Funded by the European Union

Weed identification and knowledge in the Western Indian Ocean (WIKWIO)

Consortium

Implementing partners:

- Centre de coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), *France (Project Coordinator)*
- Institut Français de Pondichéry (IFP)/French Institute of Pondicherry, *India*
- Mauritius Sugarcane Industry Research Institute (MCIA/MSIRI), *Mauritius*
- Centre National pour le Développement Rural (FOFIFA), *Madagascar*
- Centre National de Documentation et de Recherche Scientifique (CNDRS), *Comoros*

Associated partners:

- Association for strengthening Agricultural Research in Eastern and Central Africa (ASARECA), *Uganda*
- Centre for Coordination of Agricultural Research & Development in Southern Africa (CCARDESA), *Botswana*

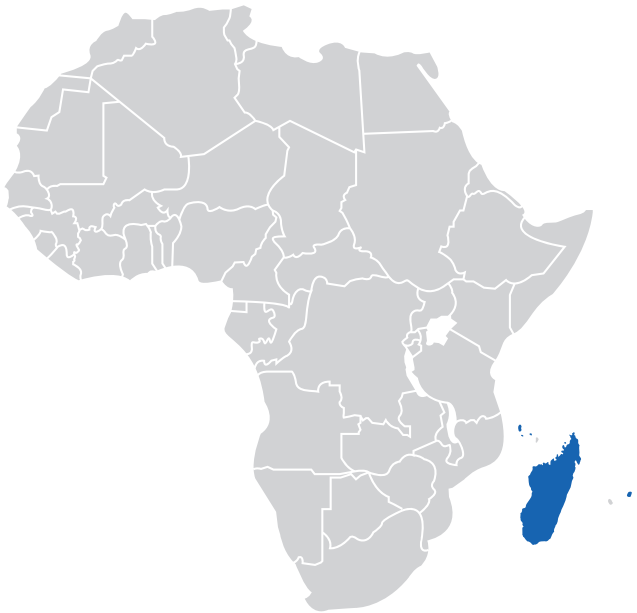
Budget

Total budget: €999,671.76
EU contribution: €849,671.76

Duration

November 2013 – February 2017

Countries of intervention



- Comoros
- Madagascar
- Mauritius
- La Réunion
- Mayotte

Development challenge

Agriculture is the mainstay for livelihoods of the population in the island states of the Indian Ocean and South Eastern Africa region, with weeds been one of the most significant obstacles. Weeds are responsible for 20-80% of crop loss due to inefficient control of weeds. Weed management take up nearly half of a farmer's time to handle.

The Weed identification and management are key for farmers if they want to increase production, extension staff who must be able to assist farmers in resolving weed management problems, students and lecturers learning and teaching weed science, and researchers – of which there are far too few in tropical areas – who can study the full spectrum of weed issues are all concerned by this problem (identification, ecology, biology, control).

Project approach

WIKWIO came in to strengthen science and technology orientation in the Southern African region in order to achieve food security by increasing agricultural output. Many factors impede agricultural output, one of which is the presence of weeds.

WIKWIO created and utilised a Science & Technology network that consolidated current scientific knowledge and allowed the dissemination of new scientific research on weeds in the region's food and cash crops, as well as effective management strategies.

WIKWIO used appropriate ICT solutions to create a multi-stakeholder community of researchers, extension services, civil society, and farmers centred on an ICT weed knowledge base. Through a participative, technology-enabled platform, the action aimed to strengthen researchers' capacities, strengthen the institutional capabilities of the National Agricultural Research System (NARS) and universities, empower extension services, and increase their quality of service.

Project results

Improved knowledge on weed identification and management through a Science & Technology network that consolidated current scientific knowledge and allowed the dissemination of new scientific research on weeds.

A WIKWIO web platform for collaborative research on tropical weed flora was developed which now has 12,156 users from 156 countries. A social network was formed, made up of:

780
tropical weed-interested actors:

- **Researchers**
- **Students**
- **Teachers**
- **Technicians**
- **Small Farmers**

Project Documents:

1
Scientific book chapter.

9
Research papers published from 2014 to 2018.

Project results (2)

Improved individual and institutional capacity on weed management of direct and final beneficiaries with:

71 Training sessions held for local stakeholders in

- **8** countries:
  - Côte d'Ivoire
  - France
  - India
  - Malawi
  - Mozambique
  - Senegal
  - South Africa
  - Zambia

10 Technician jobs created.

13 Students supervised.

8 Ministers or representatives attended technical workshops.

4 Training sessions were held as part of regional workshops in:

- Comoros
- Madagascar
- Mauritius

862 Students, farmers, advisory staff, extension staff, researchers and public servants trained in:

- ♂ 586
- ♀ 276

12 countries on:

- the use of the portal
- associate mobile tools

Knowledge on 420 tropical weed species was compiled, and approximately 10,000 field observations were made to create a database which would help and support the region. Information was disseminated through:

8 Guidelines for weed management (English, French) on:

- Annual and perennial grasses
- Sedges and broadleaf plants
- Parasitic plants
- Aquatic plants of lowland rice fields

22 PowerPoint files on the creation and use of:

- The portal
- The mobile apps
- The IDAO identification system

1 WIKWIO collaborative website, with participatory portal (English, French).

1 IDAO app for PC offline with 500 USB Keys and downloadable.

1 WIKWIO portal user guide (English, French).

1 WIKWIO Citizen Science (CS) mobile app for Android and iOS (available on Google Play and Apple Store).

1 Database for 420 species pages (English, French).

1 WIKWIO IDAO mobile app for Android and iOS (available on Google Play and Apple Store).

1 Matrix of species characters for IDAO identification system (420 species/253 characters).

2 Technical guidelines: taking photos, preparing herbarium specimen (English, French).

Impact

The WIKWIO project have and continues generating impact on the direct target groups and final beneficiaries, through the capacity built in students, researchers and local farmers on weed management and weed identification, strengthened by the initial WIKWIO portal, a collaborative Platform providing access or contribution to species information spreadsheets. WIKWIO project with its portal has built a strong science and technology network, consolidating existing scientific knowledge and facilitating knowledge sharing on new scientific information on weeds of food and cash crops of the region, together with effective management practices.

Sustained Impact

The WIKWIO project's sustain impact is reflected on the role it played on knowledge and technology transfer and promotion of the weed science.

The adoption of WIKTROP as tool for the university courses on weed science and used by the researchers and scientists in the region.

For pastures in New Caledonia, CIRAD has begun to include data and new weed species. West and Central Africa, French Guyana, the West Indies, South East Asia, and the Pacific Ocean are all expected to grow further.

The IDAO app for PC, WIKWIO Citizen Science (CS) mobile app and WIKWIO IDAO mobile app which are daily used be the small farmers and extension staff on the field.

Migration and consolidation from the WIKWIO portal into the WIKTROP portal on weed identification and knowledge in the Western Indian Ocean (https://portal.wiktrop.org/).

Key lessons learned and best practices