

2017 PARI ANNUAL RESEARCH AND PLANNING MEETING REPORT



By

Augustin Kouevi, Abdulrazak Ibrahim, Zaneta Kubik, Julia Machovski-Smid,
Serge Mensah, Oluwole Fatunbi, Heike Baumüller, and Patrice Adegbola

Table of Contents

Executive summary	3
Introduction	6
Objectives of the Meeting	6
Program of the meeting	6
Opening remarks	7
<i>Summary of the speech by the DG of INRAB (Dr Patrice Adegbola)</i>	<i>7</i>
<i>Summary of the speech by Dr Yemi Akinbamiyo, Executive Director of FARA</i>	<i>7</i>
<i>Summary of opening remarks by Dr. Ousmane Badiane, Africa Director of IFPRI/AGRODEP</i>	<i>8</i>
<i>Summary of opening remarks by Prof Joachim von Braun, Director of Centre for Development Research (ZEF)</i>	<i>9</i>
<i>Summary of opening remarks by Dr Françoise Assogba-Komlan, General Secretary of the Ministry of Agriculture, Livestock and Fisheries (MAEP) of Benin</i>	<i>10</i>
Presentations and issues discussed	11
<i>Highlights of 2017 PARI research activities (by Dr Oluwole Fatunbi and Dr Heike Baumüller from FARA and ZEF).....</i>	<i>11</i>
<i>1st series of presentations: On Innovations from and for smallholder farmers.....</i>	<i>11</i>
<i>2nd series of presentations: Targeting innovation investments in African agriculture</i>	<i>14</i>
<i>3rd series of presentation: Information Marketplace - Poster presentations and demonstrations of research outputs</i>	<i>16</i>
<i>4th series of presentations: Agricultural mechanization and skill development</i>	<i>17</i>
<i>Parallel roundtables on the PARI 2.0 research clusters</i>	<i>19</i>
<i>1st Panel discussion on Leverage Points for Transforming African Agriculture: Investment opportunities for food security, employment and rural development.....</i>	<i>20</i>
<i>2nd Panel discussion on Financing the Transformation of African Agriculture, food and nutrition security, and youth employment</i>	<i>30</i>
<i>Main conclusions from the panel discussions</i>	<i>34</i>
<i>Closing ceremony and remarks</i>	<i>35</i>
Conclusions and ways forward.....	37
Appendices	39

Executive summary

The Program of Accompanying Research for Agricultural Innovation (PARI) is a research program within the “One World – No Hunger” initiative of the Government of Germany whose objective is to foster the scaling of agricultural innovation in Africa and India, through research activities that inform the direction of investments for innovation. The program is currently being implemented in 12 African countries in addition to India and Germany.

Between 8th and 9th of February 2018, PARI partners gathered together in Cotonou, Benin, to review research outcomes achieved in 2017, harmonise activities of project partners as a way of delivering PARI objectives while defining and planning collaborative research activities for the phase 2 (2018-2019) of the project. The annual review and planning meeting drew 60 participants from the following inter-continental organizations:

Africa

- Forum for Agricultural Research in Africa (FARA)
- African Development Bank (AfDB)
- African Growth and Development Policy Modelling Consortium (AGRODEP) under the auspices of the International Food Policy Research Institute (IFPRI), and National Agricultural Research Services (NARS) from the following African countries:
 - **Benin**-National Agricultural Research Institute of Benin (INRAB)
 - **Burkina-Faso**-Institut de L’Environnement et de Recherches Agricoles (INERA)
 - **Cameroon**- Institut de Recherche Agricole pour le Développement (IRAD)
 - **Ethiopia**-Ethiopian Development Research Institute (EDRI)
 - **Ghana**- Council for Scientific and Industrial Research (CSIR)
 - **Kenya**- Kenya Agricultural and Livestock Research Organization (KALRO)
 - **Malawi**- Department of Agricultural Research Services (DARS)
 - **Mali**-Institut d’Economie Rurale (IER)
 - **Nigeria**-Agricultural Research Council of Nigeria (ARCN)

- **Togo**- Institut Togolaise de Recherche Agronomique (ITRA)
- **Tunisia**- Institut National de Recherche Agronomique de Tunis (INRAT), and
- **Zambia**- Zambia Agriculture Research Institute (ZARI)

USA

International Food Policy Research Institute (IFPRI)

World Bank

Europe

- Center for Development Research (ZEF), University of Bonn
- TUM School of Life Sciences Weihenstephan, Technical University Munich
- Institute of Crop Science and Resource Conservation (INRES), University of Bonn
- University of Hohenheim (UHOH)

The meeting comprised of opening and closing ceremonies, plenary presentations and discussions, and group and panel discussions. Plenary presentations and discussions focussed on research activities and results of PARI partners. Three external partners from the World Bank and African Development Bank (AfDB) joined the traditional PARI partners, to share experiences and thoughts on how to promote investment in agriculture for improved agricultural and economic growth in Africa. Group discussions addressed 2018 – 2019 investment plans in agriculture, food and nutrition security; mechanisation and skills development; digitalisation in agriculture, food and nutrition; and youth employment research clusters, which are the research themes to be addressed by the phase 2 of PARI. Panellists in the first panel discussion consisted of the Minister of Agriculture, Livestock and Fisheries of Benin Republic, Mr. Gaston C. Dossouhoui, Prof Joachim von Braun, Dr Yemi Akinbamijo and Dr Ousmane Badiane. The discussion was pitched around the status and strategies to address mistakes committed in agricultural development processes since independence periods, and leverage on success stories to improve partnership with the private sector and investment in agriculture, food and nutrition security, and the employment of the youth in Benin and Africa. The second panel discussion had the participation of Dr Simeon Ehui (from World Bank), Dr Jonas Chianu (from AfDB), Prof. Joachim von Braun (from ZEF) and Dr Ousmane Badiane (from IFPRI/AGRODEP). Discussion revolved around collaboration involving the World Bank and AfDB's and strategies for improved

and quality investment in the growth of African agriculture. From the discussions, there was a consensus that progress was being recorded in Agriculture in Benin and Africa as evidenced from improved institutional and infrastructural developments, founded on relevant decisions and investments. However, panellists and participants recognized the need for increased synergy among all key stakeholders towards – mutual and effective commitment to more progress; monitoring and learning from all kind of inspiring experiences, and generation of quality data or knowledge bases; coordinated/integrative and well-informed decisions; and, coordinated/integrative and well-informed responsibilities/actions. More specifically, timely and consistent/relevant investments, effective engagement of the private sector partners, competence development/fostering, quality research and knowledge bases building, and youth employment were highlighted for effective agricultural and economic growth, food and nutrition security in Africa. In addition, the convergence point of Agriculture for improved health, effect of climate change on health, food safety, etc. were identified as being potentially the focus of PARI in the near future.

Introduction

From 8th to 9th February 2018, partners of the PARI program, gathered at Golden Tulip Le Diplomate Hotel in Cotonou, Benin, to review research outcomes achieved in 2015, 2016 and 2017, harmonise activities of project partners as a way of delivering PARI objectives while defining and planning collaborative research activities for the phase 2 of PARI (PARI 2.0, 2018-2019). This report summarises the key highlights of the meeting as well as discussions, findings and recommendations for successful implementation of PARI 2.0.

Objectives of the Meeting

The meeting specifically set out to achieve the following objectives:

1. Present and discuss the scientific outputs achieved between 2015 and 2017, including challenges and lessons learnt.
2. Develop and present research activities and outputs within the proposed research clusters (as outlined in the PARI 2.0 strategy paper). And,
3. Connect to agricultural policy makers in Benin.

Program of the meeting

The program of the meeting was as follows:

- Opening remarks
- Highlights of 2017 PARI research activities
- PARI research themes: Progress and Outlook
 - o Innovations from and for smallholder farmers
 - o Targeting innovation investments in African agriculture
 - o Information Marketplace (made of Poster presentations)
 - o Agricultural mechanization and skill development
- Parallel roundtables on the research clusters
- Panel discussions on “Leverage Points for Transforming African Agriculture: Investment opportunities for food security, employment and rural development”

- Closing remarks

Opening remarks

The opening remarks were delivered by Dr Patrice Adegbola, the Director General of INRAB; Dr Yemi Akinbamijo, the Executive Director of FARA; Dr Ousmane Badiane, Africa Director of IFPRI/AGRODEP; Prof. Joachim von Braun, Director of Centre for Development Research (ZEF); and Dr Françoise Assogba-Comlan, General Secretary of the Ministry of Agriculture, Livestock and Fisheries (MAEP), representing the Minister:

Summary of the speech by the DG of INRAB (Dr Patrice Adegbola)



Dr Adegbola welcomed the participants from Germany, USA and Africa and thanked them for attending the 3rd (2017) annual research and planning meeting of the Program of Accompanying Research for Agricultural Innovation (PARI). He expressed gratitude to FARA and ZEF for choosing the Republic of Benin as the the host of this important meeting. Dr Adegbola highlighted that during the two-day meeting, participants would discuss progress made with 2017 research activities, and define new themes for 2018 and 2019 (phase 2) activities of PARI. He urged participants to work towards achieving relevant results that will contribute to the well-being of end users of PARI. The DG of INRAB ended his speech by inviting participants to use the intervals during the meeting to discover the touristic marvels of the Republic of Benin.

Summary of the speech by Dr Yemi Akinbamijo, Executive Director of FARA

Dr Akinbamijo welcomed partners from Germany, and other countries outside Africa, and partners from other Africa countries to the Republic of Benin, a haven of peace and tranquillity in the West Coast of Africa. He stated that 15 years after the adoption of the comprehensive African Agriculture Development Program (CAADP) and the Maputo Declaration by the African Heads of States, and 4 years after the Malabo Declaration, Africa is at a crucial point in its development trajectory which calls for concerted effort towards its desired green revolution. For Dr Akinbamijo, Africa's agricultural landscape is now dotted with islands of successes which need right actions to bring their benefits to scale. Among other right actions needed for successful scaling of promising innovations are development of competences and mobilisation of relevant resources. FARA recognizes science as vital for the continuous development and scaling of agricultural innovations, and therefore initiated the Science Agenda for Agriculture in Africa

(S3A) currently being implemented in five pilot African countries. Technology for African Agriculture Transformation (TAAT), African Agriculture Research Program (AARP), Program of Accompanying Research for Agricultural Innovation (PARI), Green Innovation Centers (GIC) of GIZ, etc., are many initiatives funded by different donors and implemented in Africa in support of – innovation, scaling and green revolution. Dr Akinbamiyo called for increased integration of donors’ efforts at country levels, and commended the contributions of INRAB to the delivery of research outputs of PARI. He encouraged all participants to contribute their best to the PARI annual meeting decision-making process. The Executive Director of FARA ended his talk by thanking the Federal Government of Germany for its support to the PARI project, and the Government and people of Benin for hosting the PARI Annual Research and Planning meeting, and by wishing fruitful deliberation to participants.

Summary of opening remarks by Dr. Ousmane Badiane, Africa Director of IFPRI/AGRODEP

Dr Ousmane Badiane recognized the fact that Africa is at a cross-road, having set a number of development targets that have resulted in now visible trends on the continent’s agricultural landscape. He stressed on the need for PARI to be linked with these trends including the African Union’s Agenda 2063, towards attaining the goal of the “Africa we want”, in the spirit of shared prosperity. Dr Badiane stated that if there was any “magic” that has worked in helping Africa solve its past problems, that “magic” is actually technology, which has brought us to frontiers that were only imagined in the past.

Therefore, PARI is dealing with the most important factor to achieve Africa agenda 2063 for being a technology-based program. He thanked all participants and congratulated them for being part of what he recognized as the most significant time in modern Africa. He opined that for the first time in the 50-60 years, that everything seems set for Africa to take-off.

Africa is facing a very dynamic market through bilateral organizations, a growing population that is raising demand for food, increased market, investments all of which underscore the need for increased food production and productivity. This implies getting more out the land and taking advantage of the new market leading to wealth creation. Clearly, PARI is contributing to confront these challenges by conducting research that would lead to the improvement of the returns of the lands and the machines used in agriculture. He recognized that the meeting was taking place in a country (Benin) where there was good example of good agricultural policies that take advantage of the agro-ecological conditions as exemplified by the success recorded in cotton, with more

than 600,000 tons in 2017, which was around 300,000 a few years ago. This success has been replicated in many other value chains, not just in the Republic of Benin but in other African countries. The establishment of National Innovation Centre has been a great idea that has brought the “magic” needed in agricultural sector. Dr Badiane further stated that the expertise needed to improve and sustain this success must come from within and therefore called on all partners to work closely with the governments. The partnership brought by IFPRI has to therefore be embedded in the local expertise. As operating partners, AGRODEP, comprising of 200 world class modellers working in 30 countries across Africa, will continue to work to develop local capacities for modelling *in situ* so that results from those activities can be shared with national policy makers. He thanked the government of Benin and wished all a productive PARI phase 2, which is coming at a time when the Technologies for Africa Agricultural Transformation (TAAT), is being launched.

Summary of opening remarks by Prof Joachim von Braun, Director of Centre for Development Research (ZEF)

Prof von Braun thanked the Minister for attending the PARI annual research and planning meeting. He declared that PARI research activities are embedded in policy process and linked with investors. And this is why it is relevant for participants to know that it is important to have investors linked with the research activities. Thus there is the need to build bridges with investors and call for private sector participation in subsequent PARI meetings. He welcomed the representatives from AfDB and appreciated the partnerships of FARA, INRAB and IFPRI. Prof von Braun delivered the apology of Dr Stephan Schmidt, the Deputy Minister of the Federal Ministry for Economic Cooperation and Development (BMZ), who could not be at the panel due to weather condition that prevented him from traveling. The key points from what Dr Schmidt would be:

-The New German Government has approved the continuation of the “One World without Hunger” Program, which had come to terms in an agreement two days earlier.

This is part of a larger initiative of German-Africa Cooperation, which matches G20 financial compact with Africa. It is important to note that this will be led by Africans. These policy initiatives are in the books of the German Government for the next 4 years. He called on all PARI partners to live up to the commitment by first delivering on the promises of the first phase 1.

Highlighting what would be different in the implementation of PARI phase 2, Prof von Braun indicated that there will be more:

- i. emphasis on value chains that cut across all of Africa rather than country by country;
- ii. focus on later stages of value chain in the transformation of food and non-food agriculture because that is where the jobs are;
- iii. focus on Rural-urban linkages and rural development as key areas;
- iv. scope for policy reforms and policy adjustments.

He declared that PARI will continue to roll in the 12 countries, with possibility of involving more African countries. This implies the pursuit of an Africa agenda that is in line with the Malabo Declaration, following the top priorities and in line with Sustainable Development Goals Agenda as signed by the African Heads of State.

Prof von Braun drew the attention of participants to the fact that in the recently concluded African Union (AU) summit, governments placed emphasis on the performance in agriculture. He expressed his enthusiasm and looked forward to the different presentations lined up and the vibrant debate they would ignite.

Summary of opening remarks by Dr Françoise Assogba-Komlan, General Secretary of the Ministry of Agriculture, Livestock and Fisheries (MAEP) of Benin

Dr Françoise Assogba – Komlan started her speech by welcoming and wishing pleasant stay in Benin to participants. She stated that agriculture is a priority economic development sector for the government of Benin which came to power in April 2016. This priority is well highlighted in the “*Bénin Révélé*” program of the Government of Benin. Priority value chains of this priority economic development sector are pineapple, cashew, vegetables, maize, rice, cassava, meat, milk and fish farming. This priority orientation of the Government of Benin has been laid down in its various strategic development plans that are aligned with CAADP, in which agricultural research, scaling and adoption of innovations are well stressed, with a view to raising agricultural research budget from 3.4% in 2016 to 7% by 2021. Dr Assogba-Komlan stated that these agricultural development goals of the Republic of Benin are also aligned with the agricultural innovation and economic growth goals of PARI. She expressed optimism in the competence of the participants for fruitful deliberations, before declaring the 3rd (2017) PARI Annual Research and Planning meeting open.

Presentations and issues discussed

In total, 17 presentations were made by PARI partners and AfDB representatives.

Highlights of 2017 PARI research activities (by Dr Oluwole Fatunbi and Dr Heike Baumüller from FARA and ZEF)



This presentation was made by Dr Baumüller and Dr Fatunbi (on right in the picture) and reviewed the PARI phase 1 (PARI 1.0, 2015 - 2017) research focuses, activities and outputs. In total eight activities (research; farmer innovation contest; database building; mapping; learning trips; policy engagement; and reporting/publishing) and forty outputs (related to crops; livestock; mechanisation; nutrition; modelling and mapping; seed systems; vocational training; and innovations) were been reported/published by the twenty partners engaged with PARI activities in Africa and India (see PowerPoint).

1st series of presentations: On Innovations from and for smallholder farmers

This series of presentations was delivered by partners from FARA, IRAD (Cameroon), IER (Mali), ZARI (Zambia), and DARS (Malawi).

Outcomes of the six PARI farmer innovation contests (By Dr Augustin Kouevi from FARA)

This presentation highlighted the assumptions underlying the organisation of the farmer innovation contest (FIC) under PARI 1.0, as well as the process, outcomes and lessons learned during the activity. The FIC was organised in four African PARI countries in 2016 (Ethiopia, Kenya, Malawi, and Zambia) and 2 in 2017 (Cameroon, and Mali). The whole activity received 1050 farmer innovation applications, of which 47% (491) were rejected, and 53% (559) were considered as valid. It appeared that more men (more than 50%) applied than women (more than 23%) and youth (less than 23%) in four out of the six FIC countries. Valid innovation applications included those related to animal husbandry, crop management, mechanisation, and storage and conservation. The main lesson learned from the FIC is that the approach represents an important mechanism for discovering farmers' innovations. However, FIC requires refinements to preserve farmers' intellectual property rights, serve interests of more farmers, and be scaled. The process led to the award of 150 innovative farmers.

Selected winners of the farmer innovation contests in Cameroon (By Dr Precillia Tata-Ngome from IRAD, Cameroon)



In this presentation, Dr Tata-Ngome introduced the participants to the locations (Southwest region [Fako division], West region [Mifi division], and Ngaoundere region [Vina division]) where the farmer innovation contest took place in Cameroon in 2017. Following a brief description of the 27 winning innovations with the prizes given to the winners, she identified the domains covered by the winning farmer innovations as crop management and storage, animal husbandry, agricultural products processing, and mechanisation. The main suggestion made by this presentation addressed the necessity for scientific validation of food and nutrition as well as healthcare-related innovations before scaling, for ethical reasons.

Selected winners of the farmer innovation contests in Mali (by Mr Alpha Kergna from IER, Mali)



The farmer innovation contest took place in three green innovation centres and food basket regions of Mali (Koulikoro, Segou, and Sikasso). Due to various reasons (culture, agricultural calendar, some misunderstandings, etc.), only 20 applications were deemed valid, out of which only one was from a woman and 5 from the youth. The winning innovations came mainly from mechanisation domain (60%), animal husbandry (30%) and crop protection (10%).

Scientific validation and scaling of farmer innovations in Zambia (by Mr Moses Mwale from ZARI, Zambia)



This presentation related to ZARI's effort for scientific validation and scaling of four out of the twenty-seven farmer innovations ZARI, ZEF and FARA jointly identified and awarded in 2016. The four innovations were: (1) Protection of maize grains and legumes from Weevils using pod ashes of the Mumba Tree (*Ekebergia capensis* Sparm); (2) Making Termite Killer using Muyongolo tree pods (*Swartzia madagascariensis* [Snake bean]); (3) Treatment of silage eye in cattle using Kaulasisi tree (*Dalbergia nitidula*); and (4) Treatment of Foot and Mouth Disease (FMD) in Cattle using extracts from Baobab trees (*Adansonia digitata*). For this scientific validation activity, ZARI is still at the level of reproducing and multiplying the innovation tree species (nurseries development). Further steps will consist of carrying out experiments, isolating active principles, and analysing outputs of experiments and samples.

Scientific validation and scaling of farmer innovations in Malawi (by Mr David Kamangira from DARS, Malawi)



In 2017, DARS undertook the scientific evaluation of two out of the 24 best farmer innovations identified during the farm innovation contest organised in Malawi in 2016, for scientific validation and scaling. The target innovations were: (1) river sand and clay pot as alternative mini incubator for smallholder farmers; and (2) indigenous chicken feed formulated ration using moringa leaves (*Moringa oleifera*) and pumpkin seed (*Cucurbita pepo*) as ingredients. Experimental treatments took place for both innovations and their outcomes were assessed. It appeared that hen brooded eggs and electric incubators performed better (95%) than the river sand and clay pot techniques (50-80%). In relation to farmer's formulated chicken feed, treatments indicated that in two weeks, farmer's feed perform were better than free range feeds, but less than commercial feeds. These experimentations are expected to be continued such as to reach robust and scientific conclusions.

Promising innovations for smallholder farmers: Impressions from a study visit to India (by Dr Abdulrazak Ibrahim from FARA)



From 22nd to 29th October 2017, 15 African PARI partners and the PARI project coordinator from ZEF (Germany), visited India to learn from Indian agricultural innovation experiences, share experiences with Indian partners and initiate collaborative research and development activities. Dr Ibrahim reported on initiatives and organisations visited, and lessons worth learning to advance collaboration between Africa and India, and African agricultural innovation systems and agriculture. Initiatives and organisations visited related to bank, irrigation, research for sustainable technologies, innovation foundation, farmers' union and cooperatives, diary, and uberisation. Issues arising from the presentation include the need to further develop partnership with the organizations visited and adapt and replicate some of the technologies therefrom.

2nd series of presentations: Targeting innovation investments in African agriculture

In the second series of presentations, the following topics were covered:

Rice marketing in Ghana: Challenges and Opportunities (by Dr Rose Omari from CSIR-STEPRI, Ghana)



Ghana farmers locally produce rice, of which only 20% is consumed by Ghanaians in urban areas, which represents 30-40 percent of the total rice consumed in Ghana. However, imported rice contributes to 60-70% of total rice consumed by Ghanaians, which costs about USD 500 million to Ghana economy. This CSIR-STEPRI study for PARI was aimed at explaining the reasons behind this poor consumption of locally produced rice, in order to identify ways to improve the consumption rate of the locally produced rice, especially in urban areas. Findings revealed that imported perfumed long grain rice is preferred by consumers compared to locally produced rice. The reasons for these differential preferences of consumers pointed out that imported rice are cleaner, cheaper, tastier, and more known and demanded than locally produced one, according to consumers and traders. This implies that researchers and other rice value chain stakeholders still have to work on the quality, the production cost, and the marketing of the locally produced rice in Ghana.

From agricultural to economic growth: Targeting investments across Africa (by Dr Tigabu Degu from EDRI, Ethiopia)



Does agricultural growth drive economic growth, both theoretically and empirically in Africa? And in which African countries can investment in agricultural growth generate economic growth, poverty reduction, and food and nutrition security? These were the main questions Dr Tigabu' study tried to answer, building on cross sectional and panel data from various sources, and various econometric tools and methods. Findings confirmed that government commitment to investment in agriculture and food sectors, and agricultural growth are key drivers of economic growth. The study identified four indicators to build on to invest in agriculture and food sector in African countries. These are: significant increase in agriculture growth; strong government commitment to invest in Agriculture and food sector; priority actions for hunger and undernutrition reduction; and good

track record of good governance. Based on these indicators, thirteen countries have been targeted as worth investing in agriculture and food sector with great potential for return on investment, viz. Ethiopia, Mozambique, Rwanda, Djibouti, Burkina Faso, Botswana, Malawi, Chad, Mali and Tanzania, etc. Of these thirteen countries, green innovation centres are active only in five: Botswana, Burkina-Faso, Ethiopia, Malawi, and Mali.

Identifying high-potential areas and innovations: Insights from modelling and mapping (by Dr Eduardo Maruyama, from IFPRI)



To realize/map the typology of regions or countries, the IFPRI team built on: 1) biophysical/agro-ecological data (land cover and rainfalls); 2) farm level (household survey) data; and, 3) accessibility (to cities/markets) data. In general, the typology is constructed around accessibility (mainly to markets), welfare (of poor and food insecure people), efficiency (of smallholders' agriculture), and potentials (achievable by smallholder farmers). So far, the IFPRI team has mapped the typology of nine out of the twelve African PARI countries. In countries where household survey data were lacking, alternative methods were used. This typology is expected to guide the choice of areas where agricultural investments can be made in those countries.

Assessing the economic-wide impact of innovations: Insights from CGE modelling (by Dr Fousseini Traore, from IFPRI/AGRODEP)



The IFPRI/AGRODEP group adapted the CGE model to estimate the effects of inputs on production frontiers and GDPs. To do so, they integrated typology data (from e-atlas), crop models, and economic data. This adapted model indicated that increase in the use of fertilisers (rainfall and sowing conditions being equal), positively affects households welfare and GDPs. The study also revealed that increase in public expenditure triggers productivity.

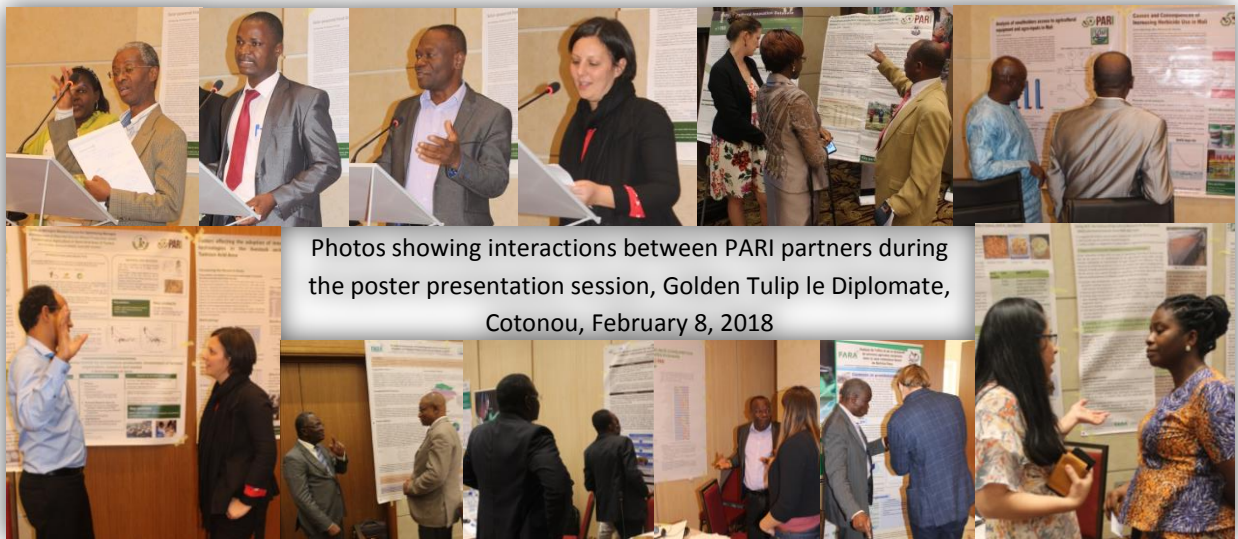
An Advanced Data Exploration System to Enhance Country Data and Knowledge Management (by Dr Mohamed Abd Salam El Vilaly, from AGRODEP/IFPRI)



This presentation focused on what regional strategic analysis and knowledge support system (ReSAKSS) – eAtlas of AGRODEP/IFPRI is about, its utility for researchers and decision makers, and how it functions. Dr Abd Salam El Vilaly explained that e-Atlas is a geographical information system (GIS) database, facilitated by IFPRI that maps various thematic (agriculture, socio-economic, biophysical, climate, etc.) data useful for learning and informed decision making. It is interactive, and can be easily accessed by policy analysts, researchers and decision makers from anywhere. In 2017, the e-Atlas team developed this database for many African countries (including PARI countries) in three different languages; and trained few e-Atlas team members in the PARI countries.

3rd series of presentation: Information Marketplace - Poster presentations and demonstrations of research outputs

During this session, 20 posters were presented by PARI partners, reporting on 2017 PARI related country studies. After 1 minute plenary presentation of the posters, participants interacted with authors of the posters.



Photos showing interactions between PARI partners during the poster presentation session, Golden Tulip le Diplomate, Cotonou, February 8, 2018

4th series of presentations: Agricultural mechanization and skill development

This session featured presentations from representatives of African Development Bank and mechanisation related research findings of PARI partners.

About AfDB's project "Feed Africa" (by Dr Patrick Agboma from AfDB)



Feed Africa is a ten-year (2016 – 2025) priority project of the African Development Bank (AfDB), aimed at transforming African agriculture. Transformation of Africa-wide agriculture is seen as strategic in order to achieve zero hunger, improved nutrition, reduced food import bills, reduced extreme poverty, and stimulate the development of food processing industry. Feed Africa is part of the top five strategic responses of the AfDB to the development of Africa, which are: (1) Power and light up Africa; (2) Feed Africa; (3) Industrialize Africa; (4) Integrate Africa; and (5) improve quality of life of Africans. Feed Africa promotes the use of integrated intervention approach with focus on strategic agricultural commodity value chains of key agro-ecological zones of Africa. This project relies on seven enablers, viz. increased productivity; increased production; increased investment; expanded agricultural finance; improved agribusiness environment; increased inclusivity, sustainability and nutrition; and improved coordination. AfDB expects feed Africa programme to annually increase its lending to both private and public sectors. Technologies for African Agricultural Transformation (TAAT), blue economy, livestock development, post-harvest losses reduction, ENABLE Youth, etc., are flagships developed by the AfDB under the Feed Africa priority programme. A lot of partners are involved in this AfDB-led African agriculture transformation process.

Technologies for African Agriculture Transformation (TAAT): Framework program in support of Feed Africa (by Dr Jonas Chianu, TAAT Coordinator at AfDB)



Dr Chianu presented the rationale behind the TAAT project as initiated by AfDB and its partners, and the projects operation and governance frameworks. TAAT was designed to contribute to the raising of agricultural productivity and production through identification and deployment of appropriate technologies. Increased productivity and production are expected to lead, among other things, to food and nutrition security, and poverty alleviation. TAAT is an eight-year (2018 – 2025) project built

around international, regional, sub-regional and national research, development and governance platforms. It started with ten pilot (tier 1) countries, and will be progressively extended to other African countries. TAAT is led by the International Institute for Tropical Agriculture (IITA).

Status, issues and outlook for agricultural mechanization in Africa (by Prof Regina Birner, from University of Hohenheim)



Prof Birner defined mechanisation and indicated that Agriculture is poorly mechanised in Sub-Saharan Africa compared to the other parts of the world, and mechanisation is even declining. Due to poor mechanisation, agricultural productivity is very low in sub-Saharan Africa where labour productivity on maize is at least thousand times lower than the one in the US for instance. Productivity correlates positively with mechanisation and negatively with poverty. Prof Birner and her team suggested that agricultural mechanisation is a way to choose by African countries. However they raised many study questions to respond to while looking for effective mechanisation of African agriculture.

Determinants, challenges and prospects of mechanization: Insights from Kenya (By Dr Lawrence Mose from KALRO, Kenya)



Dr Mose highlighted that rice and banana are staple and income crops for Kenya, but due to poor mechanisation, their productivities are respectively four times and three times less than their potentials. Surveys in two irrigation schemes (Ahero and Mwea) revealed that only land preparation, transportation, and milling of rice and banana are mechanised. Machinery dealers are hardly accessible in the study areas, and the 35% of farmers who can access machinery dealers complained about the high cost of operation and maintenance of the machineries they access. Millers and processors complained about poor access to raw materials (rice and banana) to process, high cost of maintenance of machineries and fuel, competition with imported rice, and lack of banana processing certification bureau. Machinery fabricators complained about the lack of finance, high cost of raw materials, and poor regulation of their sector. In all, there is still a lot to do for mechanisation of agriculture in Kenya.

Vocational Education and Training for Farmers and Other Actors in the Agri-Food Value Chain in Africa (by Oliver Kirui from ZEF)



Dr Kirui discussed the importance of ATVET for youth employment and agricultural development, and the status of ATVET in Africa. From his presentation, very few initiatives for the promotion of ATVET exist in Africa and they need to be improved and scaled. Dr Kirui suggested that Africa builds on the world's successful experiences, like the dual ATVET system of Germany.

Parallel roundtables on the PARI 2.0 research clusters



Since the phase 2 of PARI project was moving to cluster approach of research, participants were divided into four groups to reflect on research issues, research gaps and questions, cluster management structure and role distribution, deliverables and timelines, and policy process to disseminate outputs. The four groups related to the four main research clusters (RC), viz. (RC1) Targeting investments in innovations and framework conditions across Africa; (RC2) Mechanization and skills development; (RC3) Digitalization in agriculture, food and nutrition; and (RC4) Enhancing opportunities for the youth in the rural economy. Key conclusions of discussions were as follow:

(RC1) Targeting investments in innovations and framework conditions

The research agenda identified within this cluster includes dissemination of innovation in order to reach the marginalized smallholder farmers, also accounting for necessary adaptation of innovations; cost-benefit analysis and impact evaluation of innovations identified in the first phase of PARI and scaling-up of the promising innovations; institutional innovations allowing for vertical integration between various actors along the agricultural value chain; employment creation along the post-production stages of the value chain; rural-urban linkages; and, finally, conducive policy environment.

(RC2) Mechanization and skill development for productivity growth, employment and value addition

The assessment of the state of mechanization across Africa was identified as a necessary first step in order to conduct further research with a focus on transaction costs of the 'uberization' of small-scale agricultural machinery; impact of skills-enhancing interventions on employment and earnings; ex-ante analysis of the introduction and use of the machineries targeted at smallholders

in different production contexts in Africa; and mapping the demand for and driving forces of mechanization in Sub-Saharan Africa using geospatial data and statistical analyses.

(RC3) Digitalization in agriculture, food and nutrition

The research undertaken within this cluster will aim at identifying the opportunities for applying ICT to assist farmer organisations in internal management and servicing their members; evaluating the effectiveness and impact of interventions that use ICT tools to provide integrated solutions to digitize key interfaces between smallholders and other value chain actors; examining the use of ICT for monitoring and information dissemination; and finally, exploring platforms for aggregating ICT services and standardization.

(RC4) Enhancing opportunities for the youth in the rural economy

Lack of employment opportunities for the youth was identified as the main issue within this cluster. In this context, the research will examine options for generating jobs and other income opportunities in rural economy to increase the attractiveness of the rural space for Africa's youth. The focus will be on employment along agricultural value chains and supporting businesses, but also on organizational and institutional innovations to enable the youth to take collective action. Additional factors, such as education and vocational training, skills mismatch, or youth aspirations, will be analyzed as well.

(RC5) Improving the policy context and contributing to evidence-based policy processes

Improving the policy context and contributing to evidence-based policy processes, is a transversal cluster that will focus on identifying and implementing strategies to transmit PARI research findings to policy makers and thereby inform policy reforms related to agricultural innovation, rural development and food security in Africa.

This assignment was to be continued by cluster partners until the finalisation of cluster research proposals, after the annual PARI meeting.

1st Panel discussion on Leverage Points for Transforming African Agriculture: Investment opportunities for food security, employment and rural development



Panellists in this first panel discussion were, from left to right in the above photo: Dr Ousmane Badiane (Africa Director of IFPRI/AGRODEP), Mr. Gaston Cossi

Dossouhoui (Honorable Minister of Agriculture, Livestock, and fisheries, of Benin Republic), Dr Yemi Akinbamijo (Executive Director of FARA), and Prof Joachim von Braun (Director of ZEF). These four panellists discussed on “the status of Benin and African agriculture, food and nutrition security, and youth employment, and relevant strategies for their effective and profitable transformation”.



Chair (Prof Roch L. Mongbo, from the University of Abomey-Calavi): “Where do we stand today as far as transforming African agriculture for youth employment is concerned?” (First question to Dr Yemi Akinbamijo)

Dr Yemi Akinbamijo: *Goodwill, Quality Science, and Quality Leadership and Coordination are needed to effectively and profitably transform the huge agricultural and youth employment potentials of Africa.* (see details in Box 1 below)

Box 1: Dr. Akinbamijo’s thoughts about the status of African Agriculture transformation for youth employment

Dear All, it is a great pleasure to me to share few of my sentiments, especially in the presence of the Honourable Minister of Agriculture, Livestock and Fisheries of the Republic of Benin. To situate my argument of this afternoon, as I always say, it is really time for us because of the wonderful convergence of series of events, goodness, that can happen in African agriculture if we seize the moment, and there is the crucial point. In the last 30-40 years, we probably have never seen the kind of alignment of goodwill we have at the moment. Opportunities that are with us, in my opinion, outweigh the challenges that have locked us down for the later part of the century. And I dare say that we can make it if we do apply ourselves, one country at a time. But when we look at the reality, everybody speaks about the potentials of Africa in superlative terms, best pastures, largest water resources, the largest arable lands, the strongest demographics and youth, and also the largest net food importer. All of these mean a lot together and you ask yourself something must have missed that we are unable to translate our potentials into livelihoods, into realities, into growth, into economic power. And all we have been successful in doing is shifting the goals forth. When we were much younger, and the 2015 Millennium Development Goals planned to halve poverty, we thought that we still had 15 years to make it. Ladies and gentlemen, where is 2015 today? It has come and left us without we halving poverty, poverty had rather halved us. These are the inequalities that we find ourselves in. And I also say that our youth are drowning in the Mediterranean Sea looking for the greenest pastures, but the greenest pastures are just a few degrees below the Sahara. And we are not exploiting these just because somethings are not adding up. Agriculture that should have been our strong point is challenged. We do not have the scientific capital to shift our agriculture beyond 18th century level of activities. I always say that myself as an animal scientist, if I bite a piece of goat meat today where I live, I am sure that nothing has changed in the gene of that goat in the last two centuries. And that simply tells us something that we have a huge science deficit in our agricultural system. And that is something that without it, transformation can be forgotten. But we are thankful today, we have the African Development Bank (AfDB) with us and they have a very lead opinion person as President that is creating waves to move the high five priorities of the AfDB, giving us a new “sign of life” (hope) in agriculture and there is hope for us to be able to make agriculture count in Africa. And today we are talking about Technologies for African Agriculture Transformation (TAAT), African Agriculture Research Program (AARP), High Five, and it is time for us to use all these, and hopefully in our life time we will be able to see the changes that we should have looked for.

Chair: Dr Yemi, you sound very optimistic about the potential of the convergence of series of events and opportunities that we seem to have today. However, it seems to me that the convergence we are experiencing today is not much different from those we had in 1960s, although it is true that the AfDB was not created at that time. My first question then is, which mistakes should we avoid in order not to fail again in our fight against poverty? My second question relates to the so-called “lack of scientific capital” in African Agriculture. (Directed to Dr Ousmane Badiane)

Dr Ousmane Badiane: *We have slowly been making progress since 1950s – 1960s, and we need to learn from successes in the World to speed and sustain our progress*

Box 2: Dr Badiane’s thoughts about strategies to avoid past mistakes and about lack of scientific capitals in Africa

I especially like these two questions you are asking. There is a parallel between the 1960s and today. There is a parallel in the motivation and the alignment across Africa. However, the focus of the alignment is different. In the 1960s, there were political movements and fights for political determination. The visionary leaders were trying to build new nations, and in fact, they did succeed. They were not economic managers, biologists, scientists in laboratories, etc. The most important focus for them was to get African countries seen and counted. When they ventured into economic development in the 1950s and 1960s, they were not clear about what was the best way to go. There was a consensus that we move towards industrialisation. There was a thinking that a developed economy is an industry economy, and therefore an agricultural economy needs to go for industrialisation to become a developed economy. We did not have a private sector for that. Therefore, everything was run by the states at that time, even in agriculture. Industries were owned by the states, due to the vacuum of private sector. Where I started my professional career in the 1980s, it was illegal in Kenya to carry a bag of maize in the street; it was difficult to enter the trade of maize in Benin because a group of traders was controlling within villages; it was not possible to provide transport service for cotton in Mali. Governments had to tell the price for purchase and sale at that time. Those mistakes created the conditions Yemi talked about.

But Africa has made a big change in the last twenty fifteen years. By the term of the Millennium Development Goals, most African countries had negative agricultural capital growth rate. Agriculture was growing slower than population, 2%, 2.5%, 1%, sometimes negative, while the populations kept growing. They shifted that about fifteen years ago. The capital growth of agriculture has been between 1 and 2%. You go around Benin, Kenya, Senegal, the private sector is now selling, processing, distributing agricultural inputs and products, etc. Environment has therefore changed. Most of policies behind the private sector have been reformed in many cases. What we have to do now to make progress is, for the first time after independence, if we look around Africa, in every direction we look we have the opportunity to learn from something that worked, whether in IT, developing new varieties, entering market, processing goods, accessing export market, etc. There is a fertile environment for us to learn from what works, and emphasise on how things can work better. This is an opportunity to better understand what has been behind the driving force of the recovering Africa, but also what we need to do more, such as to improve living conditions. We are coming from far away. The progress during the last ten, fifteen, twenty years did not yet solve the problems we have. However, if we continue with that, we will get to a different place than where we are now, and that is what we are trying to do.

Chair: We can learn from Dr Ousmane' speech that the private sector is flourishing in Africa. My next question is then to know how do we make sure that the hope given by the private sector becomes a reality? (directed to Prof. von Braun)

Prof. von Braun: *Investment in quality infrastructure, entrepreneurial agriculture, vibrant and innovative private sector, and building on learning and win-win relationships are key to resilient economic growth and food security amidst vulnerability and uncertainty.*

Box 3: Prof. von Braun's thoughts about conditions for effective transformation of African agriculture

Your Excellency, Mr. the Minister, I very much appreciate it that you could honour of your presence this closing session of our meeting. Ousmane and Yemi I am pleased to sit with you once again. I also want to acknowledge the Director General of INRAB.

Your Excellency, when you look at a rather tired audience, there is a reason that they have worked hard the last two days. You may wonder what we have achieved. This audience is made of research leaders of twelve African countries, three leading German universities, and international organisations, especially International Food Policy Research Institute (IFPRI), African Development Bank (AfDB), and in the World Bank. And our task was to prioritise the research work that could better fit agriculture growth and food security for the next two years in Africa. The work plan which we have developed relate to four areas which we believe are well aligned with the strategy which you presented so excellently the last night to a small group of us, the agriculture and food sector-related strategy of Benin. Area number 1 is targeting investment in innovations and improving framework conditions for agriculture development and food security; number 2- mechanisation development and skills raising of human resources in agriculture; number 3- digitalisation of agriculture, food and nutrition; and number 4 – enhancing opportunity for youth including especially employment for young people in rural areas.

Chair, this is where your question comes in. The employment of young people will require entrepreneurs engaged in the private sector, farmers and youth in farms to be business people whose skills can be upgraded so that they can become self-employed entrepreneurs in food and agriculture value chains to a much larger extent. That is where the support and the regulatory regimes and the trade opportunities arranged by the governments have to play a role.

I would like to point out, your Excellency, that we live as you know in risks and uncertainties. Lower economic growth for this year is forecasted to be 4%, very high. And in the emerging economy context of Africa and others is close to 6%. However, that growth which is very important for rural people and poverty reduction is not assured. You observe that vulnerability and uncertainty in international stock market and commodity prices are coming up very rapidly, for oil, food, etc., in the last few weeks. And those are signals of vulnerability which a country like Benin can only respond to by investing in resilience. And, stressing resilience of economies is suspended to agriculture, vibrant and innovative private sector, and facilitation of good investment in infrastructure by the governments.

Let me close by underlying and connecting to what Ousmane just said. Time has changed – progress in nutrition and food security has been tremendous. Many countries in Africa including Benin have drastically cut hunger by between 40 and 50% the last fifteen years. What has also changed is attitude from political perspectives for relationship between Europe and Africa. That relationship has become a lot better. There is a lot more understanding on both sides. What we need to continue is investment, sharing of knowledge in the field of food and agriculture, with all making at least a small contribution to those aspects.

Chair: Your Excellency, Mr the Minister of Agriculture, Livestock and Fisheries of the Republic of Benin, thank you for taking the time to participate in this panel discussion. As Prof. von Braun said, there are many non-Beninese among the participants who would like to know more about the Government of Benin efforts in terms of agriculture and food security. I was almost shocked when Dr Yemi said that Africa lacks scientific capital,

because the DG of INRAB and myself for instance, we are all part of the national agricultural research system of Benin, and we believe to be part of the scientific capital needed to transform African agriculture. Mr. the Minister, my first question is – what do you do or plan to do to alter the perception of lack of scientific capital that most people tend to have about African agriculture. My second question is – to what extent is the Government of Benin investing in the resilience of agriculture and food security?

Mr. Gaston Cossi Dossouhoui, Honorable Minister of Agriculture, Livestock and Fisheries of Benin: *Political wills and commitment; national and regional intellectuals and competences; responsive institutions, investments and infrastructure; and responsiveness of research results to needs and aspirations of end users are necessary for the transformation of Africa's agriculture. The Republic of Benin has been reforming its national agricultural system to this end since 2016. (see box 4 below for details)*

Box 4: Mr Dossouhoui (Minister)’s thoughts about conditions to transform Benin and Africa’s agriculture, food and nutrition security and build resilience

I would like to thank all the competences gathered here, and read in your faces, your enthusiasm, engagement and willingness to share. The space occupation in this room already indicates this concern of sharing. That is impressive.

People say “there is not more wealth than human beings”. First of all, ideas and their relevance depart from experiences, and internal commitment of each of us, to transform undesired situations. India revolutionized its agriculture because of its human resources. As discussed this morning with a friend of mine, during the cold war, people wanted to exchange Indian’s conscience against food, but they refused and decided to develop without this kind of exchange. President Gandhi understood the challenge and took the decision to move forward. Deep changes have been observed in these regions of Asia. Each Asian country has a history. Some of these Asian countries refused to depend on others for food after wars, and decided to rely on their agriculture, development lever being agriculture. When you also observe well in Africa, Cote d’Ivoire just came from a difficult situation, but right now their economic situation had left the red zone and is moving toward the orange and green one. Our neighbouring country, Nigeria, has been taking key decisions to restructure its agriculture and economy, in order to be able to cover food needs of its population. Political will and commitment are key. However, changes are possible with the help of national and regional intellectuals and competences. It is possible to talk about lack of scientific capital in Africa at a certain time of history, especially when research focuses and innovations do not match with needs and aspirations of end users of the moment. Nowadays we have in front of us communities who openly and clearly place their requests to scientists. It is now up to researchers to relevantly package research findings so that research lead to real transformation of African agriculture and the lives of end users. In Benin, we immensely trust the national agricultural research system which encompasses INRAB, University faculties involved in agriculture and food security related research activities, technologies, quality control, etc.

To take advantage of the existing national agricultural research and development system, we have divided the country in seven development poles, specialized each in the promotion of specific commodity value chains. A national program for the development of the commodity value chains had been initiated. INRAB has 23 research centres distributed within the development poles, and each research centre is charged of carrying out research activities that respond to specific needs of the development pole communities. Research centres have then been taken closer to the communities in order to being able to respond to the specific needs of these communities. The research centres are in close partnership with agricultural training and education centres. We are planning to create service and training centers within the research centres, to train and accompany commodity value chains’ stakeholders. Researchers are charged to generate innovations, and service and training centres are assigned to communicate around the research findings and innovations to the end users.

With regards to resilience, when confronting challenges, we need to find internal mechanisms to resist and bounce. With climate change which involves either flood or drought for instance, what do we do? We adapt crop seeds and cropping calendars to the pace and the volume changes of rainfalls. Farmers also do develop their own adaptation strategies to resist to negative effects of climate changes. The structural investment Benin government is currently doing for water management is expected to help farmers to be able to mobilise irrigation water to adapt more to climate changes in the coming years.

As closing words, I would like to tell you that I have been impressed by your hard working rhythm which has now lasted for four days. Having intellectuals from many African countries and Germany to share knowledge is a great wealth sharing chance for participants and partners. The most important thing for us is that each country takes home the most relevant lessons to improve productivity and production levels of our countries

Questions from participants to the panellists

Dr Jonas Chianu: Considering the role of the private sector, it is true that we have made progress since the 1960s, however, a lot more still needs to be done. Given the expectation of the private sector in terms of diversification of the economy, creation of jobs, and providing all the services required to get agriculture rolling, I would like to know what the government of Benin for instance is doing to enhance the existence of the private sector in Benin. What are we doing to create an enabling environment for the private sector to take the leadership role in developing the continent?

Dr Oliver Kirui: (1) Prof von Braun, when talking about the future of the youth in economies, you said that they ought to do business, and to be transformed into entrepreneurs. What would it take to have this happen, especially from the private sector point of view?
(2) Mr Minister, what would it take to transform youth into entrepreneurs in Benin? What is the future of smallholder farming in Africa?

Answers to participants' questions

Mr Gaston Cossi Dossouhoui (the Minister): *Governments should commit themselves and invest to create an enabling environment for the performance of all farmers (smallholders included) and of the private stakeholders who are the best at job creation for the youth. The Government of Benin is following this path. (Details in Box 5 below)*

Box 5: Minister Dossouhoui's thoughts about engagement of private sectors and the youth and smallholder farmers in agricultural entrepreneurship and businesses

There is no taboo here. Agricultural transformation is all about the willingness of countries to change the production and development models they have for the agricultural sector. Typology in Africa, especially in West-Africa shows that family agriculture is dominant. However, it needs metamorphosis. When we bring in changes that secure farmers in their farming systems, they will contribute to desired agricultural transformations. Even in China cotton value chain, very few people own 4 – 5 ha of piece of land; they have 1/8 or 1/4 of ha that they care for as home gardens. The issue relates to personal investments farmers make to reach the productivity and production they desire. Average farm sizes deserve specific advice to develop relevant production projects. Agribusiness is needed such as to allow farmers to produce and process (or add more value) to their productions. To this end, low interest credits are needed by agribusiness farmers.

When talking about engagement of the youth in agriculture, let us make it clear that agriculture is a profession that deserves to be learnt. Agriculture is not meant for people who have failed in everything else. In many of our countries, youth have been granted support to go for agriculture because politicians wanted their electoral votes. After few months of trial, most of these youth end up quitting agriculture because of lack of attractive conditions in rural areas. What do we do to make rural areas attractive remains the main question? Rural youth also need functional mobile phones that they can regularly charge to be able to communicate. They need to be able to listen to radio stations; watch TV stations; and easily access healthcare. It is mainly people already performing in the agricultural sector who deserve to be provided with farming facilities.

Food trade rules among our countries are known. Quality control rules and institutions exist and are known. If everyone was properly doing his/her job, there would not be any problem with regard to quality of food. With regard to the private sector, Governments do not create wealth, and employment; they create enabling conditions for the emergence of stakeholders who produce goods, wealth and employments, i.e, the private sector. In terms of employment created by the Government of Benin, only about 42,000 people are employed in the public administration out of a population of 10 million. Real employment is created by the performant private stakeholders. The development program of the Government of Benin has planned for 61% of investment from the private sector. The 39% of public investment is expected to create relevant conditions for the private sector to establish, perform, and be able to support public investments.

Belief of leaders in promising sectors determines how much they commit to the development of those sectors. I am lucky to belong to a government whose President knows and believe in the potential of agriculture to create wealth and employment. At the moment, we are restructuring the agricultural sector of Benin, such as to make it more performant than it used to be. The current level of investment in agriculture turns around 9-10%. The share for agricultural research (that we will deliberate on tomorrow) will not be mean, although I only defend and fund promising and realistic work plans. Fortunately, INRAB seems as ambitious as I am. Thank you.

Dr Ousmane Badiane: *Smallholder farmers dominate African agriculture and can be as competitive as large scale farmers as long as Governments will facilitate access to relevant technologies, structured investments, and attractive production environment. (Details in Box 6 below)*

Box 6: Dr Badiane's thoughts about smallholder farming, agricultural competitiveness, and importations in Africa

On smallholder farmers, and competitiveness of African agriculture, sometimes, it is better to look at the history. African agricultural commodities that have dominated the international market since the independence period, are mostly led by smallholder farmers. This was the case of oil crops (groundnut from Senegal, Nigeria, and Gambia), cotton (in West Africa). Given this fact, I do not think that agricultural production is compromised by the fact that it is dominated by smallholder farmers. The main aspects to work on from my view are – the attractiveness of production environment; access to relevant technologies; government's commitment; and structuring investments. Smallholder farming in Africa cannot be changed just in few days; it can take generations. However, when agriculture is performant, it calls for processing, which can lead to increase of farm sizes. History teaches us that smallholder farms can be as competitive as large farms.

With regard to importations, there is a difference between the 1970s, 1980s and today. With a stagnating agriculture, a country can import to supply enough food to its population. However, with performant agriculture and economy, a country can gain sufficient purchase power and import needed products. Nowadays, due to urban population growth and their demands, importations increase at two digit rate while agriculture can hardly follow two digit increase rate (because of biological constraints). A Minister of Agriculture cannot easily reduce importations, but can influence the increase of national productions, because demands of external products do not depend on the Minister. Decision makers need therefore to work more on agricultural productivity and productions for now.

Prof von Braun: *Governments can only sign smart regulatory agreements with the private sector for the creation of an attractive environment (good internet connectivity included) in rural areas and for youth employment. (Details in Box 7)*

Box 7: Prof von Braun's reflections about relevant conditions for youth employment and the role of governments and private sectors

Let me make one point regarding youth in rural areas. Governments cannot do that much. What they can do is to work with the private sector to facilitate internet connectivity for rural people. That should be a top priority. It is appreciated by both girls and boys. Smart regulatory agreement with the private sector is needed to facilitate youth employment.

Dr Akinbamijo: *Africa still has to find the ways to exploit its agricultural potentials with its smallholder farmers to fill its production gaps and reduce food importations. (Box 8 for details)*

Box 8: Dr Akinbamijo's concern about competitiveness of Africa's Agriculture

With regards to large or small scale agriculture, for agricultural transformation. The issue is we cannot afford to dig a hole to fill another hole. African agriculture is largely based on smallholder farmers. The main question is, with respect to the global market, is Africa competitive? We are not, because if we were, we would be importing USD 35 billion food we can produce. There is a gap to fill and potential for investment.

Dr Ousmane Badiane: *Africa's agriculture is improving in competitiveness, but still needs to increase its production to reduce importations.*

Box 9: Dr Badiane's statements about competitiveness of Africa's agriculture and importations

There is a report that came out three years ago. We showed that African countries have doubled their share to the regional market from ten to twenty percent, which means that we are becoming much more competitive. Between 2004 and 2014, exports by African countries have grown from USD 11 billion to USD 40 billion. However import has gone from USD 11 billion to USD 77 billion. There is effectively a gap to fill in with increased production.

Prof von Braun: *Governments and private sectors' stakeholders need to share responsibility for the reorientation of illegal financial flows towards more investment in Africa's agriculture and youth employment.*

Box 10: Prof von Braun expressed his concern for the control of illegal financial flows in Africa

Trade is important. However we also need to look at financial flows. The committee chaired by President Tabo Mbeki from South Africa, has written a very disturbing report, which says that illegal financial flows in Africa are much larger than development aid itself. This means that both government and private sectors need to share responsibilities to control illegal financial flows as well.

2nd Panel discussion on Financing the Transformation of African Agriculture, food and nutrition security, and youth employment



Panellists of this second panel discussion were, from left to right in the photo above, Dr Ousmane Badiane (Africa Director of IFPRI/AGRODEP; and chair for the panel discussion), Dr Simeon Ehui (Director Agricultural global countries, World Bank); Dr Yemi Akinbamijo (Executive Director of FARA, co-chair); Dr Jonas Chianu (Coordinator of TAAT, at AfDB); and Prof Joachim von Braun (Director of ZEF, co-chair). These five panellists discussed “the financing of African agriculture”.

Dr Badiane (Chair): We are at a stage where I personally think that the potential return to investment in African agriculture is higher now than ever before because of the effort surrounding it. I did hear from the World Bank that African countries get small loans, 5 million, 10 million and the like. Given the environment, what is happening within the World Bank and AfDB and what do you think ought to happen more so that financial resources from your institutions can support the ambition of Africa’s leaders but also the private sector to transform agriculture to make it a more prosperous sector that creates wealth for most of the farmers and everybody? What will you do together to scale financing and what are the challenges and constraints to that?

Dr Simeon Ehui: *The World Bank has made progress in how it finances countries, priority areas (agriculture and energy as priorities now), and its portfolio for African countries.*

Box 11: Dr Ehui's perspectives about progress made by the World Bank in investments in the agricultural sector in Africa and by Africa's agriculture

We had a meeting yesterday with the Minister of Agriculture of Benin, a passionate leader as we like. Change is not possible anywhere without passion. I can see this passion in the Minister of Agriculture of the Republic of Benin. I took advantage of this invitation from ZEF and IFPRI to interact with the Government of Benin to see how our World Bank can actually support them further in the realisation of their huge ambitions.

Coming back to the question, it is important for everyone to recognise that there has been a shift in terms of support that the World Bank is providing to developing countries, in terms of financial resources. For those who are not familiar with the way the World Bank works, we have several windows of lending, grants, credits, and one of them is of significant importance for the majority of African countries. This is called International Development Association (IDA) resources. For the first time in the history of this resource has increased from USD 45 billion to USD 75 billion for a period of four years. It is a huge amount of money. Within that, the African region has been allocated USD 45 billion to give credit, grants, etc., to countries. The question often asked is how are you going to help expand those resources and make things happen in the countries? The African region of the World Bank has selected agriculture and energy as its top two priorities. So, actually with my team, we were asked two weeks ago to join the World Bank's Vice President for Africa Region in Paris, to meet with all the country directors of the World Bank to reflect on how to allocate the resources in terms of policy trend that can change what is happening. My job was to say how to prioritise and allocate the resources.

Our thinking was that things are happening on the continent without being perceived by people. Agriculture is transforming on the continent. There are some indicators. We had a professor from Michigan State to tell us what is happening. For example, commercial agriculture is increasing. In Ghana for example, medium scale farmers' share of agriculture value increased for about 10-14% between 2009 and 2015. Cultivated area from 5 to 100 ha (medium scale farms) increased from 39 to 51% between 1992 and 2013. These are real changes that are happening. Also, the entrepreneurs are intensifying their investments. We have been observing since 2006, increase in the volumes and values of food marketing in rural areas, which means that people are going to villages and doing transactions. The demand that we cannot stop is there; what we have to do is to meet this demand.

Thinking deeply about decisions, over the next three years, we set to ourselves three strategic goals. First of all, we believe that every farmer in the African continent ought to be able to make use of a new technology he/she never used before. With regard to this belief, we aim: (1) to enhance productivity and value addition; we know much about intensification, productivity, etc., but much less about value addition; that is why it is necessary to bring the private sector in; we believe that for every single dollar the World Bank invests in Africa continent, there should be at least an equivalent or more coming from the private sector. If we invest a billion USD in agriculture, we have to account for another billion of USD coming from the private sector. So, the projects that we work on have to pay particular attention to that. We should not forget that agriculture is itself a private sector enterprise, farmers are themselves from the private sector, and their contributions are parts of their investments. (2) The second area of significant importance is skills for better jobs. It is not simply about training people, but about generating competent people. The World Bank is investing significantly across World Bank projects in competence development in the agricultural sector. Competence is needed if we want to be competitive in the next 10 – 15 years. (3) The third important area is about building resilience of agriculture against climate changes. The impact of climate change on agriculture is important and should not be neglected. Although we invest in irrigation, believe me, we cannot irrigate every piece of land. Actually we are at 4% of irrigation, and 1ha requires USD 10,000 for irrigation. These are the objectives we are going to measure ourselves against in the coming years. When we go to countries, we work with them on their plan for agriculture. We look at our portfolio, their own objectives, the alignments, and we see gaps where we can support, and we set milestones.

To recap, we ought to invest in (1) intensification to improve labour productivity; (2) optimisation of use of available resources (investment of USD 19 in agriculture per capita in Africa, 33% lower than the next lowest region, the Southern –Asia). I would like to end with the issue of partnership, because the World Bank cannot invest alone. Investment in agricultural education is also keys, to provide agricultural stakeholders with opportunities to better perform.

Prof von Braun (co-Chair): Let me come in with a few alternative things. I am impressed by the USD 45 – 75 billion availed for Africa. But alternative fact is that African smallholders invest between USD 200 and 300 billion, meaning that the portfolio of the World Bank is smaller than the smallholders' investments. Secondly, I am for the engagement of the private sector. We are currently looking for private sector engagement in Africa with a very positive attitude. But when you look at the largest private sector initiative, data are missing or are incomplete on their website. How do you monitor our private sector partners, big investors who made commitment in Davos and at the G20 summit? There seems to be a lot of propagandistic promises than real investment. Those are my two alternative facts for the two of you, and you can react to that. My question to you (Jonas from AfDB), and Simeon later, is, how do the two of you work together? What about division of labour between AfDB and World Bank in the field of agriculture? Let me use one of the speeches of President Adesina who said that he brought agriculture back and that will have pull effect for the World Bank. However, I wonder what is the structure of cooperation between the World Bank and AfDB on agriculture for development in Africa?

Dr Jonas Chianu: *AfDB finances promising Small and Medium Enterprises (SMEs), private sector, and governments with various thrust funds with supports from the World Bank.*

Box 12: Dr Chianu's perspectives on funds available for private sector and agriculture at AfDB

... Let me start with the kind of fund we have (at AfDB). We have fund for those who are interested in research. We also have a series of thrust funds that enables us to give grants; they are about 42 thrust funds. I manage one called Africa Agriculture Fast Track Funds, which enable us to give grants to agriculture Small and Medium Enterprises (SME) in 10 countries. The grant helps the SMEs to develop technical content that they can use to design proposals for funding to submit to us. That fund is used to increase bankability of projects. However this fund is not meant for green fields, but for brown fields, meaning for those who have successfully been in business and are looking for a way to expand. We have funds for the private sector and the governments. Actually, we have more room for funding the private sector than the governments, because a lot of governments have almost gone to their limit of borrowing and need to clear what they have borrowed before borrowing again. The minimum amount we lend to the private sector is USD 13 million. We have the Nigerian Thrust fund used to help other countries. We need to work to address demands of the 1 billion African population, and to improve the quality of life of Africans.

With regard to collaboration with the World Bank, I met with a team led by Dr Simeon Ehui on 24 July 2017 in order to make sure that our aids to increase productivity and value addition and other things are coming together. The aim of this collaboration is to synergise together. Every organisation is funding based on their programmes. In research, we are emphasising competition and favouring collaboration and partnership. We should be in front of knowledge to know what has been done. Passion is needed to lift Africa to the next level. We have to make things happen.

The World Bank is our big brother. For instance, for the TAAT programme, we are leading it but the World Bank is providing more resources than us. Apart from the World Bank we work with other development partners. Bill and Melinda Gates for instance decided to provide more fund for the clearing house if the concept is proven for the TAAT project.

Questions from participants to panellists

Prof Birner: (to Simeon) There were many innovative approaches proposed by the World Bank for rural development, such as community-driven development, moving to innovation systems, market-base subsidies, etc. In your presentation, I could not hear about any innovative approach. Would you have any other innovative approaches in the pipeline?

Dr Bayemi: (to Simeon) When you talk about financing agriculture, I got the impression that agricultural research is not targeted by the World Bank. In many African countries, people just think about developing agriculture. But in some other countries out of Africa, nearly 50% of investment in agriculture is put in research. So, I would like to know if it is possible that anytime countries come to you, you finance agricultural research in a significant way as well.

Answers to participants' questions

Dr Ehui Simeon: *The World Bank is still playing leading role in innovative approaches and themes and finances agricultural research in Africa in synergy with AfDB.*

Box 13: Dr Ehui's responses about leadership role played by the World Bank in innovation of approaches and themes, funding of agricultural research, and collaboration with AfDB

“In fact, we continue playing the same innovative approach lead role, but in a business model, by taking advantage on emerging views. For example, at the moment, we are talking about innovation, food loss and waste. We have people that we call global lead who are providing the thinking along the process. We did a lot of work on climate smart agriculture and there are several publications. We also have country base analyses that guide our investments. It is therefore possible that you may not have seen some staff, but we are significantly engaged in the leadership in emerging themes like innovation, ICT, food waste and loss, agribusiness, livestock. We discuss about topics every six months. The last few ones were nutrition, agricultural jobs, human health. The next one will be on maximising finance for development.

On financing agricultural research, people based in Senegal, Mali, Kenya, Burkina-Faso, Rwanda, Malawi, etc., see that we invest a lot in agricultural research. We support research in various ways such as capacity building.

On collaboration, we have instituted a mechanism for collaboration with AfDB. We have already discussed with the President of AfDB, Dr Adesina about how to support on energy and agriculture. Every six months, we meet to evaluate performance. We support TAAT, Agribusiness, joint collaboration on cocoa, etc.”

Prof von Braun (closing of panel discussion): *Africa has to invest in the building of strong knowledge bases and in agriculture that fosters health in order to sustain changes going on in its agriculture, food and nutrition security.*

Box 14: Prof von Braun's views about the importance of knowledge and health focus for the sustainable transformation of Africa's agriculture

Let me say a few words on what we shall discuss the next time. There is change since 2008, but there must be lasting change. The most embarrassing numbers that I know in our field of agricultural research, is roughly 100. 100 times more expand in terms of agriculture research for European farmers than for African farmers. We talk so much about fairness, competitiveness, etc., which will happen only if we invest in Africa to have a strong knowledge basis.

For the future, I wish that you come again and allocate more time, why not with some of your colleagues, or with Chinese investors. Regarding future topics, we need to stress on investing in agriculture that fosters health. I see some dark cloud in the relationship between agriculture and health, consequences of climate change on health, food safety, etc., which are big issues calling for significant research.

Thank you for your enthusiasm, and passion and for adopting PARI. I think it can help you shape your agenda. The agricultural investment brain power at this moment from the various countries and institutions has not been addressed in-depth. You need to come back to address them.

Main conclusions from the panel discussions

The panel discussions essentially focused on:

- 1) the status of agricultural research, agriculture growth, food and nutrition security, and youth employment in rural areas in Benin and Africa; and on
- 2) conditions and strategies to ensure that every key stakeholder; especially Governments, Financial Partners (especially World Bank and African Development Bank), the Private Sector, Scientists, Farmers (smallholders included), and the Youth; effectively contributes to productive investments in agriculture development, quality agricultural research, sustainable agricultural growth, food and nutrition security, and youth employment in rural areas.

Discursive interactions of panellists and participants suggested progress has been made in the agricultural sector since the 1950s – 1960s, and that all key stakeholders should synergically and effectively commit themselves to:

- 1) monitor and learn from all kind of experiences (externals included), and generate quality data or knowledge bases;
- 2) take coordinated/integrative and well-informed decisions; and,

3) take coordinated/integrative and well-informed responsibilities/actions.

Division of responsibilities of stakeholders may be as follow:

- Governments need to create enabling policies and environments (regulations, infrastructure, administrative services, and performance incentives);
- Financial partners need to timely provide the other stakeholders with relevant financial resources;
- Scientists need to conduct research that respond to needs and aspirations of end users (who are all the other categories of stakeholders, consumers and farmers included);
- The Private sector need to invest in agricultural value chains to produce quality food, goods and services for end users or consumers;
- Farmers (smallholders included) need to also relevantly invest in their farms to produce quality agricultural products;
- Youths must be well trained and should competently sell their labour forces, entrepreneurship, and other human resource services to the other stakeholders.

Other stakeholders may exist. However, the discussions did not address other stakeholders of the agriculture, food, nutrition, and youth employment value chains, than those mentioned above.

Closing ceremony and remarks



The closing ceremony was led by Dr Patrice Adegbola (DG of INRAB), Dr Yemi Akinbamijo (ED of FARA), Dr Ousmane Badiane (Africa Director of IFPRI), and Prof Joachim von Braun (Director of ZEF).

This ceremony started with the delivery of a recognition certificate to Mr Alpha Todje from the *Institut Togolais de Recherches Agricoles (ITRA)* who retired from ITRA, the partner institution of



PARI in Togo. The certificate was handed over to him by Prof von Braun, and Dr Akinbamijo. Mr Todje thanked the closing ceremony panel members, and colleagues of the thirteen countries of PARI. “When we were launching the PARI programme in 2015 in Addis Ababa, we did not know that it will evolve the way it has been evolving. Let us thank the Federal Government of

Germany for the investment it is making for the growth of African agriculture. Thanks also to FARA for facilitating fruitful interactions among the PARI partners. Thanks to everyone and long life to PARI”, said Mr Todje.

In his closing remarks, Dr Patrice Adegbola, the DG of the hosting institution (INRAB) of the PARI meeting, thanked the Federal Government of Germany for the “One World, Without Hunger (SEWOH)” and PARI programmes, and for involving the Republic of Benin as a partner country of PARI. He also commended FARA, IFPRI/AGRODEP, and ZEF for the fruitful collaboration. Finally, Dr Adegbola thanked all participants for their productive participation before wishing long life to PARI for a real contribution to agricultural growth in Africa.

Dr Ousmane Badiane congratulated all participants for the two long days of meeting. PARI is a very exciting, useful, focused, and very challenging initiative. He commended the contributions from FARA, ZEF and IFPRI, and wished all goes well so that all gathers together again next year for an evaluation of progress made.

Dr Akinbamijo commended the preparatory work done by INRAB which contributed to the success of the PARI meeting. He also acknowledged the fruitful contributions of all participants, especially Dr Serge Mensah (lead organiser of the PARI meeting for INRAB); Mrs Sylvie Koube-Boko (co-organiser from INRAB); Mr Arselin Tokpa (co-organiser from INRAB); and Dr Nathalie Kpera (co-organiser from INRAB).

Prof von Braun mentioned that PARI is not closing, but continuing. He especially commended Dr Heike Baumüller and Dr Oluwole Fatunbi for making Africa – Germany cooperation work exceptionally well. Prof von Braun also thanked all participants for their active participation, and Dr Patrice Adegbola for the excellent organisation of the meeting. He then closed the 3rd (2017) PARI Annual Research and Planning meeting.

Conclusions and ways forward

The 3rd (2017) PARI Annual Research and Planning meeting took place on 8 and 9 February 2018, at Golden Tulip Le Diplomate Hotel of Cotonou, Benin, as planned. It brought together 60 participants from 20 different research and university organisations from Africa, America, and Europe. The meeting included opening and closing ceremonies, plenary presentations and discussions, and group and panel discussions. During the opening ceremony, panellists welcomed participants; highlighted the meeting's context, objectives, and expected outputs; and wished successful progress and deliberation for the meeting. Plenary presentations and discussions focussed on research activities, and results of PARI partners. Three external partners from the World Bank and African Development Bank (AfDB) joined the traditional PARI partners, to share experiences and thoughts about how to promote investment in African Agriculture for improved agricultural and economic growth in Africa. Group discussions addressed 2018 – 2019 plans of investment in agriculture, food and nutrition security; mechanisation and skills development; digitalisation in agriculture, food and nutrition; and youth employment research clusters. Panellists of the first panel discussion, the Minister of Agriculture, Livestock and fisheries of Benin, Mr. Gaston C. Dossouhoui, Prof Joachim von Braun, Dr Yemi Akinbamijo, and Dr Ousmane Badiane, addressed status and strategies to address mistakes and leverage on success stories to improve partnership with the private sector, and investment in agriculture, food and nutrition security, and the youth in Africa and Benin. Panellists of the second panel discussion, Dr Simeon Ehui (from World Bank), Dr Jonas Chianu (from AfDB), Prof. Joachim von Braun (from ZEF), and Dr Ousmane Badiane (from IFPRI/AGRODEP), opined about the World Bank and AfDB's collaboration and strategies for improved and quality investment in the growth of African agriculture. In all, the panel discussions indicated that progress is being made from institutional, decisional, infrastructure and investment point of view for the growth of African Agriculture. However, panellists and participants acknowledged that more still need to be done for quality and consistent investments, effective engagement of private sector partners, competence development/fostering, quality research and knowledge basis building, and youth employment toward effective agricultural and economic growth, food and nutrition security in Africa. The closing ceremony consisted mainly of votes of thanks, and wishes for fruitful continuation of PARI activities in 2018 and 2019.

Agriculture for health, effect of climate change on health, food safety, etc. are topic that may interest PARI in the near future.

Appendices

Copies of presentations

Photos

Publications

List of Participants