IntensAfrica

Research partnership between Europe and Africa on sustainable agriculture intensification

Information note for European governments and research partners

1. Preamble

In September 2012, under a joint Cirad – Wageningen UR initiative, representatives of 13 European institutions[1] involved in agricultural research activities with African institutions met in Wageningen to discuss the need and opportunity for a more integrated European approach in their field. The interest in such a proposal was mentioned by Robert Jan-Smits (DG RTD) to the President of Cirad, Gérard Matheron, when they met in Brussels in April 2012. In his comment, RJ Smits mentioned as a successful example the European and Developing Countries Clinical Trials Partnership (EDCTP), an "Article 185" Initiative focussed on Africa.[2]

They identified the diverse and sometimes diverging agricultural intensification pathways as a key research area requiring renewed and coordinated actions. Though many European and African institutions are conducting joint research activities on the intensification of African agriculture, all these investments do not currently constitute together a coherent approach allowing for relevant comparison and providing documented evidence for producers and decision makers.

They also noted that the need to better inform choices between diverse intensification pathways is also relevant for their country and for Europe's future Common Agricultural Policy and is aligned with the priorities of the future research framework programme Horizon 2020.

They therefore agreed to jointly engage in the preparation of a new, strategic, long term and ambitious partnership between Europe and Africa in the thematic area identified, and asked Cirad, France, and Wageningen UR, Netherlands, to co-lead this initiative. As a base for discussion with their governments, with other potentially interested parties in Europe and with African authorities and research partners, they drafted a concept note.

This information note is aimed at European institutions potentially interested to join this initiative, whether they attended the September meeting in Wageningen or not. The objective is to seek their comments on the current development of the proposal and on the possible future steps.

[1] Catholic University of Leuven (BE), Centre de Coopération Internationale en Recherche Agronomique pour le Développement (FR), University of Copenhagen (DK), University of Hohenheim (DE), University of Bonn (DE), University of Greenwich (UK), Szent Istvan University (HU), Netherlands Organisation for Scientific Research (NL), Instituto de Investigaçao Cientifica Tropical (PT), Czech University (CZ), Swedish University(SE), Swiss Federal Institute of Technology (CH), Wageningen University and Research (NL).

[2] Currently, five « Article 185 » programmes exist.

2. Context

African agriculture and the development challenges

- The agriculture sector (in the broad sense, including forestry, animal production, aquaculture, etc) represents the dominant part of the economy in most African countries and provides the majority of employments and livelihoods. Agriculture has – and, according to most observers[3], will continue to have - a central role to play in the development process of this continent. At the same time, African agriculture and its associated value chains are expected to contribute to local food security, to provide work opportunities in rural areas, and to have a catalysis effect on the development of related economic sectors. As the African population will continue, in the midterm, to grow and urbanize at a fast rate, the African agriculture and related value chains will be required to grow and evolve quickly. African political leaders are aware of this challenge and have therefore set with the Maputo declaration and the CAADP process, very ambitious goals for the improvement of African agriculture productivity.[4].
- African farmers will have to engage in a process of rapid and significant increase in land and labour productivity. This intensification process is unavoidable even though, due to a very large diversity of situations, it could follow different pathways and occur at different speeds. Agricultural intensification had in fact started in many African countries during the 70ies and 80ies, but this evolution was largely stopped by the "structural adjustment" policies of the 1980ies and 1990ies, imposing in many developing countries a reduction or elimination of government support to extension services, credit and input support, and an opening of African markets to agricultural imports. In Sub Saharan Africa, this policy brought intensification process to a halt, with the quasi complete stop of input use by smallholders, the dismantlement of technical support systems, the non maintenance of agricultural infrastructures, the erosion of research capacities, and an increase in rural poverty and food insecurity.
- The era of public-sector led agro-industrialization in Africa has recently given way to an era of multistakeholder approaches, giving in particular greater recognition for the role of the private sector, as it can provide inputs, technology, extension services, market access to smallholder farmers and also invests in infrastructure. The B20-G20 process, in particular through its task force on Food Security[5], is emblematic of this change.
- African farmers have been remarkably able to provide growing quantities of food for urban areas and some are able to innovate. But, in many cases, this has been mostly the result of an extension in cultivated areas, and increased pressure on land resources without ensuring the sustainability of farming systems (inducing in particular erosion of soil fertility). Since Africa holds 60% of the world's uncultivated arable land[6], it remains a strategic continent for the world's agro-food industry.
- Since the 2007/2008, governments and development institutions have « rediscovered » the central role of agriculture in the development process and how, through its multiple externalities, agriculture is interconnected with energy, climate change, health, nutrition, urbanisation, territorial development, management of natural resources… As a consequence African agriculture is not only expected to produce more food and to generate more jobs, but it will have to do it while at the same time producing environmental and social services and biomass for non food use !

[3] See for instance the RuralStruc World Bank study (http://go.worldbank.org/3RRZVRZX90)
[4] See http://www.nepad-caadp.net
[5] See the recomendations of the B20, Los Cabos summit, in 2012. at: http://b20.org/documentos/B20-Complete-Report.pdf
[6] UNDP, 2012. The roles and opportunities for the private sector in Africa's agro-food industry.

A diversity of intensification approaches and pathways, in Africa and in Europe

- European and African Farmers, and with them political decision makers, are now facing the "sustainable intensification" challenge. Many approaches are explored like the use of selected cultivars, increase and more precise use of fertilizers, irrigation, the application of pesticides, and the substitution of labour by capital and fossil fuel. New exciting avenues are offered by agro-ecological approaches based on the understanding and mobilization of agro-ecological processes like the optimisation of the available water and nutrients and the control of pests with limited use of fertilizers, pesticides and energy.
- There is a growing consensus that the sustainability of agriculture needs to increase and that « business as usual is not an option ». However, there is still much debate about what should be done instead. This is true in Africa and in Europe, even though contexts are different. In Africa, most producers are in a situation of poverty, often extreme poverty, and will face growing constraints: scarcity of natural resources, environmental degradation, increased energy and input costs, higher vulnerability to risks (climatic risk, price volatility, demographic changes and migration, etc.) and markets more opened to competition. African farmers furthermore suffer from low level of infrastructures and limited public investments. In Europe, current agriculture is criticised for its impacts on the environment (like water contamination), for its fossil fuel dependency and its significant contribution to GHG emissions. Structural changes like the reduction in number of farms also impact the local economies in rural areas and can sometimes lead to the disappearance of rural societies. European agriculture is also confronted with a "plateauing" of yields as observed on various crops in some OECD countries, and doubts are raised on the ability of such systems to further increase yield while avoiding increased energy and input costs.
- The current agriculture intensification is science based as regards its potential as well as its externalities. By contrast, there is not a wealth of scientific evidence about agro-ecological approaches, especially at a large scale and in diverse local contexts. Yet, this may be a new future road to sustainable intensification in both Europe and Africa. Scientific evidence and comparative research is needed to fully unlock the potential of this approach.
- Research on sustainable models of intensification has grown and more generic understanding of the functioning of such systems is being gathered, but not so much in Africa where regional specificities and the current level of development of farming impose a particular scientific investment. Current research capacity on these issues in Africa is very limited, making it unavoidable to invest in research programmes and research capacities, to develop evidence-based approaches to agricultural innovation. This represents a true methodological challenge due to the diversity of situations and the necessity to avoid ready-to-use packages.
- Impacts pathways and local innovation systems have to be considered in the way science is generated, as is recommended in the IAASTD report[7]. To achieve the desired impacts, all stakeholders will have to be associated. For example, rural stakeholders, in Africa and in Europe, have a great wealth of traditional knowledge, which is an important asset for the development of agro-ecological farming systems since these systems are very "intensive" in generic and local knowledge.

3. Objectives

The overall objective of this initiative is to **provide documented knowledge and evidence on the diverse pathways of sustainable intensification of African agriculture.** It will cover agriculture and ecological sciences, as well as economic, social and policy sciences and will promote transdisciplinary approaches as well as stakeholder participation for setting the agenda.

[7] International Assessment of Agricultural Knowledge, Science and Technology for Development. The IAASTD 2008 report is available at : http://www.agassessment.org/

This initiative will undertake collaborative, world-leading research with a wide range of stakeholders in Africa and Europe on the sustainable intensification of agriculture to meet major societal challenges. Adoption of the research outputs and use of evidence generated will inform practice and policy to increase the levels of food security in sub-Saharan Africa to meet the needs of a growing population in a way that improves the livelihoods of the farming communities and provides food of high nutritional value at an affordable price to consumers. Over a period of five to ten years the initiative will: provide a knowledge base of approaches to support sustainable agriculture intensification within Africa and Europe to support public and private sector investments in the food and agricultural sectors in Europe and Africa; create a robust, accessible evidence base on diverse approaches to sustainable intensification to support development planning at local, national and international levels within Africa to support food and nutrition security, sustainable economic growth and poverty reduction; and contribute to a robust evidence base for European nations and Europe's common agricultural policy to support of food security and economic growth.

Specific objectives could target research questions at **three levels (examples given)**:

- **At the local level for producers and their organizations**: What pathways can effectively contribute to sustainable intensification in African countries? How can sustainable intensification be adapted to the vast diversity of cropping systems and production? How these pathways can help in degraded resources -like water and soils- restoration? What is the performance in terms of yields, dependence on inputs suppliers, capacity to face risks and develop resilient value chains? How will this intensification process affect farms economic viability, start-up and growth of post-harvest processing, business opportunities, public health and the environment? How can the growing needs of the urban population in Africa best be served by the local producers? Does it require different innovation systems and/or different farmers' involvement?

- **At the level of local communities and small regions**: How do different intensification pathways interact with local development dynamics and employment in agriculture (and in related economic areas)? How do the upstream (inputs, credit, insurance) and downstream (supply-chain organization, market access) sectors influence and respond to different modalities of intensification? How do these pathways interact with food systems evolution? How to improve sustainability of urban and peri-urban agriculture systems? How can innovation and experience capitalization in this field induce transformation at the regional level?

- **At national or regional level**: How can intensification modalities influence (and vice versa) public policies, as regard to regulations, codes of investment, public investment, sector development strategies, integration of development policies with health, energy, environment, food security, etc.. ? What kind of governance is favourable to sustainable intensification? What specific public investments, like infrastructures, could enhance the sustainability of intensification?

The question of integration of these three levels is essential. The objective will be to optimize initiatives and evolution dynamics at the different decision levels and across the different sectors. What is at stake is the capacity of building regional strategic action plans, involving all the stakeholders and public policy makers over significant periods of time.

To be able to provide to stakeholders and decision makers, as is its main objective, relevant and useful documented evidence on the diverse pathways of sustainable intensification of African agriculture, participants to this initiative will need to:

- gather and combine the teachings and lessons learnt emerging from existing collaborations between European and African institutions dedicated to research and innovation on intensification pathways; this may also require add new modules of activities or reorienting existing collaborations and, wherever necessary, complement this combined learning by new projects.

- address the methodological challenge of comparison and of integration between geographical locations and between scales (farm, community and small region, nation and sub-continent).

Such an objective is only achievable through a concerted effort and through the pooling of resources and expertise at European and African level, building on the wealth and diversity of existing partnership in a large number of agro-ecological situations, socio economic contexts, and policy environments.

4. Relevance to EU policies and instruments

- G-8 leaders recently re-affirmed, in their meeting in Camp-David in May 2012, their commitment to the world's poorest and most vulnerable people, and recommitted to support a strong food security agenda for the years to come. The G-8 agreed to take new steps to accelerate progress towards food security and nutrition in Africa. This is in line with the outcomes of the first G20 conference on Agriculture Research for Development (attended by a delegation of the European Commission led by DG RTD) that took place last year in Montpellier, France. The EU is actively engaged in these initiatives. The G20 meeting in 2011 made a commitment to create 'an enabling environment to encourage and increase public and private investment in agriculture". In particular, we stress the need to support public-private partnership on investments, based on a value-chain approach, for services (such as access to financial services, agricultural education and extension services), and for infrastructure and equipment for production (such as irrigation) for agro processing, for access to markets (such as transport, storage, communication) and for reducing pre and post-harvest losses. We commit to reinforcing capacity building in developing countries in these fields and call upon international organisations to assist.'
- As many OECD-countries, European agriculture faces the challenge to increase sustainability. Pathways developed under this initiative therefore will also lead to innovations in European agriculture. This contributes to the European Common Agricultural Policy, considering that it will be increasingly essential to improve agricultural productivity through research, knowledge transfer and promoting cooperation and innovation.
- Horizon 2020 the EU 2014-2020 framework programme for research and innovation, currently under negotiation, is articulated around three areas:
    - excellent science
    - industrial leadership
    - societal challenges

  With regard to international cooperation, Horizon 2020 foresees that cooperation with third countries should be based on common interest and mutual benefit. International cooperation in science, technology and innovation should be targeted to contribute to achieving the Europe 2020 objectives to strengthen competitiveness, contribute to tackling societal challenges and support Union external and development policies, including by developing synergies with external programmes and contributing to the Union's international commitments such as the achievement of Millennium Development Goals.
- Another characteristic of the Horizon 2020 proposal is the intention to channel a larger part of the research supports through large initiatives (instead of a multiplicity of small or medium scale projects), in particular in support of more integrated approaches between Members States (and associated countries) like Joint Programing Initiatives and Article 185 programmes.
- Agricultural research is relevant to all of the three pillars proposed for Horizon 2020, and it is also the focus of the specific societal challenge on food safety and security under the 3rd pillar. Some of the challenges addressed by this "3rd pillar" of Horizon 2020, and in particular in the area of food and agriculture, are not only of concern for citizens across Europe but also worldwide. It is therefore of Europe interest to "reach out" to the knowledge and expertise and experimental conditions existing outside Europe and to implement research and innovation programmes for impact in Europe and beyond our borders.

- S & T cooperation EU-Africa is part of the 8th EU-Africa Partnership on Science, information society and space, in the framework of the AU-EU dialogue. This partnership also affirms its consistency with the commitment of the European Union to implement policies that contribute to achieving the Millennium Development Goals, including the poverty reduction of the vulnerability of populations in developing countries. This policy will has resulted, between 2007 and 2011, through the 7th Framework Programme, in the launch of coordination platforms projects between Europe and sub-Saharan Africa (ERAfrica, CAASTnet) and of 656 collaborative research projects involving at least one African institution. Sub-Saharan Africa is the second partner region of Europe, after the group of industrialized countries, followed by Asia and the Mediterranean. African participation occurs mainly on the themes 'Health' (161 projects), 'Environment' (122 projects) and 'food/agriculture/biotechnologies' (89 projects) that address major global issues like food security, climate change, sustainable management of resources. These projects have produced excellent research and led to results and partnerships that could be used and valued in a new partnership initiative.
- Because Europe is at a leading position in the international agricultural research scene and has long standing collaboration with Africa, Europe is well placed to partner with Africa on a large programmatic initiative dedicated to the ecological intensification of agriculture, in order to reach food security, sustainable agriculture and a thriving bio economy.
- Such a programme would also be coherent with the EU support to the African-led CAADP process launched by the AU and the NEPAD[8], and in particular with its 4th pillar on research, extension and innovation led by the Forum for Agricultural research in Africa (FARA).

5. The next steps

Since September 2012, interested research institutions in Europe have approached their national authorities to obtain their backing for such an ambitious pan-European initiative.

This is a necessary step if the initiative is to mobilise the support of the instruments managed by the European Commission, DG R&I, for the construction of the European Research Area like ERANets, Joint Programming Initiatives or Article 185 proposals.

Views of national EU governments have also to be sought on the ultimate goal to shape this proposal as an EU Article 185 initiative. Although this is a distant perspective (several years away) and other EU support instruments will surely have to be mobilised in the meantime, it is important that national government be informed of the governance implication under Article 185 (being the ultimate stage of European integration).

African leaders, at the level of FARA and NEPAD, have been briefly informed at the end of 2012, especially during the GCARD2 in Uruguay. Their initial reaction has been of enthusiastic support. African institutions at the continental, regional and local levels need now to be officially approached so they can engage in this co-construction.

To further develop the initiative, Cirad is proposing to host in March 2013, in Montpellier, a meeting of the representatives of the European interested research institutions and, as much as possible, government representatives. It is proposed to open this meeting to representatives of FARA and NEPAD, to seek their views on the content of the proposal and to agree on how the wider research community in Africa will be involved in the next steps.

Cirad and Wageningen UR have approached the director general of DG RTD, Robert-Jan Smits, and tentative dates have been identified, in April 2013, for a meeting in Brussels to present the initiative

[8] See http://www.nepad-caadp.net/index.php

officially and seek guidance. (EC officials in DG RTD and DG AGRI, at a more technical level, will also be contacted).

FARA's general assembly and Science week, in July 2013 in Accra, has been identified as a potential venue for an official announcement about this initiative (and for further work on the content).