



Centre d'Actions pour l'Environnement et le Développement Durable

ANNUAL REPORT 2014



Collaborating with smallholder farmers

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Cover

A woman in her farm which is fertilized with compost made from water hyacinth

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2014 Highlights

- ACED has launched the implementation of its **2014 – 2018 Strategic Plan**.
- ACED was an official partner in the **Do Agric campaign** piloted by ONE.
- The PROJEC project supported by FGEF and IUCN helped to eliminate **1,398 tons of water hyacinth** on Lake Nokoué.
- **144 farmers** were trained on compost production techniques from water hyacinth to improve agricultural yields.
- **Three studies on the vulnerability of communities** to climate variability and change were carried out.
- The findings of our research on agriculture and climate change were presented in **Niamey** at the Fourth Agricultural Science Week of West and Central Africa of CORAF/WECARD, in **Montreal** at the 82nd Congress of ACFAS, and **Accra** at the Annual Global Development Conference of GDN.
- ACED has received the visit of the **Secretary General of the French Global Environment Facility (FGEF)** and **the Ambassador of France in Benin**.
- With the support of Gevalor, **a review of literature on emissions of greenhouse gases by water hyacinth** has been done. This review is the first step in the establishment of a methodology for estimating greenhouse gas emissions from water hyacinth.
- A project on the **production of biogas** from organic waste and water hyacinth has been launched.
- A project on strengthening the **resilience of fishing communities** to environmental, climatic and human pressure in the coastal area of Benin has been launched.

Find more information on these highlights in this report and on our website at – www.aced-benin.org

Message from the Executive Director



“ ACED continues to support smallholder farmers to make their livelihoods more resilient and sustainable ”

2014 is the first year of the implementation of our 5-year strategic plan which is now fully operational and is guiding the work of the center. This year was particularly important for us as family farmers, who are the target of our activities, were celebrated by the international community. In this context, ACED has strengthened its collaboration at a local scale with these stakeholders who make up the backbone of agriculture in Benin. As part of this celebration of small scale farmers, we took part in a number of regional and international initiatives such as the "Do Agric" campaign piloted by ONE in which ACED was an official partner.

In the course of the year 2014, we continued to work on the reduction of the proliferation of water hyacinth on Lake Nokoué, making our center a key player in the fight against this problem which has both environmental and socio-economic implications. Another element that marked 2014 was the strengthening of ACED's research activities. Three studies on the vulnerability of communities to climate change have been carried out. The findings will guide future interventions of ACED with these communities.

We also strengthened our collaboration with research centres such as the Laboratory of Hydrobiology and Aquaculture of the University of Abomey-Calavi, the Institut des Sciences de l'Environnement of the University of Quebec in Montreal, the Center for World Food Studies at the Vrije University of Amsterdam, and others. In 2015, ACED will develop activities that are aligned with the implementation of its strategic plan. New projects will be launched in various fields such as water hyacinth, biogas, carbon credit, young people, ICT, fisheries, climate change, etc.

Fréjus Thoto
Executive Director

Our activities in 2014

Strengthening the capacities of grassroots stakeholders

Since 2013, ACED has been implementing a project of valuing water hyacinth of Lake Nokoué through composting (PROJEC).

This is an initiative that aims to contribute to the reduction of greenhouse gas emissions and the protection of fish biodiversity in Lake Nokoué. Over the course of the year, 144 market gardeners, divided into 6 groups, were trained on the composting process of water hyacinth and provided with equipment.

Also, given the potential of this plant for basketry, 50 women in the project intervention site (Sô-ava) were trained in making handicrafts objects from water hyacinth and provided with materials for their work. After these capacity building sessions, targeted technical support was provided to ensure the proper implementation of composting and basketry activities. Furthermore, recommendations and support were given for the maintenance of equipment and associations management.

The innovative nature of the project garnered strong admiration from technical and financial partners. Therefore the project received several visits, including those of Xavier DUPORGE, Secretary General of the French Global Environment Facility (FGEF), HE Aline KUSTER-MENAGER, Ambassador of France in Benin, Silvia RITOSSA, Project Manager at IUCN, Romain DISSAUX from the French Ministry of ecology, sustainable development and energy, and Jocelyne DELARUE, Director of GEVALOR.

“ *The project ambition to establish a link between the preservation of the global environment and the development of income-generating activities for communities is well aligned with the FGEF* ”

Xavier DUPORGE, Secretary General of the French Global Environment Facility (FGEF)



Handicrafts objects made and marketed by women groups



Valuing economically water hyacinth



Compost made from water hyacinth

Strengthening the capacities of farmers allowed the composting of 1,398 tons of water hyacinth. The resulting compost was used by groups of farmers on their market garden perimeters. To sustain the production of compost and basketry products, it was important to support the marketing of these two products to make them profitable. Therefore, two business plans were developed for the marketing of compost and basketry products obtained from water hyacinth. For example, on the basis of estimated production costs, a 50 kg compost bag can be sold at 1,500 FCFA in Sô-ava and 1,800 F CFA francs in Cotonou (the economic capital) which allows a profit of 63 FCFA per bag. Regarding basketry products, prices vary from one product to another. Hats and baskets are sold at 3,000 FCFA per unit and ornamental objects (bottles wrapped with braided hyacinths for example) are 2,000 FCFA per unit. The cost/benefit ratio showed that 100 FCFA invested in labour allows women to get a profit of 85.31 FCFA.

“ *We have observed an increase in yields of vegetables when we used the hyacinth-based compost* ”

Hounglé, Farmer of Sô-ava

Assessment of greenhouse gas emissions by water hyacinth



One of the PROJEC objectives is to contribute to the reduction of emissions of greenhouse gases (GHGs). To this end, in partnership with Gevalor, the project undertook a review of literature on GHG emissions from hyacinths in their natural environment and during composting. This literature review aimed first to quantify the baseline, i.e. the emissions of greenhouse gases produced by a certain amount of hyacinths that decomposes in the natural environment. As a first approximation, it was assumed that water hyacinth emits the same amount of GHG (methane and nitrous oxide) as household waste during composting. Indeed, the method of calculation recognized by UNFCCC for composting emissions is only proportional to the amount of waste and is not dependent on their quality: it is considered that during composting waste emits 0.002 tCH₄/t of waste and 0.0002 tN₂O/t of waste. Thus, for a ton of composted hyacinth, composting related emissions would be 0.11 tCO₂eq/t of water hyacinth.



Collecting water hyacinth from Lake Nokoué

Increasing knowledge on the vulnerability of communities to climate change

Vulnerability of livestock based communities of Mid-Benin to climate variability and change

Livestock significantly contributes to Gross Domestic Product of West African countries. In Benin, it is a source of income for thousands of households who face the negative effects of climate variability and change. This study assessed the vulnerability of livestock-based communities

of Mid-Benin to climate variability and change. A composite index and qualitative methods were used to quantify the vulnerability and explain how it was influenced by the exposure, sensitivity and adaptive capacity. The findings revealed that the most vulnerable were not necessarily the most sensitive or exposed. Also, socioeconomic features influenced the level of vulnerability within households.

Herd receiving care, Central-Benin ⇒



Biophysical vulnerability of Benin coastal zone to climate variability and change: the case of Grand-Popo and Ouidah

A student of the Department of Geography at the University of Abomey-Calavi (Audrey Agonvi) was selected to receive a grant as part of the research activities of her master's degree. Her research aimed to study climate changes (rain, temperature,

wind) in the Grand-Popo and Ouidah sector, map the flood risk and characterize the sea level rise and coastal erosion in the Grand-Popo and Ouidah sector. This study was mainly biophysical and outcomes will be published in early 2015. The study was part of research activities of the Benin coastal areas adaptation to climate variability and change project (PACC) funded by the Canadian International Development Research Centre.

Coastal erosion at Ouidah, Southern-Benin ⇒



Vulnerability of the Southwest Benin fishing communities to climate variability and change



← Inland fishing in southern-Benin

Fishing remains the principal activity in coastal areas of Benin and is directly experiencing the negative effects of changes in climate parameters. This study, focused on fishing communities of Grand Popo and Ouidah in southwestern Benin, adopted an integrated approach that took into account both biophysical and socio-economic factors that determine the vulnerability within a community or a household. Indicators were used to develop a composite index of vulnerability. The findings of the study showed that for fishing, Grand-Popo was more vulnerable to climate variability and change

than Ouidah from the point of view of its level of exposure, sensitivity and its ability to adapt. Within a community, a low adaptive capacity did not directly reflect high vulnerability. However, fishing households who experienced high exposure and more climatic shocks were likely to experience a higher vulnerability. This was illustrated in the municipality of Grand-Popo.

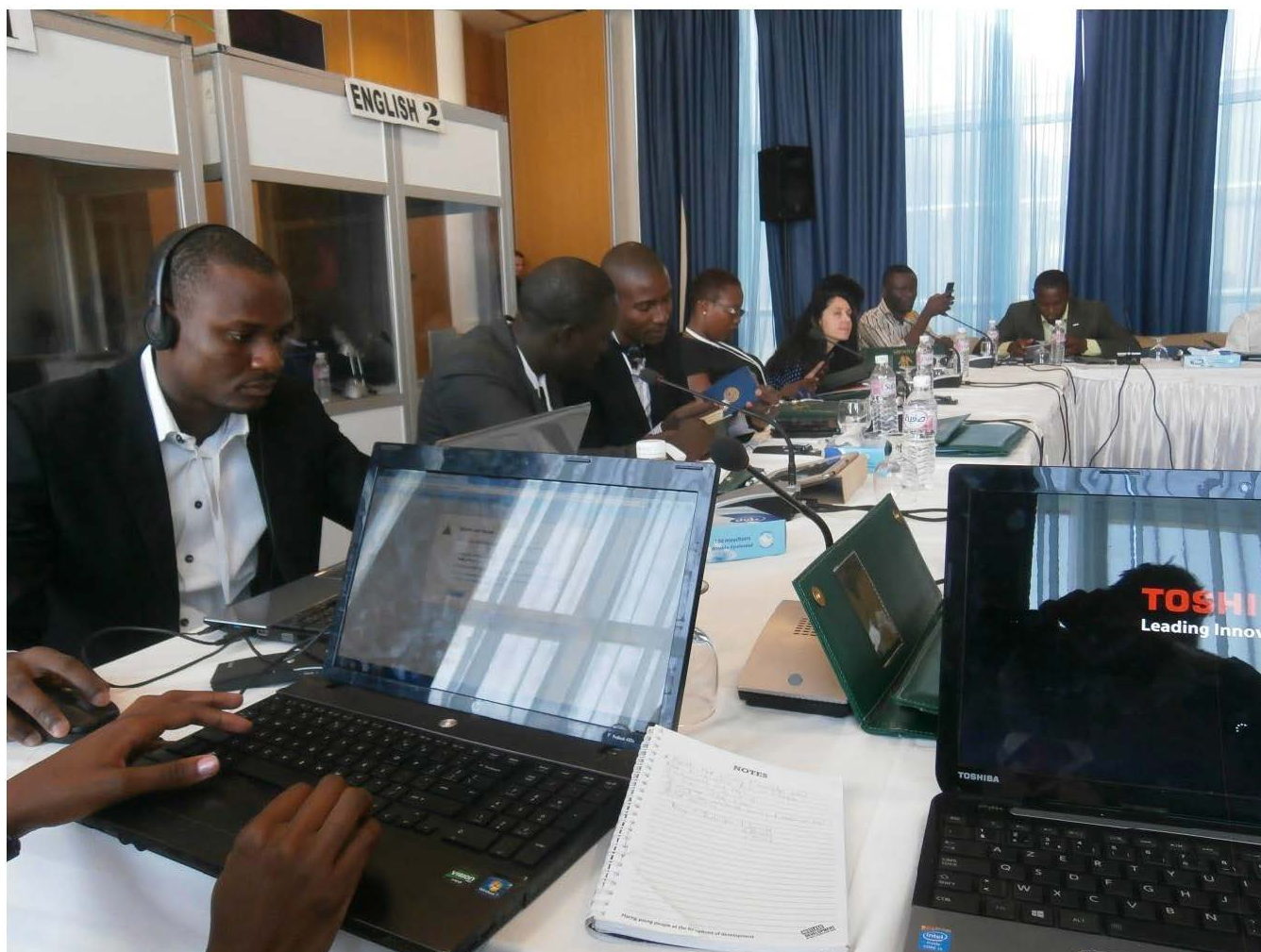
Within a community, a low adaptive capacity did not directly reflect high vulnerability.

More information and opportunities for young professionals in agriculture

Young people are important target of ACED interventions. The AgroDev initiative launched in 2013 to facilitate the access of young people of Benin and other francophone countries of Africa to information and agricultural opportunities continued its activities which are mainly online. It enabled the sharing and exchange of information, opportunities and resources for youth primarily in the field of agriculture and environment. In 2014, over 30 articles were published and the blog was visited 6,800 times.

“ Thank you for the opportunities you share with us. Keep Up! You are doing a great job ”

Olivier Adissin, Student in Agricultural Sciences.



Workshop of another youth platform (Y4R) coordinated by ACED in the WAEMU region

Publications and communications



- ACED. (2014). *Composting water hyacinth: Methodology and results*. Technical Guide PROJEC, Abomey-Calavi: Benin.
- ACED, GEVALOR. (2014). Valorisation de la jacinthe d'eau en fertilisant pour le maraîchage. In Fondation de France, CFSI, GI, Inter-réseaux développement rural (dir.) *Les agricultures familiales innovent. 25 fiches innovations: marchés urbains, financement, gestion des ressources naturelles*. Paris, 11 – 13.
- Houessou D., Thoto F., Aoudji A., & Adegbidi A. (2014). "Vulnerability of livestock based communities to climate variability and change: insights from Mid-Benin". Fourth Agricultural Scientific Week of West and Central Africa, CORAF / WECARD, Niamey, 16 to 20 June 2014.
- Weissenberger S., Chouinard O., Thoto F., Kane A., Diouf M. & Lacoste E. "The role of experience exchange and information and communication technology in climate adaptation." 82nd ACFAS, Concordia University, Montreal, May 12-16, 2014.
- Thoto F., Aoudji A. & Adegbidi A. «Vulnérabilité des communautés de pêcheurs du sud-ouest du Bénin à la variabilité et aux changements climatiques». 82e congrès de l'ACFAS, Université Concordia, Montréal, 12-16 mai 2014.

Conferences and Workshops

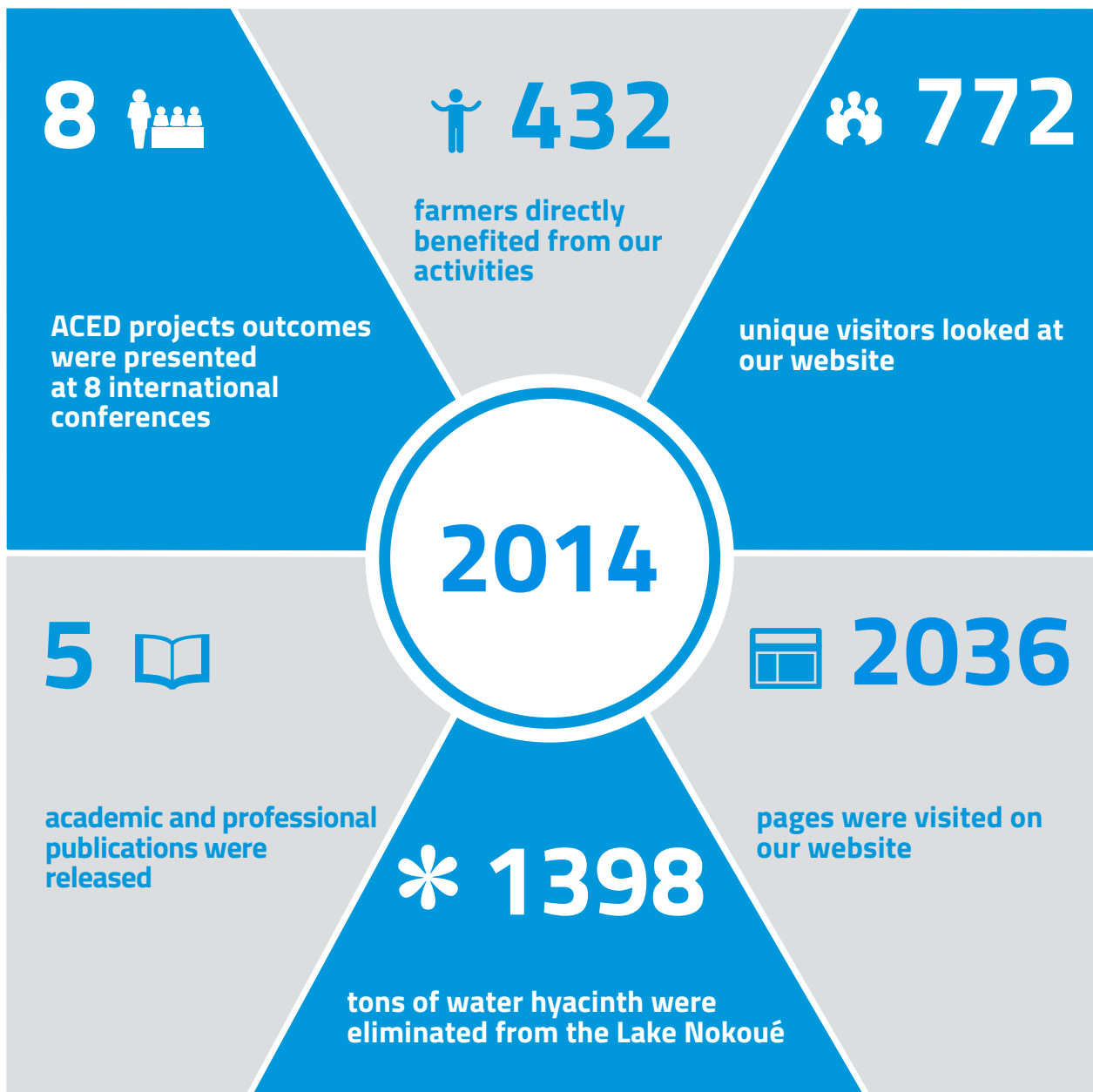
ACED participated in several conferences and workshops at national and international levels to contribute to policy discussions related to food security and poverty reduction



Participants of the 4th CORAF/WECARD Agricultural Science Week

- January 28-29, 2014, Addis Ababa. Inaugural conference for the African Union Year of Agriculture and Food Security and the campaign Do Agric "Words to Action: to transform agriculture and food self-sufficiency in Africa" organized by ONE.
- April 2-4, 2014, Tunis. Youth Training and knowledge workshop for the results of the Africa Results Initiative - AfriK4R, organized by the African Community of Practice on Management of Development Results (AfCoP-MfDR).
- April 28-30, 2014, Cotonou. Workshop to launch the National Community of Practice (CoP-Benin), organized by the Africa for Results Initiative (AfriK4R) sponsored by the African Development Bank (AfDB) and the African Capacity Building Foundation (ACBF).
- May 12-16, 2014, Montreal. 82nd Congress of the French association for learning (ACFAS).
- June 18-20, 2014, Accra. 15th edition of the annual conference on global development organized by the Global Development Network (GDN) on the theme: "Structural Transformation in Africa and beyond"
- June 16-18, 2014, Niamey. 4th Agricultural Science Week of West and Central Africa organized by the West and Central African Council for Agricultural Research and Development (CORAF / WECARD). Theme: Innovations in agro-silvo-pastoral systems to feed West and Central Africa.
- July 14-18, 2014, Nairobi. International Conference organized by the Technical Centre for Agricultural and Rural Cooperation (CTA) and the African Association for Rural and Agricultural Credit Association (AFRACA). "Revolutionizing the financing of agricultural value chains: Fin4Ag".
- October 20-22, 2014, Nairobi. Workshop on Climate Smart Agriculture and youth engagement for food security and agricultural transformation in Africa, organized by the Forum for Agricultural Research in Africa (FARA) and the International Center for Research on Agroforestry (ICRAF).
- October 31 to November 1, 2014, Addis Ababa. International Day of African Youth, Edition 2014 organized by the African Union.
- November 3-7, 2014, Wageningen. Workshop on the Introduction course on knowledge management for agricultural and rural development organized by CTA.

Key figures



2015 perspectives



Implementation of Year 2 of the Strategic Plan

We are entering the second year of the implementation of our 2014 – 2018 Strategic Plan. ACED will continue to focus on defined themes and priorities. Our actions will essentially be focused on smallholder farmers while acting on external factors that influence the efficiency of their production systems. During the second year, we will also strengthen our partnerships. We will focus on long-term partnerships that contribute more to achievement of our strategic objectives than projects specific objectives.

Improving the resilience of fishermen of southern Benin

ACED will continue to support fishing communities in the coastal zone of Benin. By leveraging our experience and research results, new partnerships will be established to further strengthen the resilience of fishing communities in the coastal area of Benin to environmental, climatic and human pressures. The focus will be on continental waters because they are used by a larger number of communities compared to marine waters. In this framework, ACED will host a regional conference on the theme.

Access to carbon credits

The assessment of greenhouse gas emissions by water hyacinth will help to develop the methodology for calculating emissions reductions. With the support of Gevalor, contacts will be made with various voluntary standards (Gold Standard, VCS) to determine with them the conditions for the adoption of this new methodology. The ambition is that the project activities can be sustained with generated revenues even without other external funding in the future.

Access to water hyacinth based energy

The proliferation of water hyacinth (*Eichhornia crassipes*) on Lake Nokoué is a major problem encountered by the communities of this region. Indeed, it makes transportation difficult and blocks socio-economic activities, which affect the local economy. At the same time, rural households, mostly poor, have to collect firewood in the mangrove of Lake Nokoué to meet their energy needs for cooking. This fact increases the risk of continued natural resources degradation

and endangers the stability of these coastal zones. However, water hyacinth has great potential for biogas generation and thus constitutes a potential source of energy for cooking. ACED will explore this opportunity to enable local people to diversify energy sources and reduce pressure on the mangrove.

Young professionals capacity building in agriculture

AgroDev will develop a new activity in 2015 that aims at strengthening the capacities of young professionals on specific topics. This activity is initiated in order to meet the capacity building needs of young professionals. Indeed, the platform has been repeatedly solicited by members for various topics such as agricultural entrepreneurship, employability of young people, climate smart agriculture, management of agricultural and rural development projects, etc. ACED has decided to develop, through the AgroDev platform, some training modules oriented on specific capabilities. Along with this new activity, AgroDev will continue to provide information, opportunities and resources relevant to young professionals in agricultural field.

Our staff in 2014

Board of Directors

- Abdel Kader Anjorin (Chairman)
- Aymard Allagbe (Secretary)
- Isbath Ali (Financial Officer)

Executive Direction

- Frejus Thoto (Executive Director)
- Penelope Amoussou (Administrative and Financial Officer)
- Donald Houessou (Programme Officer)
- Olga Abloutan (Programme Officer)
- Audrey Agonvi (Intern)
- Georgina Houinsou (Intern)

External experts

- Castro Gbedomon (Environment Expert)
- Fidèle Tossou (Financial auditor)

Our partners in 2014

African Capacity Building Foundation
African Development Bank
African Union
Canadian International Development Research Center
Centre Communal pour la Promotion Agricole, Sô-ava
Center for World Food Studies of the Vrije University of Amsterdam
Department of Geography of University of Abomey-Calavi
EREP-SA
Forum for Agricultural Research in Africa
French Development Agency – Bureau of Cotonou, Benin
French Global Environment Facility
Gevalor
Global Development Network
Institut des Sciences de l'Environnement of the University of Quebec in Montreal
International Union for Conservation of Nature – French Committee
Laboratory of Hydrobiology and aquaculture of University of Abomey-Calavi
ONE
Plateforme des Acteurs de la Société Civile au Bénin
Renewable Energy and Energy Efficiency Promotion in International Cooperation
Technical Centre for Agricultural and Rural Cooperation
Veolia Foundation
West and Central African Council for Agricultural Research for Development
Young Professionals for Agricultural Development

*We say our gratitude
to all institutions we
collaborated with in 2014.*



About ACED

The Centre d'Actions pour l'Environnement et le Développement Durable (ACED) is a not for profit organization focused on action-research which is working on food security and nutrition. ACED develops in 2013 a 5-year strategic plan (2014 – 2018) which orientates its actions.

Vision: ACED seeks to be a leading institution in empowering agricultural communities for increased food security and poverty reduction.

Mission: To improve food and nutritional security in Benin in a sustainable environment.

Our programmes

- Agriculture & Food Security: To support small-scale farmers for a more profitable agriculture.
- Climate change: To support vulnerable communities in coping with climate change.
- ICT for Agriculture: To promote the use of ICT for agricultural development.

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