

The programme for a West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) is the fruit of a partnership between the ECOWAS Commission and the German government since 2012. Funded by the German Federal Ministry for Education and Research, WASCAL is co-ordinated by the Centre for Development Research at Bonn University and headquartered in Accra (Ghana).

WASCAL aims to become a leading provider of climate services to West Africa, by strengthening research infrastructure and research capacity in multidisciplinary fields. There are three main thrusts: a Climate Research Programme, a Graduate Studies Programme and the establishment of observation networks.

The Climate Research Programme focuses on sustainable agriculture and climate-smart landscapes, vulnerability to climate extremes, the land-use, land-cover and land-degradation nexus and rural–urban and cross-border migration.

The Graduate Studies Programme has established MSc and PhD programmes in climate science at selected universities in the ten participating West African countries: Benin, Cabo Verde, Côte d'Ivoire, The Gambia, Ghana, Mali, Niger, Nigeria, Senegal and Togo (Figure 18.2). Several of these universities host centres of excellence (Table 18.1).

The programme pools expertise, with staff exchanges between the West African institutions and their affiliates in Germany. By 2017, it had produced

258 graduates at PhD and master's levels, according to the 2018 *Annual Report*.

The observation networks are being established by WASCAL's Competence Centre in Ouagadougou (Burkina Faso), which is also developing a range of data products and services: high-resolution climate simulations over West Africa; land-surface and land-use data, as well as other products derived from remote sensing; and climate data and scenarios derived from climate modelling. One challenge with existing climate models is how to downscale them to local levels for greater accuracy.

The observation networks are multidisciplinary. For instance, the Climate Service Unit at the Competence Centre has been charged with setting up an observation network in participating countries to amass quality information on weather and the hydrological cycle, as well as changes in land use and biodiversity and human coping strategies.

The Competence Centre also provides vital infrastructure. It is equipped to receive satellite data from the remote sensing observation network, for example. Among its less sophisticated research equipment are sensors used by the 50 automatic weather stations in the region, or the soil moisture probes that have been providing continuous measurements since 2012. The collected data are shared with the national weather services of participating countries, upon request.

In 2017, WASCAL scientists and alumni launched an annual book series on regional climate change to inform policy-makers. The first volume focused on

flooding, with chapters on the physical science basis of climate hazards, community vulnerability and response strategies.

In April 2018, WASCAL launched a pilot project in Climate Change and Renewable Energy in Accra (Ghana) and Lomé (Togo). Feasibility studies were conducted, in collaboration with Ghana's Council for Scientific and Industrial Research and the University of Lomé to evaluate the potential of solar energy, biomass, hydropower and hybrids in these two countries.

The pilot project also analysed the institutional framework in Togo and Ghana, as well as the impact of climate change on the resource base and the best options for effective greening of the economy in rural areas. The findings have provided policy-makers with evidence-based information for the ongoing development of sustainable renewable energy programmes in these countries.

It is hoped to extend this pilot project to other WASCAL countries – and to convince the remaining five members of ECOWAS to participate in the broader WASCAL programme.

WASCAL has a sister centre based in South Africa, the Southern African Scientific Service Centre for Climate Change and Adaptive Land Management (SASSCAL). Also launched in 2012 and supported by Germany, it involves Angola, Botswana, Namibia, South Africa and Zambia.

Source: adapted from wascal.org

Figure 18.2: **The Graduate Studies Programme of the West African Science Service Centre on Climate Change and Adapted Land Use**

