We also took a lead in commemorating World Malaria Day in Switzerland on 25 April.

The STI symposia series, which features two symposia per year that focus alternatively on research topics and service provision, became an important platform for generating new initiatives and fine-tuning our activities. A most relevant example is the spring symposium 2008 on health technologies, which allowed us not only to interact with colleagues from many countries but also to develop a new portfolio ranging from novel approaches in eLearning, through design of health information systems, to telemedicine and broader knowledge management.



Picture of the 11th STI Symposium on eHealth. (Photo J. Pelikan)

## 6 Foreword

Despite substantial recent improvement, the STI's financial situation is still suboptimal. From 2008 onwards, we will enjoy core contributions at an average level of CHF 6.6 million per year (Canton Basel-Stadt and Basel-Land, partly through the University of Basel CHF 2.4 million; the state secretariat for education and research, CHF 3.3 million; the Bill & Melinda Gates Foundation CHF 1 million), currently representing 20% of our total budget. While the total amount of core funding has increased significantly compared with the previous funding period, the proportion it represents is insufficient to provide, for example, major investment in development and growth. The remaining funds are generated competitively through research and services, as well illustrated in this report (see page 9). We were very fortunate to receive an additional special grant of CHF 3.6 million from the Canton of Basel-Stadt to undertake crucial structural renovations at the STI, because core contributions have not so far, and will not in future, cover investment in infrastructure. With this grant and additional major support from the R. Geigy Foundation, we have been able to renovate, rebuild, and equip laboratory and office space in one building and to add a BSL-3 laboratory facility to enable further work on tuberculosis and other pathogens.

We have strengthened our collaboration with the University of Basel and established a formal agreement that defines the STI's status as an Associated Institute of the university. The agreement outlines what the STI will pro-



Diploma Celebration of the HCMTC course. (Photo R. Duerr)

vide in terms of expertise and teaching faculty to the curricula of the university and in turn allows the STI access to the university's facilities. Within the context of this association, we are currently discussing the possibility of integrating the university's Institute of Social and Preventive Medicine into the STI, which would create a new Swiss centre bringing together international and national public health expertise and experience in research and training, as well as services. These developments and future positioning at the national and international level will govern our strategic orientation and activities in the coming years.

The STI has also formalised collaborative links with the Swiss Federal Institute of Technology, Lausanne (EPFL), based on the STI's new funding arrangements with the national government for the period 2008–2011. This collaboration offers new possibilities both by providing the STI access to novel technologies at EPFL and by linking the basic research of the global health teams of EPFL with the STI's public health and epidemiology groups.

The report also highlights our efforts in teaching and training (see section 14). As a cornerstone of our activities, teaching and training occurs virtually at all levels ranging from general introductory courses for the informed public to specialised post-graduate training arrangements.

### Members of the Board of Governors (Kuratorium 2006–2008)

Prof. Felix Gutzwiller, *Chairman*  
Institute for Social and Preventive Medicine, Zurich,  
Switzerland

Mr Jörg H. Schwarzenbach, *Vice-Chairman*  
Aquila Investment Ltd., Basel

Prof. Michel Carton  
Institut Universitaire d'Etudes du Développement  
(IUED), Geneva, Switzerland

Mrs Anne-Christine Clottu Vogel  
Chairwoman, IUED Board

Dr Monika Griot-Wenk, PD  
Berna Biotech Ltd, Bern, Switzerland

Prof. Jacques Louis  
Pasteur Institute, Paris, France

Prof. Urs A. Meyer  
Biozentrum, University of Basel

Mr Joakim Rügger  
Cantonal Department of Education, Basel

Prof. Didier Trono  
Swiss Federal Institute of Technology, Lausanne

Prof. Werner Zimmerli  
Cantonal Hospital, Liestal, Switzerland

Prof. Marcel Tanner, Director STI, *ex officio*

Mr Ulrich Wasser, *Secretary to the Board*



Malariatram at the World Malaria Day in Basel. (Photo M. Hetzel)

Most efforts go into services provided to the University of Basel (close to 200 weekly hours of teaching per year), and to running or contributing to diploma and master's of international health courses of the tropEdEurope network.

The STI views collaborative arrangements as long-term commitments and invests significant resources in building partnerships, particularly with resource-constrained countries in Africa. During the reporting period, we reinforced our links with East and West Africa within the frame of the Swiss bilateral policies in research and technology. On behalf of the state secretariat for education and research, the STI became the leading house for the Swiss partnership with Tanzania through the Ifakara Health Institute (IHI)<sup>1</sup> and for Côte d'Ivoire through the Centre Suisse de Recherches Scientifiques (CSRS), Adiopodoumé. In addition, the STI is the associate leading house, together with the leading house University of Basel, for the Swiss-South African bilateral collaboration in science and technology. These new arrangements foster partnerships and allow new developments in Africa far beyond the countries mentioned. In addition, and as mentioned in section 12, through the SCIH the STI has created a number of non-governmental organisations as local contacts and work bases. In 2007, the SCIH in Chad became autonomous, with a constitution similar to that of Ifakara Health Institute and CSRS. We maintain the partnership and collaboration with Chad on many levels.

Having invested in partnership and capacity building since the creation of the STI, it is most gratifying for us that Ifakara Health Institute, which is a direct outcome of the STI's long-term commitment to partnership, together with the Manica Health Research Centre in Mozambique, Kintampo Health Research Centre in Ghana and the Malaria Research and Training Centre in Mali, has been awarded the 2008 Prince of Asturias Award in International Cooperation.

The biennium was also marked by a substantial increase in the number of students working within or associated with the STI. More than 100 internal and external PhD students and 30 MSc students, at least half from developing countries, are pursuing their degrees under the STI umbrella. The students, together with STI staff, constitute a fascinating and stimulating community engaged in mutual learning for change.

Important staff developments also took place, and details for each team can be found on pages 107–111. Besides the fact that the total number of STI staff increased to 320 (46% male, 54% female, 117 academic), some specific developments merit highlighting. Currently, the STI team comprises more than 40 nationalities from 5 continents, bringing together a broad cultural diversity that ideally fits the pursuit of our goals. The STI became home to two new assistant professorships (Förderungsprofessur) from the SNSF: Jennifer Keiser and Sebastien

## Strategic objectives

STI will continue to develop its programme with the aim of accomplishing the following strategic objectives:

- Bring its findings, experiences and expertise to bear at the national and international level as a research, resource and reference centre for (i) poverty-related diseases (HIV/AIDS, malaria, tuberculosis), (ii) neglected diseases (sleeping sickness, Buruli ulcer) and (iii) health systems research and support.
- Be acknowledged as a centre for clinical epidemiology of tropical and poverty-related diseases.
- Play a leading role internationally in the implementation of the Global Health Initiatives as well as contribute substantially, as a Local Fund Agent of "The Global Fund To Fight HIV/AIDS, Tuberculosis and Malaria" in at least 10 countries, to the effective use of multilateral money for health development.
- Through strategic alliances, bring its strengths even more to the fore of the national and international scientific landscape (especially with its connections to the Swiss Federal Institutes of Technology in Lausanne and Zurich).
- Further strengthen and develop its expertise in international health within the network of institutes for social and preventive medicine in Switzerland.
- Substantially support research and training foci such as life sciences and African studies as an Associated Institute of the University of Basel.
- Maintain a leading position within the European network of tropical institutes through its links among research, teaching and services.
- Be acknowledged nationally as well as internationally as a leading training centre for both international and public health.
- Make an important contribution to the EU network EDCTP (European Developing Countries Clinical Trials Partnership), thereby helping to fulfil the EDCTP's goals.
- Be recognised for its contributions to the setup and maintenance of sustainable research partnerships and networks within countries with limited resources and threshold countries.
- Be broadly acknowledged and supported as a reference centre for tropical and travelling medicine and international health both nationally and globally.
- Be mentioned among the 6 best-known institutes for international health worldwide.

Gagneux, two former STI PhD students. Jennifer Keiser has already joined us and is developing a unit for helminth drug discovery and pharmacology. Sebastien Gagneux will come on board with an international team on the molecular epidemiology of tuberculosis once our BSL-3-facility is operational. In total, the STI now claims four such professorships, which will go far in ensuring the long-term development and prospects of the institute.

## Outlook

The STI can look confidently into the future. Our mandate and jointly developed strategies, as well as the nu-

<sup>1</sup> Ifakara Health Institute since 1 July 2008; formerly, since 1996, the Ifakara Health Research and Development Centre, which developed out of the former Swiss Tropical Institute Field Laboratory, Ifakara, Tanzania.

### Members of the External Review Committee (2007–2008)

Professor Carlos Morel, FIOCRUZ, Rio de Janeiro, Brazil (Chair)  
 Prof. Pascale Allotey, Brunel University, United Kingdom  
 Prof. Michael Alpers, Curtin University, Perth, Australia  
 Prof. Fred Binka, University of Ghana, Legon Accra, Ghana  
 Dr Uli Certa, Roche Ltd, Basel, Switzerland  
 Prof. Gianfranco Domenighetti, University of Ticino, Lugano, Switzerland  
 Dr Marie Paul Kieny, WHO, Geneva, Switzerland  
 Prof. Thomas Löscher, University of Munich, Germany  
 Dr Vinand Nantulya, FIND, Geneva, Switzerland  
 Dr Rino Rappuoli, Novartis Vaccines, Siena, Italy  
 Prof. Martin Schuhmacher, University of Freiburg, Germany  
 Dr Tessa Tan Torres, WHO, Geneva, Switzerland  
 Dr Halima Mwenesi, Academy of Educational Developments, Johannesburg, South Africa  
 Prof. Yunkap Kwankam, WHO, Geneva, Switzerland (co-opted)

merous creative and innovative contributions of our staff, provide a sound basis for the conduct of our daily work. As this Report makes clear, the rapidly changing landscape of international health priorities and of the Global Health Initiatives will entail a number of important challenges for the institute. Identifying them early through forecasting and pioneering thinking will help us to tackle them. Moreover, we are fortunate in being able to count

on continuing support from local and federal government as well as all our major partners.

I wish to stress sincerely that none of the work described in this Report would have been possible without the fruitful partnerships and collaborations with national and international institutions, and the generous, unconditional support granted by the many donors mentioned herein. We are deeply indebted to all of them.

The harmonic development of the STI is possible only with the very competent guidance and advice provided by the Board of Governors (see box on p. 6) and the international External Research Review Team (see box on p. 8). We are extremely grateful for their critical comments, wise assessments and clear, farsighted recommendations.

My warm thanks go to Giselle Weiss, who carefully edited this Report, and to Joachim Pelikan and Markus Weber for their competence in planning, illustrating and co-ordinating its production.

My deepest appreciation goes to all STI staff members – scientific, technical, and administrative staff and students – and all our collaborating institutions – locally, nationally and internationally. Their fine, unflinching commitment, innovative thinking and hard work made possible the achievements described here.

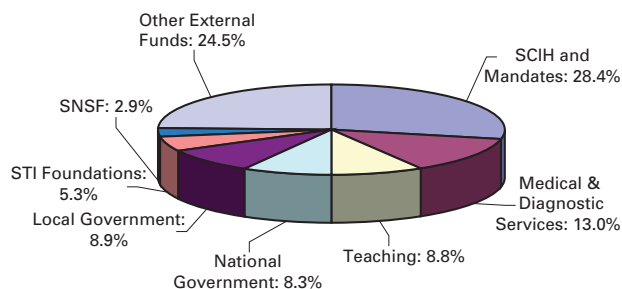
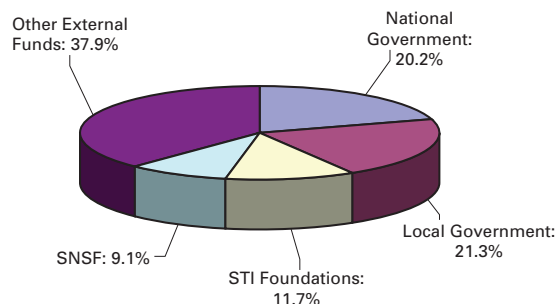
I wish you stimulating and informative reading, and look forward to your comments and suggestions as well as to potential new collaborations.

Marcel Tanner  
Director



Celebration of the Prince of Asturias Award 2008 in Oviedo, Spain: Acting Director of the Ifakara Health Institute Dr. Salim Abdulla (left), His Royal Highness Prince of Asturias Felipe de Borbòn (middle) and outgoing Director of IHI (1998–2008), Dr. Hassan Mshinda, now Director General Tanzania Commission of Science & Technology (COSTECH) (right). (Photo K. Asante)

ANNUAL ACCOUNTS	2007	2006
	in 1,000 CHF	in 1,000 CHF
<b>Profit and loss account</b>		
<i>Income</i>		
Self managed income	23.310	20.023
Contribution of the Swiss national government	2.295	2.330
Contribution of the Basel local government	2.480	2.475
<b>Total income</b>	<b>28.085</b>	<b>24.828</b>
<i>Expenditure</i>		
Staff expenditure	20.795	17.172
Material expenditure	5.425	5.795
Investments	1.728	1.749
<b>Total expenditure</b>	<b>27.948</b>	<b>24.716</b>
<b>Profit</b>	<b>137</b>	<b>112</b>
	<b>28.085</b>	<b>24.828</b>
<b>Balance sheet</b>		
<i>Assets</i>		
Liquid funds	2.038	830
Debtors	4.650	4.969
Prepaid expenses	935	1.068
Fixed assets	5.300	5.300
	<b>12.923</b>	<b>12.167</b>
<i>Liabilities</i>		
Creditors	1.353	1.271
Accrued liabilities	5.327	5.007
Mortgage	4.400	4.400
General provision	696	479
Provision for VAT	900	900
Reserve	247	110
	<b>12.923</b>	<b>12.167</b>

**Overall funding in 2007 (total: 28.1 million CHF)**

**Research funding in 2007 (total: 8.8 million CHF)**

**Profit and loss account by main activities including internal accounted services**

	in %	2007			in %	2006		
		Income in 1,000 CHF	Expenditure in 1,000 CHF	Balance in 1,000 CHF		Income in 1,000 CHF	Expenditure in 1,000 CHF	Balance in 1,000 CHF
<b>Research:</b>	32%				31%			
- in Medical Parasitology and Infection Biology		4.602	4.744	-142		4.494	4.597	-103
- in Public Health and Epidemiology		4.253	4.776	-523		3.131	3.580	-449
<b>Total research</b>		<b>8.855</b>	<b>9.520</b>	<b>-665</b>		<b>7.625</b>	<b>8.177</b>	<b>-552</b>
<b>Teaching and Training</b>	9%	2.471	2.775	-304	9%	2.260	2.568	-308
<b>Service Centres:</b>	41%				42%			
- Clinical and Diagnostic Services		3.610	3.266	344		3.237	3.003	234
- Swiss Centre for Internat. Health		7.782	7.020	762		7.022	6.284	738
<b>Total services</b>		<b>11.392</b>	<b>10.286</b>	<b>1.106</b>		<b>10.259</b>	<b>9.287</b>	<b>972</b>
<b>Central Functions</b>	12%	3.380	3.380	0	11%	2.738	2.738	0
<b>Infrastructure</b>	7%	1.987	1.987	0	8%	1.946	1.946	0
<b>Total</b>	<b>100%</b>	<b>28.085</b>	<b>27.948</b>	<b>137</b>	<b>100%</b>	<b>24.828</b>	<b>24.716</b>	<b>112</b>

## The STI Foundations

### The Jubilee Foundation

The Jubilee Foundation was established in 1993 to mark the 50<sup>th</sup> anniversary of the foundation of the institute. Its aim is to promote innovative research at the STI. In addition to considering any innovative project idea within the STI's strategies, three main areas are emphasised: life-threatening malaria, urbanisation and urban health, and health and the environment in the Sahelian zone. The STI Directorate will be happy to provide further information.

### The R. Geigy Foundation

This foundation was established by the first director of the STI, Prof. Rudolf Geigy. The aim of the foundation is to support priority activities of the STI in the field of research and training and to provide specific core support when required. One of the primary aims of the original foundation was to support young scientists doing field work and to help scientists to publish their results. Grants are also made for the acquisition of special pieces of equipment and can include core support, such as investments in parts of STI buildings that belong to the foundation. Support from the R. Geigy Foundation (RGS) for research is indicated under "Funding" in the individual sections of the Report.

Every second year, the foundation awards a prize for excellence in research and/or research-cum-action to a scientist or a public health practitioner. The 4<sup>th</sup> R. Geigy Award went to Dr Clara Menendez from Spain to honour her excellent contributions to mother and child health in Africa. Dr Menendez works at the Centre de Recerca en Salut Internacional de Barcelona (CRESIB, Barcelona Centre for International Health Research) and the Manhica Research Centre in Mozambique. She has collaborated with the STI and the Ifakara Health Institute since 1992. She perfectly matches the profile of the award and, particularly, Prof. Geigy's vision of research partnership, training and capacity building.



R. Geigy Award Celebration. (Photos R. Dürr)

### Laudatio for Dr Clara Menendez

It is our great pleasure to award the 4<sup>th</sup> R. Geigy Award to Dr Clara Menendez.

Who

- During decades dedicated her professional life as medical doctor and scientist to the health of mothers and children in Africa.
- Not only followed with great competence the situation of mothers and children at the individual clinical level, but tried to understand the problems seen in daily practice with a public health perspective.
- Besides her work as physician explored as scientist novel strategies for malaria and anaemia control through large-scale clinical trials that led to new and established strategies that alleviate the burden of malaria among mothers and children in Africa.
- Pursued her work within a spirit of partnership with colleagues in Africa, mainly Mozambique and Tanzania. Her warm personality brought her the deep recognition of the populations concerned and of the policy and decision makers.
- Significantly contributed through her comprehensive work and training to health development in Africa and worldwide.