

# Technologies for Development

Silvia Hostettler · Eileen Hazboun  
Jean-Claude Bolay  
Editors

# Technologies for Development

What is Essential?



United Nations  
Educational, Scientific and  
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UNESCO Chair in  
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 Springer

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# Preface

Since the dawn of the industrial age, innovative technologies have been viewed as instrumental in enhancing productivity, generating economic growth, and transforming living conditions for billions of people. These technologies are a priority for North–South development cooperation, empowerment, and poverty reduction.

At the Ecole Polytechnique Fédérale de Lausanne (EPFL), we believe that technological innovation can be a pathway to sustainable development. Indeed, innovative and well-adapted technologies are very powerful tools that can render development effective on a large scale for disadvantaged people.

EPFL has been active in development cooperation for decades. This embodies the institution’s open approach to the world: An outlook where humanist values and a scientific spirit are combined to produce research that is guided by a sense of responsibility toward the major problems faced by people in the Global South. It reflects the long-established ties between Switzerland and other countries, which are expressed in various, complementary ways: admission of students from the South, partnerships with universities and research centers in Africa, Asia, and Latin America, and numerous internationally recognized scientific and technical products. Development cooperation also complements Swiss government policies and relevant national legislation.

In 2007, UNESCO bestowed the Chair in Technologies for Development on the Cooperation & Development Center (CODEV), thus increasing the coherence and visibility of EPFL’s development cooperation activities and reinforcing its existing research, education, and capacity building activities.

Through the UNESCO Chair, EPFL seeks to further utilize its know-how and international renown to establish partnerships with developing and emerging countries as: It is at the cutting edge in many scientific domains and can therefore function as a relay to developing countries; its acknowledged expertise brings it into contact with many projects funded by development cooperation organizations; and it has close links with national and international scientific networks and can thus express its viewpoint on various development issues.

The strength of the UNESCO Chair lies in its dual capacity to orient EPFL laboratories toward specific development objectives and to conduct research and

educational programs focused on international development. The biennial UNESCO Conferences on Technologies for Development, in particular, are rapidly turning into flagship events for CODEV, drawing an ever-increasing audience.

These conferences are highly successful in promoting research in technologies and innovation for developing countries. They create a platform for spirited discussion and scientific exchange, as well as increased awareness of state-of-the-art technologies and their potential in the Global South. North–South research partnerships are promoted, and diverse stakeholders and actors are encouraged to engage in cooperation projects by these events.

This volume brings together the best papers of the 2014 EPFL-UNESCO Conference on Technologies for Development (2014 Tech4Dev) and illustrates the key issues at the interface of technology, human, social, and economic growth. Case studies from Africa, Asia, and Latin America explore the development potential of technologies and discuss successful processes to develop and deploy them, as well as how to evaluate their impact.

EPFL envisions the future as a globalized society, where our responsibilities, as scientists and more broadly as academic institutions, are producing knowledge, innovative technologies, and high-level graduates that are aware, can adapt to global challenges, and are equipped to collaborate with our colleagues from the four corners of the world, especially where serious problems of survival, development, and progress remain to be solved.

Jean-Claude Bolay

# Acknowledgments

The editors owe a debt of gratitude to many individuals and organizations who generously contributed their time, insight, and support. First, we would like to thank the members of the Scientific Committee and our Session Leaders who guided the conference preparation. They not only made the 2014 EPFL-UNESCO Conference on Technologies for Development (2014 Tech4Dev) a great success, but also laid the foundation for this publication.

We would also like to express our thanks to Prof. Philippe Gillet, Vice-President for Academic Affairs at the Ecole Polytechnique Fédérale de Lausanne (EPFL), for his presence at the Conference and unfailing support to the Cooperation & Development Center (CODEV).

By willingly sharing their considerable expertise and different outlooks, the speakers at the UNESCO Conference brought much food for thought to the table and substantially contributed to its success. Our heartfelt thanks go to Dr. Shashi Buluswar (LIGTT: Institute for Globally Transformative Technologies), Prof. Karen Scrivener (EPFL), Mr. Anil Sethi (Swiss Extension GmbH), Dr. Jean-Bernard Münch (Swiss Commission for UNESCO), Dr. Jean-Yves Pidoux (City of Lausanne), Dr. Christian Zurbrügg (Eawag: Swiss Federal Institute of Aquatic Science and Technology), and Dr. Jon-Andri Lys (KFPE) for their highly appreciated involvement and support.

Likewise, this project could not have succeeded without the quality and diversity of the contributions of the various authors and researchers. In response to the call for papers, the Scientific Committee evaluated over 140 papers and ultimately selected 125 to be presented at the Conference. Of these, 15 were finally chosen based on the following criteria: (1) Innovative concept and research questions versus an extension of existing work; (2) Originality of the methodology including North–South, South–South partnership; (3) Contribution to the discipline as whole and; (4) Clarity and understandability. We express our appreciation to all these authors, without whom this publication would not have been possible.

In addition, we would like to very warmly thank Mr. Emmanuel Estoppey and Ms. Jeanne Corthay from the Lavaux UNESCO World Heritage Site who went out of their way to welcome us for the social event. All of the Conference participants

greatly appreciated the opportunity to spend some time outside the conference halls and to experience the splendor of the Lavaux Vineyards.

Our sincere thanks also go to the team from Ingénieurs du Monde (IDM) and our colleagues at CODEV who contributed extensively to the organization of this conference.

Finally, we are very grateful for the generous patronage of the Swiss Agency for Development and Cooperation (SDC), the Canton de Vaud, the City of Lausanne, the Swiss National Science Foundation (SNSF), Cleantech Alps and the KFPE—Commission for Research Partnership with Developing Countries, the conference sponsors. Their support and their partnership is critical to the achievement of our common mission which is to identify innovative solutions that are able to reduce poverty and lead the way toward more sustainable development at a global level.

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