



UPPSALA  
UNIVERSITET

# INTERNATIONAL SCIENCE PROGRAMME ISP

## Addressing local challenges ISP and the Sustainable Development Goals

ISP's overall goal is to contribute to the strengthening of scientific research and postgraduate education within the basic sciences, and to promote their use to address development challenges. Our supported research groups and networks are, with their research and competence, contributing in several ways to the achievement of the United Nations [Sustainable Development Goals \(SDGs\)](#). Here are some examples.

2  
ZERO  
HUNGER



### Zero hunger

**Chemistry Bangladesh.** A research group at University of Dhaka has contributed to the “Bangladesh Food Act 2013”. The act is now a food safety law ensuring people’s right to access safe food. The group was also part in the creation of the “Formalin Control Act 2015”, a licensing system for the import and use of the solvent Formalin, used to preserve fresh food in Bangladesh.

**Chemistry Burkina Faso.** A chemistry network laboratory at University of Ouagadougou has been chosen by the Government of Burkina Faso as a Center of Reference and Control for nutritional issues. The overall goal of the network is to improve the nutritional status of the Sub-Saharan African population, with special emphasis on vulnerable groups.

3  
GOOD HEALTH  
AND WELL-BEING



### Good health and well-being

**Physics Bangladesh.** A research group in biomedical physics at University of Dhaka has developed and implemented instrumentation and software for a telemedicine-based rural healthcare system, using modern communication technology to provide remote access to clinical health care and medical services. A low-cost computerized pedograph for diabetic patients has also been developed, in 2011 listed by the World Health Organization as a new and emerging health technology.

**Chemistry Zimbabwe.** A research group at the African Institute of Biomedical Science and Technology in Zimbabwe has discovered a genetic variant common in African people, explaining why Africans show more side effects to some pharmaceutical drugs. The group has developed a test helping to adapt the medicine dosage to the genetic variant of the patients, reducing such side effects.

**Mathematics Uganda.** The results of infectious-disease modeling of malaria, HIV, hepatitis E, and sleeping sickness carried out by a research group supported at Makerere University, have been utilized by the Ugandan Medical Research Council to advice on the best investment strategy to fight infectious diseases.



### Quality education

Members of supported research groups and networks are contributing to increasing the quality of research and higher education at their departments. In addition, they continuously organize and participate in science workshops, training courses and science camps for both high school teachers and students aiming to increase the quality of teaching and education in the fields of chemistry, mathematics and physics.



### Gender equality

To address underrepresentation of women in supported groups and networks, in science education and research in general, ISP announces special annual grants for activities targeting and addressing gender equality.



### Clean Water and sanitation

**Physics Bangladesh.** A biomedical physics research group at University of Dhaka contributed to the development and distribution of new methods for solar water pasteurization and rainwater collection, providing safe drinking water to people in the urban slums.

**Chemistry Burkina Faso.** Members of a network coordinated from University of Ouagadougou developed an electrocoagulation-based approach using iron, to efficiently treat wastewater of the city, in partnership with the Burkina Faso National Office for Water and Sanitation.



### Affordable and clean energy

**Physics East Africa.** A research group in Kenya regularly organizes a Solar Academy for training in solar power system design, installation and maintenance. A physics network organizes similar workshops that bring together solar cell technicians from a number of East African countries for professional training.

**Physics Zambia.** A research group at University of Zambia is engaged in the electrification of rural areas, using solar panels.



### Sustainable cities and communities

**Physics Ethiopia.** A research group supported at Addis Ababa University has produced a seismic hazard map, which will be of use to the Ethiopian Ministry of Urban Development and Construction in the creation of the new country building code.

**Mathematics Senegal.** A network working in hydrological modeling is developing mathematical models of agricultural irrigation systems, controlling the flow and level of rain- and groundwater through a network of channels. The models will help farmers in West African countries, which are dependent on irrigation systems to grow crops during both rainy and dry seasons.