



# Regional Science Review and Planning Meeting 2020



## Research Program-West and Central Africa (WCA)

Samanko/Bamako, Mali 19 -21 February 2020



Welcome address of the Regional and Research  
Program Director ICRISAT- WCA

The Research Program-West and Central Africa is structured around four (4) research themes: 1.) Crop Improvement; 2.) Integrated Crop Management; 3.) Systems Research; and 4.) Policy and Impact. The presentations addressed these four themes, highlighting key achievements and focusing on perspectives and areas of collaboration within and across the three regions (Asia, ESA and WCA) and also with key stakeholders within our mandate areas.

Partnership is crucial in delivering on our goal and objectives. We therefore pursue our efforts of strengthening partnership and collaboration. Resource mobilization has received due attention in the past few years. We have constituted various consortia comprising CG centers and IARCs (IITA, ILRI, ICRAF, World Vegetable Center), NARS, private sector, regional organizations (e.g. CORAF) to respond to large calls from USAID-Mali and Niger; the Government of the Netherlands (Dryland Sahel Program-DryDev-2); with support from SMC/HQ and using the services of a consultant. We are also working with Anthony Whitbread and other colleagues from CG centers and CCAFS to organize the 2-D initiative meeting for the Sahel either in Bamako or another venue in WCA.

We are pleased to have recently launched the newly EU approved DeSIRA/APSAN EUR 4 million project in Mali which will complement the AVISA project. We will devote some time to discuss our technology dissemination approach using case studies of HOPE II, TL III, TAAT, Africa RISING's ARDT-SMS, SINCERE and other CCAFS projects and how we learn from these experiences, and how this work can be published. Dr. Sereme will provide us with an update on the on-going discussions on the One CGIAR reform as he has been attending various related meetings. Dr. Kiran Sharma will provide us with guidance on aligning our work to the forthcoming changes within the CG. Dr. Carberry will lead and guide us through the ICRISAT's Strategic Planning in the context of One CGIAR reform.

We will also discuss the need and level of capital investment in strengthening the facilities and infrastructures in the Regional Crop Improvement Hub (RCIH) at Samanko.

I wish all of us productive deliberations during the next three days.

Thank you.

Dr Ramadjita Tabo

## Day 1

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### Session I: Modernization of Crop Improvement

Chair: Ramadjita Tabo | Rapporteur 1: Nadine Worou | Rapporteur 2: Felix Badolo

#### 1.1. List of presentations

##### 1.1.1 AVISA Project

Presenters and Presentation link: [Jan Debaene](#) and Chris Ojiewo

##### 1.1.2. Bioinformatics and data management change implementations and 2020 plans

Presenter and Presentation link: [Abhishek Rathore](#)

##### 1.1.3. Sorghum change implementations and 2020 projections

Presenter and Presentation link: [Baloua Nebie](#)

##### 1.1.4. Pearl millet change implementations and 2020 projections

Presenter and Presentation link: [Prakash Gangashetty](#)

##### 1.1.5. Groundnut change implementations and 2020 projections

Presenter and Presentation link: [Haile Desmae](#)

#### 1.2. Take home message from discussions

To move forward in breeding modernization, we need to change our mind to approach new methodologies for better efficiency and efficacy.

- Some accomplishments made by the AVISA project at ICRISAT Institutional level were acknowledged. Full picture of AVISA achievements could have been included to inform on the commitment from other partners like IITA, particularly regarding mechanization, and CIAT. Follow-up of activities across centers were done through previous meetings in Uganda as well as site visits in Nigeria (Kano) with the IITA Cowpea program. Collaboration expected from Excellence in Breeding (EiB) and industry partners to streamline methodology (e.g. on standardized measure of genetic gain and other tools/metrics) would help to improve breeding methodologies and incorporate mechanization.
- The national partners have the impression that the breeding modernization process is too focused on the CGIAR centers. The agenda of AVISA project was made by the donor, who is aware of this gap (now only 20% of the budget are allocated to the NARS in contrast to 46% with TL III project). To avoid the conflict around available funding, the main focus of this starting process has been on CGIAR centers and then strengthen technical capacity of the national partners. This action will be materialized by the regional breeding hub being put in place. However, some countries were able to obtain some side support from BMGF. Negotiations will be done in 2020 to request for additional funds for NARS so that they can improve their capacities to deliver on expected impact of the project.
- Breeding modernization process cannot be fully covered by AVISA project only. This requires some co-funding from ICRISAT itself to sustain the modernization process. Many other initiatives can also participate in this initiative. Clear mapping of how other initiatives are positioning themselves can further be done. Appreciation was expressed to ICRISAT Board for having supported the

process up to now.

- Progress is made on upgrading existing facilities with respect to the modernization process. The management plan along with a budget of US\$130,000 have been shared with Senior Management Group for approval. Soil mapping and irrigation project were presented in the management plan and the process of hiring a consultant is underway. Additional 15 ha of land was cleared near the riverside will be ready for trial settings.
- The synergy between AVISA project and DeSIRA project (APSAN project) was clear in terms of crop improvement and breeding modernization process. In the structure of APSAN, there is more emphasis in operations (population development) for ICRISAT and facilities upgrading for NARS. There is also a linkage with another big initiative named DeSIRA/ABEE, coordinated by CORAF, CIRAD and CERAAS that will help to strengthen regional testing as well as capacity building activities. This is a good network for the implementation of the activities at the regional level.
- NARS were expected to be engaged in AVISA project that is why during the meeting in Uganda, they were asked to come together and propose around each crop the planning of their activities. Visits to CIAT gave some inspiring examples of collaboration between partners and CIAT in sharing resources.
- Seed systems will be strengthened under private-public partnership in two (2) target countries: Nigeria and Tanzania as Tier 1 countries, other countries will benefit from efforts that are going to be put in place in those countries such as Ghana and Burkina Faso. Collaboration with Syngenta Foundation is encouraged for helping to set up research consortia in the delivery of not only new varieties to farmers but also other agricultural inputs.
- Economy of scale of Bill Gate statement that improving yield to take farmers out of hunger and poverty will require a percentage reduction in cost by plant and the increase in yield. So, it would be important to have data on grain yields and production costs for the profitability analyses. When all factors are equal, there is a possibility to double the genetic gain after efficiency in the breeding programs. The target is 1.5 kg increase in genetic gain under AVISA. There is still a need to have a baseline to get current genetic gain.
- *On Data Management-* WCA breeding programs are currently experiencing the data management System and the reinforcement of BMS has been demonstrated through AVISA project. For example, many capacity building activities were undertaken with ICRISAT-WCA and NARS under AVISA project and a data hackathon was taken to place in Ethiopia with 22 data uploaded for open source data. However, some contributions were provided and requested sound attention:
  - Recommendations were done that project hypothesis should be clearly defined at the beginning of the project as well as some budget allocation for good data management.
  - Data remain the property of ICRISAT and the data policy should be read by every scientist. There is technically no reason for not sharing data for the purpose of data management process.
  - There could be a complementarity between BMS and MEASURE tools for survey data analysis, however there is a need to facilitate their application by the users.
  - EiB is supplementing fast bio informatics tool that will be based on common database in a centralized place by making data available in a centralized place, can also help to use complex analytical tool that will bring value to breeding modernization effort.
  - Scientists are encouraged to upload data into BMS tool for helping with the modernization process of the breeding programs.
- *On breeding programs performance-* A very good collaboration between teams in WCA, ESA and India

has been clearly demonstrated throughout the presentations. For example, sorghum and millet pre-breeding as well as the screening of sorghum for *Striga hermonthica* are well advanced. Very good success stories have been highlighted in the presentations. The use of markers in the breeding process is probably going to be upgraded and the opportunity to develop the pre-breeding for the *Striga* resistance need to be explored. Specific comments have also been addressed:

- Hybrid consortium will engage more private sector involving farmer organizations, seed companies, particularly in the identification of hybrid parents and hybrids selection by providing their needs for business.
  - Testimony and feedbacks on good performance were obtained for millet products such as Chakti across Africa (Sudan was cited).
  - Although number of projects have required to focus on three (3) countries namely Mali, Burkina and Niger (known as HOPE project), prospects to extend to additional countries can be made.
  - Under climate change and for higher efficiency for some seed companies, integration of water management technologies including irrigation schemes to the process of varietal selection would be important.
  - Decision support tool with the use of long-term data scenarios vis-a-vis climate variability can also be approached.
  - Although the selection is targeting relatively short duration varieties, an exogenous factor such as birds attack should be highly taken into consideration to get the buy-in from the farmers.
  - Intensive use of molecular research with deployment of markers and higher exchange of materials in order to see the adaptability of breeding lines should be explored. There is a need to have more markers in the breeding programs for the activities planning of 2020.
  - We should have more evidence on integration of gender issues in the product profile, which would contribute to increase the adoption rate.
- *On Nutrition-* Nutrition should be the high spot of all interventions in breeding programs. The bio-fortified varieties and varieties rich in iron and zinc are good outcomes but more should be developed. More collaboration with Smart food team is expected to direct the breeding process. However, many outcomes were obtained for developing dual-purpose sorghum varieties with respect to the higher digestibility by livestock. Quick methods for ruminant digestibility tool currently exist. Livestock feed appetability is a supplemental constraint to be considered in the next round of breeding materials assessment. Further information on bioavailability in millet can be added to research agenda.

## **Session II: Modernization of Crop Improvement (continued)**

Chair: Vincent Bado | Rapporteur 1: Akinseye Folorunso | Rapporteur 2: Boubakary Cisse

### **2.1. List of presentations**

#### **2.1.1. Stakeholder and partner interactions in Breeding Product Placement**

Presenter and Presentation link: [Aboubacar Toure](#)

#### **2.1.2. Gender input for Product Profiles (PPs) design**

Presenter and Presentation link: [Jummai Yila](#)

#### **2.1.3. Target Production Environment characterization for PPs**

Presenter and Presentation link: [Pierre Sibiry C. Traore](#)

### **2.2. Take home message from discussions**

Gender inequality as a persistent barrier to economic and social development. The only non-acceptable thing is that you don't work against gender equality and gender equity.

- An innovation such as new varieties will contribute to agricultural production and development if the innovation meets users' needs and demands. It is therefore critical to understand each end-user category and their prioritization through gender analysis. It is also necessary to identify who are the potential customers when "gender" is considered.
- In addition to the priorities listed by producers for traits in sorghum and pearl millet which are drought resistance, adaptation to poor soil and good quality seeds, other prioritization of sorghum and pearl millet traits are related to food quality (consistency, storability of processed products, flavour quantity, ability to multiple uses), grain storability, grain quality, etc.
- The Gender-differentiated crop trait preferences showed that varietal choice is related to resources and responsibilities differentially shared by men and women engaged in production, processing and marketing. Therefore, there is a need to understand under which conditions breeding/crop improvement can enable gender equality/equity.
- The definition of Gender doesn't consider only as sex difference but also as men and women, youth, minorities, etc. Culture, social constructs and social norms, agro-ecology zones, country specifics and specialization based on sex should be taken into account. In fact, men and women are seen as individual (human construction).
- The supply/technology-driven approach can complement the demand-driven breeding.
- Gender team need to be reinforced in WCA meanwhile teamwork among scientist/discipline is encouraged to make gender-mainstreaming deliverable in all activities.
- The definition of Product Profiles (PPs) in AVISA project is still in its early stages. It was suggested to develop the PPs before looking at the Target Profile Environments (TPEs).
- However, the characterization of TPEs is expected to leverage on other projects and initiatives with relevant activities undertaken in Australia, India and WCA (Mali and Nigeria). The focus was on Climate and environmental factors affecting crop PPs, Geographic and demographic segmentation of target crop environments and Socio-economic impact of climate-influenced traits. Huge diversity in terms of targets and environments were identified. The results showed that crop management practices are more likely to influence the PPs.
- The implementation of the activity requires quality data and ability to have functioning team within the AVISA project. In the prospective, existing data in countries will be used where available for AVISA project. Further discussions among the relevant scientists during the work planning session would help to identify a team to work on TPEs for AVISA in 2020.

## DAY 2

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### Session III: Modernization of Crop Improvement (continued)

Chair: Malick Ba | Rapporteur 1: Jummai Yila | Rapporteur 2: John Nzungize

#### 3.1. List of presentations

##### 3.1.1. Genebank in crop improvement

Presenter and Presentation link: [Hamidou Falalou](#)

### **3.1.2. Tools and services for assessing genetic variability**

Presenter and Presentation link: [Damaris Achieng Odeny](#)

### **3.1.3. Genetic Gains**

Presenters: Rajeev Varshney & Team

## **3.2. Take home message from discussions**

- *On Genebank Assessment* - Crop trust reviewers were in Niger to assess ICRISAT genebank. The conclusion of the review was very positive. The review acknowledged the unique role of the genebank and pledged to continue their support. However, suggestions made include: 1.) the improvement of seed processing time from field to lab, 2.) An upgrade of the gene bank to international standards recommended at least compared to that of ESA with a long-time storage is absent in WCA, 3.) More space to improve activities: seed room is limited. Nevertheless, the sustainability of the regional genebank will depend on ICRISAT's ability to take responsibility of the genebank to move forward once the given financial support ceases.
- *On the seed demand from Genebank* -The distribution of seed varies according to the years depending on people's interest. Seeds are distributed for free. The type of actors interested in seeds from the genebank are seed companies, processors, MAIZAMA, etc., and mostly the interests are expressed during field visits organized at ICRISAT-Sadore. People requesting seeds are mostly breeders (both from NARS and ICRISAT) and farmers.  
There are seed companies working with farmers and attracting traits are: Seeds colors and sugar contain. Therefore, that will require breeders to increase the availability of traits e.g. sugar contents which is not available. Up to now, there is a number of ICRISAT' scientists contributing to the characterization, namely Prakash and Malick but also some samples came with technical characteristics made by providers. There is no profile set in advance.
- *On Genetic Gain Program in Asia* - Scientists in HQ are not only serving Asia Program's need, but are developing international goods. The Traits development are being designed to include nutrition and oil contents for pregnant women. Gene editing is not GMOs, different countries are deciding not to regulate gene edited as GMOs.

## **Session IVa: Operations and Resource mobilization**

Chair: Michael Vabi | Rapporteur 1: Abdoulaye Djido | Rapporteur 2: Georges Djohy

### **4.1. List of presentations**

#### **4.1.1. Corporate Services/Risk Management**

Presenter: David Johnson

#### **4.1.2. Resource Mobilization, Partnership building and Communication**

Presenters and Presentation link: [Joanna Kane-Potaka](#), Agathe Diama

#### **4.1.3. Human Resources**

Presenter and Presentation link: [Kunal Sarkar](#)

#### **4.1.4. Internal Audit**

Presenters and Presentation link: [Swati Jain](#), Fayaz Shaik

#### **4.1.5. Innovation Systems for the Drylands (ISD)**

Presenter: Anthony Whitbread

#### 4.2. Take home message from discussions

- There will be IT security global plan implementation for next period to support research.
- The Institutional Budget Mechanism (IBM) lack to allow the budget to be connected to prior year planning. IBM framework works upon approval from Decision Unit through Decision packages. IBM in 2019 is completed. This first year was used to test and deeply shape the system. IBM 2020 is being finalized pending on estimation of revenue from big cross-cutting programs that are being prepared.
- It has been recommended that the access to IBM should be facilitated for the budget holder and correction should be done with more flexibility than every three months. Also, IBM can be framed for 2 to 3-years to respond to challenges in getting information on allocated resources for research and to address the synchronization of IBM timeline with projects planning phase. An improved system is being built with a portal that allow the overview of project by every RPD administration.
- Current funding by region show that WCA has a share of 36% versus 28% for ESA and 36% for Asia. However, the share by program is 21%. These statistics include all projects across all regions involved. Proposals by region show a share of 47% for WCA while ESA is 28% and Asia is 26%. Consistently, the share by program for proposals is 40% for WCA.
- SMC will continuously support the proposal submission and there is still a need for five working days clearing process to get the submission of proposals. Target for fund raising should be on larger projects but also on new and diversified funding sources.
- A good model has been experienced by ICRISAT for the proposal write-ups. With a lot of support from DG Office, the RPD-WCA program has been able to hire a consultant who may block 2-3 weeks of working time to support the proposal writing.
- Communication as a great tool for engaging with project partners and research targets/consumers. It contributes strongly to sharing outcomes with, approaching, touching and engaging with donors: Smart food as a good entry point for research communication. Therefore, higher priority to be given to communication in ICRISAT research projects.
- *On the recruitment process* - It has been noticed that the process is actually taking longer than usual, e.g. it took almost six (6) months to one year to recruit some staff. Since the budget code delivery is taking too long, it delays staff recruitment and project implementation. There is a real need to review the process and remove bottlenecks. One alternative that is planned to improve the situation is to have a fully digitalized recruitment process that will ease the process and improve boarding process. Likely, other recommendations suggested that the decentralization in recruitment of local staff should be strengthened inside the Regional program offices.
- Under the One CGIAR framework, it is expected that the evaluation will be standardized as soon as Terms of Reference across centers are also harmonized.

#### **Session IVb: Poster session**

List of posters are presented in [Annex A](#)

#### **Session V: Crops and System Diversification, System Modelling and IPM**

Chair: Ramadjita Tabo | Rapporteur 1: Michael Vabi | Rapporteur 2: Fatondji Dougbedji

#### 5.1. List of presentations



### 5.1.1. Crops and System Diversification Impact on PPs

Presenters and Presentation link: [Vincent Bado](#), Nadine Worou and Malick Ba

### 5.1.2. Climate Change and Adaptation-Climate Smart Agriculture

Presenter and Presentation link: [Robert Zougmore](#)

### 5.1.3. Land and Water Management Impact on Socio-Economic Issues

Presenters and Presentation link: [Birhanu Zemadim](#)

## 5.2. Take home message from discussions

We need to have a critical look on the risk aspect of our technologies wince it has not been addressed properly

- *On de-risking agriculture in the Sahel* - Risk may explain the low levels of adoption of ICRISAT technologies so far. It is the case for all yield-increasing technologies such as micro-dosing, conservation agriculture, etc. Yield-increasing technologies cannot be presented without considering the risk associated with them because the adoption of technologies is considered as investment. This aspect is now taken into account in the new CG research portfolio. Further comments inform that:
  - Farmers adopt technologies and improved production practices during the active life span of projects or programs. However, when these interventions are over, farmers get out of it. This is mainly because of different kinds of risks associated with adopting varietal technologies and associated production practices. It also includes continued accessibility when projects/programs come to an end. This explains why yields also drop because not all components of the technologies are adopted. It is in this context that a critical mass of required skills of the social sciences are needed to provide the required support.
  - Risk matrix is complex and difficult to capture. As far as risk consideration is concern, one may conduct vulnerability study to capture the way people react to this or that constraint, and what asset they use. Even though these studies may not consider all aspects in a concrete manner, this is so far what is being done to integrate risk dimension to our interventions.
  - Farming is a business and you cannot avoid risk in a business. As long as the farmer can get benefit from his investment, he will accept to take the risk. Life is all about risk. Only those who accept to take higher risk can gain more.
  - It is observed that the determinant of yield in our region is mainly link to crop management except in extremes years of drought, flooding, etc. Instead, in average normal years, crop management is the determinant. These are seed quality plus seed dressing, weeding on time, fertilizer application on time, etc. Farmers who are market oriented are tempted to keep adoption even after projects end. Wherever there are market opportunities, farmers will invest and sustain technology adoption.
- *On Technology adoption* - We cannot talk of adoption when we see farmers using our technologies or improved management practices in the course of a program. Adoption is considered after the project ends. There is a need to make analysis by scales by mapping where which technology works. The question we must ask is to which extent does the technology works? Country, region, village, farm, etc. Example is the micro-dosing in Maradi for instance most farmers grow the cash income earning crops such as *Cyperus* which needs more fertilizer. Therefore, they cannot accept to apply micro-dosing. A second example is the case where farmers are compelled to reduce farm size which constraints them to apply mono cropping instead of intercropping.
- We need to learn from the Indian revolution. In addition to the improved varieties, the accompanying infrastructures, inputs, etc. were available. This is not the case for Africa.

- Strengthening the Crop diversification team with social scientist would give additional perspective to their research agenda. The social aspect in the investigations would help to understand and capture the successes and impacts on crop diversification.
- Genomic tools have been used and are expected to be intensified to find resistance or tolerance in our crops to Fall Army Worms. In parallel, some advances have been undertaken in collaboration with the genebank at Sadore for screening lines to identify those that are promising. The lines identified can be used in the breeding programs.
- There is a lot to do to update the information about fertilizer use today. This information is not up to date even though efforts have been deployed in different countries. Investigation is required to provide the latest trends. This can be done in collaboration with IFDC. However, considering the efforts in the African countries in the last years, the rate of fertilizer use should have evolved to be above the data provided during the Abuja summit in 2006. According to Peter Carberry the present figure is 13 kg/ha.
- The advantage of using the Crop-Livestock Enterprise Model (CLEM) instead of Integration Analysis Tools (IAT) for crop-livestock integration analysis is that it looks at the system as business. It can help to develop scenarios that can help farmers to take the right decision on how to manage crop-livestock. It is the best model to manage crop-livestock presently in West Africa.
- The decision-making is at household level and depends on the where we are talking about. In women's field for instance, it is the woman who take decisions.

## Session VI: Cross-Cutting Themes

Chair: Hakeem Ajeigbe | Rapporteur 1: Haile Desmae | Rapporteur 2: Prakash Gangashetty

### 6.1. List of presentations

#### 6.1.1. **Presentation title: Technology dissemination/HOPE II/TL III/TAAT/ARDT\_SMS**

Presenter and Presentation link: [Michael Vabi](#)

### 6.2. Take home message from discussions

- *On Science of Delivery* - Science of delivery strategy is being worked for system strategy development. We are investigating to understand what worked? For example, women to women extension worked better in Ethiopia. We are investigating how social aspect affects delivery – Esther (ESA gender scientist) is working on social sciences contribution to science of delivery. Some published materials on delivery are available from different projects. We do demonstrations with and without the technology to see the benefits of new technologies. We also do surveys and focus group studies to complement demonstration results. One grey area is that we tend to report uptake as adoption. Adoption is about a person going back willingly to use the technology. Uptake doesn't necessarily warrant going back to use the new technology. We generally do studies during the life span of project and we report the uptake as adoption.
- *On Agribusiness Innovation (Seed business model)* - Through AVISA, TL\_3 and HOPE 2 projects, selling of huge quantities of seeds were done through mini seed packs of 500g to 1000g which helped to reach many farmers. It helped also farmers to evaluate how the new technology works. The plan is to bundle seed with other inputs including seed dressing, fertilizer, etc. The private seed sector involvement is critical to strengthen seed system. Public-private partnership (PPP) as well is very important for production and marketing of certified seed to scale sustainably. There are mix of challenges including more early generation availability and quality requirements for the wider scale target.

- The Agricultural Transformation Agenda Support Program (ATAPS) was completely absent and not captured in the team presentation.
- Mass communication is important for the dissemination of technologies.
- Other challenges we may be facing are linked to the issues of the quality of seed and fertilizer. Good quality seed is not produced and made available to farmers and also quality fertilizer.
- The standardization of our social science questionnaires in ESA and WCA would address the adoption issue by making emphasis on what could be the problem of awareness. For example, using the opportunity of ICT or a business model with credit balance could improve adoption.

## DAY 3

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### Session VII: ICRISAT Strategic Planning

Chair: Robert Zougmore | Rapporteur 1: Birhanu Zemadim | Rapporteur 2: Baloua Nebie

- 7.1. **Markets, Institutions, Nutrition, Diversity**  
Presenter and Presentation link: [Michael Hauser](#)
- 7.2. **ICRISAT Strategic Planning in the Context of One CGIAR Reform**  
Presenter and Presentation link: [Peter Carberry](#)
- 7.3. **Working Group: Terms of Reference** (to download [Here](#))  
Working Group 1: [Annex B](#)  
Working Group 2: [Annex C](#)  
Working Group 3: [Annex D](#)
- 7.4. **Capital Investment**  
Presenters: Ramadjita Tabo and Jan Debaene

### Take home message from discussions

- A case study was conducted on groundnut adoption using DNA fingerprinting method. This innovation in adoption studies was highly appreciated by the audience and scientists were encouraged to integrate the methods in their coming studies where possible.
- *On One CGIAR initiative* - The initial changes in the One CGIAR will focus on (i) a compelling mission, (ii) making a unified governance system, which is set to be operational beginning 1<sup>st</sup> October, 2020, (iii) making institutional integration, (iv) delivering a new research modality and (v) having more and pooled funding. Specifically:
  - The pooled funding under one CGIAR is expected to be operational 50% by 2022, and 70% by 2024. There would be a Transition Consultation Forum (TCF) in charge of the transition to the One CGIAR. The TCF has a role of advisory.
  - The compelling reason for One CGIAR is to work towards achieving the target UN SDG2, No Hunger by 2030. Five impact areas were defined to achieve the goal including Nutrition & Food security, Poverty reduction-livelihoods and jobs, Gender equality-youth & social inclusion, Climate adaptation & greenhouse gas reduction and Environmental health & biodiversity.

- The staff was invited to continue working to deliver against the current CRPs goals and do not have to get distracted as ICRISAT is well represented and well positioned in the One CGIAR research portfolio.
- Institutional mandates and specific target regions by centers will not be affected in the short-term plan of One CGIAR. The main focus at this stage is to have a unified governance system. The Big-lift will replace the CPR in the One CGIAR.
- The allocated costs for the modernizing of the Regional Crop Improvement Hub for West and Central Africa will be made available, Bamako being the regional Hub.

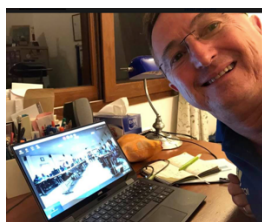
## Closing remarks

Dr. Kiran Sharma, *Deputy Director General of ICRISAT,*



highlighted the need to continue working with digital agriculture, and there is a need to have an agri-business innovation champion from West Africa. Scientists need to use QC panels in their programs, focus on systems research and science of delivery. Data management was another concern raised by the DDG-R and he stressed we need to improve our data management system.

Dr. Peter Carberry, *Director General of ICRISAT,*



highlighted the quality of science delivery in WCA and especially the integration with the global programs. He also highlighted that more science work is important and WCA scientists need to engage well with the Innovation and System for the Drylands (ISD) team. He stressed that the Sahel is a hotspot to get donor funding and encouraged scientists and staff to work on resource mobilization.

Dr. Ramadjita Tabo, *Regional Research Program Director of West and Central Africa, ICRISAT,*



highlighted that the regional planning meeting was a success. Even though participants from India were not present physically, they made their commitment to be available virtually and participated in most of the presentations and discussions. He thanked them all for their effort. He also thanked the local organizing committee of the RPM chaired by Dr. Birhanu Zemadim and the team composed of Dr. Nadine Worou, Agathe Diama, Boubakary Cisse, Aminata Guissey, Yaya Seck, Kadiatou Yena, Marc Traoré and Seydou Sankare for making the three days meeting a success. Finally, Dr. Tabo stressed on the importance of advancing South-South collaboration and utilizing all chances available to share resources and working together.

**Annex A: List of Posters** [Poster presented at the Regional Science Review and Planning Meeting for RP-WCA, Bamako, Mali, 19-21 February 2020]

**Ajeigbe H. A., Inuwa A. H., Kamara A., Odoyo P. O., M. B. Vabi, and Angarawai I. I.** (2020). Seed Needs Assessment in North Eastern Nigeria.

**Ajeigbe Hakeem A., Abdulrashid Zayyad, Akinseye Folorunso M., Muhammad I.B.** (2020). Evaluation of groundnut (*Arachis hypogea* L.) genotypes for resistance to drought stress in Sudan Savanna environment in Nigeria (2020).

**Ajeigbe Hakeem A., Akinseye Folorunso M. and Inuwa Abubakar H.** (2020). Effect of Tillage Practice and Residue Management on Sorghum Productivity in a dry savannah areas of Nigeria.

**Ajeigbe Hakeem A., Tukur A., Inuwa Abubakar H., Akinseye Folorunso M. and Angarawai Ignatius I.** (2020). Assessment of Different Fertilizer Sources and Rates in the Savanna Zones of Nigeria.

**Angarawai I. Ignatius, Nebie Baloua, Yeye Mary, Aba D. Daniel, Ajeigbe Hakeem, Chibiya Shinggu, Falalou Hamidou, Afolayan Gloria, Abdulmalik Rekiya and Jonah Jerome** (2020). Towards profiling sorghum product with micronutrients for better health in Western and Central Africa.

**Bado Boubié Vincent, Whitbread Anthony, Manzo Maman Laminou Sanoussi** (2020). Optimizing agricultural productivity and sustainability in a *Ziziphus mauritiana* based farming system in West Africa Sahel.

**Badolo Felix and Nzungize John** (2020). Is integrated Striga and soil fertility management approach profitable to the smallholder farmers in Mali?

**Birhanu Zemadim Birhanu, Kalifa Traore, Felix Badolo, Karamoko Sanogo, Karamoko Traore, Ramadjita Tabo and Anthony Whitbread** (2020). Soil and water conservation practices under changing land use conditions-experience and evidence from Southern Mali.

**Desmae Haile, Sako Dramane, Oteng-Frimpong Richard, Miningou Amos, Echekwu Candidus, Ajeigbe Hakeem** (2020). Development of farmer preferred varieties for Semi-Arid Tropics WCA.

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**Nzungize John, Badolo Felix, Ba Niango Malick and Tabo Ramadjita** (2020). Scaling up Sorghum and millet technologies for increasing productivity and incomes of smallholder farmers in Mali.

**Ouedraogo Issa, Diouf Ndeye Seynabou, Zougmore Robert B., Ndiaye Ousmane** (2020). How useful are Weather and

Climate Information Services (WCIS) for Fisheries in Senegal?

**Ouedraogo Mathieu, Zougmore Robert B., Houessionon Prosper**, Cramer Laura, Thornton Philip, Buah Saaka (2020). Assessing changes in agricultural practices and livelihoods in Lawra-Jirapa Climate-smart villages of Ghana.

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**Partey Samuel T.**, Nikoi Gordon K., **Ouedraogo Mathieu, Zougmore Robert, Djido Abdoulaye** (2020). Scaling-up climate information services through Public-Private Partnership (PPP) business models.

**Umutohi Clarisse, Bado Vincent**, Whitbread Anthony, Ayantunde Augustine, **Abdoussalam Ibrahim**, Hamza Seydou Korombe (2020). Evaluation of the feed quality of six dual-purpose pearl millet varieties and growth performance of sheep fed their residues in Niger.

**Yila Jummai O., Sylla Almamy**, Sawadogo Eveline Compaoré (2020). Gender and the 'must-have' traits of sorghum varieties in Burkina Faso.

**Zougmore R.B., Djohy G., Partey S.T., Totin E., Ouedraogo M.**, Thornton P., Karbo N., Sogoba B., Dieye B., Campbell B.M. (2020). Shaping agricultural and environmental governance through science-policy platforms: CCAFS success story in West Africa.

## **Annex B: Group 1 report**

Chair: Vincent Bado | Rapporteur: Abdoulaye Djido

### **Question 1: Sahel is a “hotspot”; how do we connect to the big initiatives?**

- Building on our success stories
- Improving science delivery
- Communicating migration, insecurity

### **Question 2: What technologies can sufficiently lower risks in the SAT?**

- Integrated system approach (+mechanization)
- Soil and water management
- Crop Insurance

### **Question 3: Is our Research Program structure correct?**

- No.
- Why? Working in silos

Centralized system

### **Question 4: Any suggestions for our vision & mission?**

- Migration
- Insecurity



## **Annex C: Group 2 report**

Chair: Michael Vabi | Rapporteur: Jummai Yila

### **Question 1: Sahel is a “hotspot”; how do we connect to the big initiatives?**

- Protect ICRISAT interest and link it with the livestock
- Focus on sorghum millet cowpea and groundnut agribusiness in the Sahel
- Sorghum and Millet compact of TAAT
- Intensify ICRISAT mandate crops:
  - Food security: Increase food/feed availability
  - Environment protection through reducing climate risks
  - Reduce conflicts

### **Question 2: What technologies can sufficiently lower risks in the SAT?**

- Improved crop varieties/ hybrids and animal breeds
- Improved livestock species
- Good agriculture practices (water, soil, crop management)
- Early warning climate system
- Crop insurance
- Mechanisation

### **Question 3: Is our Research Program structure correct?**

Strong science-policy interface

## **Annex D: Group 3 Report**

Chair: Madina Diancoumba | Rapporteur: Georges Djohy

### **Question 1: Sahel is a “hotspot”; how do we connect to the big initiatives?**

- Sahel is a « hotspot » for high Population growth, Climate change, High risk, Conflict, area where cropping and livestock could not be separated
- We need to be more proactive as there will be more competition
- Organize a big workshop to showcase what we being doing and need to be done (including donors, industries and big businesses like Dangoté). Develop strategies that attract businesses, how to talk to them, livestock feeds, focus on how to engage development
- Develop alliance with other centers: IWMI and ILRI
- Engage youth (agripreneur business)
- Prioritize Nigeria as the economic driving forces
- Link to big existing initiatives: 2-degree initiatives, dry arc, USAID feed the future, digital agric services, excellence in agronomy

### **Question 2: What technologies can sufficiently lower risks in the SAT?**

- Develop multi-purpose crops that address nutrition, health, biomass increase (on ground and underground biomass) and also economic contribution. This should be a strong focus for breeders and geneticists, having in mind that we are dealing with a youth-dominate population and gender issue is increasing important for more impact.
- Target agricultural insurance: There is a very low uptake of agricultural insurance in the Sahel: for example, in Senegal, less than one percent of farmers contract with insurance companies.
- Artificial intelligence; Internet of things Devices

### **Question 3: Is our Research Program structure correct?**

- Revisit the old research structure;
- Promote an integrated working trend among scientists:
- Scientists should go beyond project to think ICRISAT

### **Question 4: Any suggestions for our vision & mission?**

- The Vision is fine, but mission can add: Alliance and partnership between centers

**Annex F : List of participants at Samanko**

No	Full Name	Gender	Designation	Work Location
1	Ramadjita Tabo	Male	Regional and Research Program Director - West & Central Africa & Country Representative Mali	Bamako
2	Robert B. Zougmore	Male	Regional Program Leader, CCAFS	Bamako
3	Birhanu Zemadim Birhanu	Male	Senior Scientist - Land and Water Management (WCA)	Bamako
4	Haile Michael Desmae	Male	Senior Scientist - Groundnut Breeding	Bamako
5	John Rusagara Nzungize	Male	Senior Project Manager and Technology Uptake Specialist	Bamako
6	Georges Djohy	Male	PDF - Climate Change, Agriculture and Food Security (CCAFS)	Bamako
7	Abdoulaye Djido	Male	Scientist - Climate Change, Agriculture and Food Security (CCAFS)	Bamako
8	Felix Badolo	Male	Scientist, Agricultural Economics	Bamako
9	Mathieu Ouedraogo	Male	Senior Scientist-Participatory Action Research (CCAFS)	Bamako
10	Baloua Nebie	Male	Scientist-Sorghum Breeding	Bamako
11	Aboubacar Toure	Male	Senior Scientist-Sorghum Breeding	Bamako
12	Jummai Othniel Yila	Female	Scientist - Gender Research	Bamako
13	Issa Ouedraogo	Male	Project Coordinator – Climate Services	Dakar
14	Ndeye Seynabou Diouf	Female	Scientist - Monitoring & Evaluation	Dakar
15	Issoufou Kapran	Male	Senior Scientist – Seed System Specialist	Bamako
16	Fatondji Dougbedji	Male	Senior Scientist - Value Chain Coordinator	Bamako
17	Bouba Traore	Male	Knowledge broker for climate science	Niamey
18	Issaka Yougbare	Male	Regional Administrative Manager	Bamako
19	P C S Traore	Male	In - Business Researcher (Secondment)	Bamako
20	Agathe Diama	Female	Head - Regional Information, WCA	Bamako
21	Omonlola Nadine Worou	Female	Program Manager	Bamako
22	Hakeem Ayinde Ajeigbe	Male	Country Representative Nigeria & Principal Scientist, Agronomy	Kano
23	Ijantiku Ignatius Angarawai	Male	Senior Scientist - Sorghum Breeding, Nigeria (WCA)	Kano
24	Michael Boboh Vabi	Male	Country Project Manager	Kano
25	Folorunso Mathew Akinseye	Male	Post Doctorate Fellowship (PDF)-CRP (DC)	Kano

26	Malick Niango Ba	Male	Country Representative Niger & Principal Scientist, Entomology (WCA)	Niamey
27	Boubie Vincent Bado	Male	Principal Scientist–Dryland Systems and Livelihood Diversification	Niamey
28	Prakash Gangashetty	Male	Scientist - Pearl Millet Breeding	Niamey
29	Mahamane Larwanou	Male	Senior Scientist – Climate Smart Agriculture	Niamey
30	Falalou Hamidou	Male	Regional Scientist (Physiology)	Niamey
31	Paco Sereme	Male	Board Member	Ouagadougou
32	Mamourou Sidibe	Male	Scientific Officer	Bamako
33	Almamy Sylla	Male	Scientific Officer	Bamako
34	Karamoko Traore	Male	Scientific Officer	Bamako
35	Karamoko Sanogo	Male	Scientific Officer	Bamako
36	Madina Diancoumba	Female	Research Scholar	Bamako
37	Colette Ouedraogo	Female	Research Scholar	Bamako
38	Boubacar Sinare	Male	Research Scholar	Bamako
39	Houessinon Prosper	Male	Scientific Officer	Bamako
40	Boubakary Cisse	Male	Technology Transfer Officer	Bamako

## **Annex G : List of WCA publications 2018-2019-2020**

### **Journal Articles**

**Ajeigbe H.A., Akinseye F.M., Kunihya A., Abdullahi A.I., Kamara A.Y.** (2019). Response of pearl millet (*Pennisetum glaucum*, L.) to plant population in the semi-arid environments of Nigeria. *Net J. Agric. Sci.*, 7(1): 13-22.

**Ajeigbe Hakeem A., Akinseye Folorunso M., Jonah Jerome and Kunihya Ayuba** (2018). Sorghum yield and water use under Phosphorus fertilization applications in the Sudan savanna of Nigeria. *Global Advanced Research Journal of Agricultural Science* (ISSN: 2315-5094) Vol. 7(8) pp. 245-257, August, 2018 Issue. Available online <http://garj.org/garjas/home>

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## Annex F : Meeting Agenda

<b>DAY 1 – Wednesday, 19<sup>th</sup> February 2020</b>		
<b>Session 1</b>	<b>Opening Session</b>	
8:30-8:35	▪ Welcome Remarks	Ramadjita Tabo
8:35-8:40	▪ Board Chair Address	Paco Sereme
8:40-8:45	▪ DDG-R Address	Kiran Sharma
8:45-8:55	▪ DG Address	Peter Carberry
8:55-9:20	▪ Participants Introduction	All
<b>Session 2</b>	<b>Modernization of Crop Improvement</b>	<b>Chair: Ramadjita Tabo. Rapporteurs: Nadine Worou &amp; Felix Badolo</b>
9:20-9: 50	<b>AVISA Project</b>	<b>Jan Debaene and Chris Ojiewo</b>
9:50-10:30	<b>Bioinformatics and data management change implementations and 2020 plans (PO2)</b> <ul style="list-style-type: none"> <li>▪ Biometrics support for breeding; trial design and evaluation</li> <li>▪ Data visualization needs and potential solutions</li> <li>▪ Breeding modernization framework and objectives (PO1)</li> </ul>	Abhishek Rathore
10:30-11:30	<b>Sorghum change implementations and 2020 projections:</b> <ul style="list-style-type: none"> <li>• Sorghum breeding methodology improvements</li> </ul>	Baloua Nebie, Falalou Hamidou, Damaris Odeny
	<ul style="list-style-type: none"> <li>• Gene bank in WCA</li> </ul>	Falalou Hamidou
<b>11:30-11:55</b>	<b>Group Photo and Health break</b>	<b>All</b>
11:55-12:30	<b>Pearl millet change implementations and 2020 projections:</b> <ul style="list-style-type: none"> <li>• Pearl millet breeding methodology improvements</li> </ul>	Prakash Gangashetty, Falalou Hamidou
	<ul style="list-style-type: none"> <li>• Integration of RP GG technologies in pearl millet</li> </ul>	Shivali Sharma
12:30-13:05	<b>Groundnut change implementations and 2020 projections:</b> <ul style="list-style-type: none"> <li>• Groundnut breeding methodology improvements</li> </ul>	Haile Desmae, Falalou Hamidou
	<ul style="list-style-type: none"> <li>• Integration of RP GG technologies in groundnut</li> </ul>	Pooja Bhatnagar-Mathur
	<ul style="list-style-type: none"> <li>• Stakeholder and partner interaction (Pearl millet, sorghum, groundnut)</li> </ul>	Aboubacar Toure, Ignatius Angarawai
<b>13:05-14:00</b>	<b>Lunch Break</b>	<b>All</b>
	<b>Contd....Session 2 Modernization of Crop Improvement</b>	<b>Chair: Vincent Bado. Rapporteurs: Akinseye Folorunso and Boubakary Cisse</b>
14:00-14:30	<b>Gender input for Product Profiles (PPs) design (PO3)</b> <ul style="list-style-type: none"> <li>▪ Gender issues affecting crop PPs</li> <li>▪ Socio-economic impact of gender-differentiated traits</li> <li>▪ Gender awareness for scientists</li> </ul>	Jummai Yila et al.
14:30-15:00	<b>Target Production Environment characterization for PPs (PO3)</b> <ul style="list-style-type: none"> <li>▪ Climate and environmental factors affecting crop PPs</li> <li>▪ Geographic and demographic segmentation of target crop environments</li> <li>▪ Socio-economic impact of climate-influenced traits</li> </ul>	Pierre Sibiry C. Traore, Robert Zougmore, Birhanu Zemadim, Nadine Worou, Hakeem Ajeigbe, Folorunso Matthew, Felix Badolo, Michael Vabi
15:00-17:00	<b>Poster Session</b>	All

<b>DAY 2 - Thursday , 20<sup>th</sup> February 2020</b>		
<b>Session 3</b>	<b>Modernization of Crop Improvement (Continued)</b>	<b>Chair: Malick Ba. Rapporteurs: Jummai Yila and John Nzungize</b>
8:30-9:30	<ul style="list-style-type: none"> <li>Genetic Gains</li> </ul>	Rajeev Varshney & Team
8:30-8:35	<ul style="list-style-type: none"> <li>Overview of RP GG , tools and technologies</li> </ul>	Rajeev Varshney
8:35:8:45	<ul style="list-style-type: none"> <li>The Trait Stage &amp; Gate system to expedite delivery of validated markers for the breeding programs</li> </ul>	Rajeev Gupta
8:45-9:00	<ul style="list-style-type: none"> <li>Tools and services for assessing genetic variability and aligned for the development of traits prioritized in PPs</li> </ul>	Damaris Odeny
9:00-9:10	<ul style="list-style-type: none"> <li>PreBreeding</li> </ul>	Shivali Sharma
9:10-9:20	<ul style="list-style-type: none"> <li>CMBGE</li> </ul>	Pooja Bhatnagar-Mathur
9:20-9:30	<ul style="list-style-type: none"> <li>Sequencing &amp; Informatics services including HTPG</li> </ul>	Anu Chitikeni & Rajaguru Bohar
<b>Session 4</b>	<b>Operations and Resource Mobilization</b>	<b>Chair: Michael Vabi. Rapporteurs: Abdoulaye Djido and Bouba Traore</b>
9:30-10:00	<ul style="list-style-type: none"> <li>Corporate Services/Finance</li> </ul>	David Johnson, Ravi Kota, Yaya Seck
10:00-10:30	<ul style="list-style-type: none"> <li>Resource Mobilization, Partnership building and Communication</li> </ul>	Joanna Kane-Potaka, Ramadjita Tabo, Agathe Diamo, Nadine Worou
10:30-11:00	<ul style="list-style-type: none"> <li>Human Resources</li> </ul>	Kunal Sarkar, Issaka Yougbare
11:00-11:15	<ul style="list-style-type: none"> <li>Internal Audit</li> </ul>	Swati Jain, Fayaz Shaik
11:15-11:30	<ul style="list-style-type: none"> <li>Risk Management</li> </ul>	Kiran Sharma, David Johnson
11:30-11:45	<ul style="list-style-type: none"> <li>Environment Health and Safety (EHS)</li> </ul>	Ramadjita Tabo, David Johnson
11:45-12:00	<b>Health break</b>	All
12:00-13:00	<b>Innovation Systems for the Drylands (ISD)</b>	Anthony Whitbread & Team
13:00-14:00	<b>Lunch</b>	All
<b>Session 5</b>	<b>Integrated Crop Management</b>	<b>Chair: Ramadjita Tabo. Rapporteurs: Michael Vabi and Fatondji Dougbedji</b>
14:00-14:30	<b>Crops and System Diversification, system modelling and IPM</b> <ul style="list-style-type: none"> <li>Crops and System Diversification impact on PPs</li> <li>System modelling and IPM to help in optimizing trials</li> </ul>	Vincent Bado, Malick Ba, Clarisse Umutoni, Nadine Worou
14:30-15:00	<b>Climate change and Adaptation-Climate Smart Agriculture</b> <ul style="list-style-type: none"> <li>Climate change impact on socio-economic issues</li> <li>System modelling to help in optimizing trials</li> </ul>	Robert Zougmore , Mathieu Ouedraogo, Issa Ouedraogo, Seynabou Diouf , Mahamane Larwanou, Abdoulaye Djido, Georges Djohy
15:00-15:30	<b>Land and Water management</b> <ul style="list-style-type: none"> <li>Land and Water management potential influence on PPs</li> <li>Land and Water management impact on socio-economic issues</li> <li>System modelling to help optimize trials</li> </ul>	Birhanu Zemadim, Hakeem Ajeigbe, Bouba Traore, Akinseye Folorunso, Ramadjita Tabo
15:30-16:00	<b>Health Break</b>	All
<b>Session 6</b>	<b>Cross Cutting Themes</b>	<b>Chair : Hakeem Ajeigbe Rapporteurs : Haile Desmae and Prakash Gangashetty</b>
16:00-17:00	<b>Technology dissemination/HOPE II/TL III/TAAT/ARDT_SMS</b>	Michael Vabi, Issoufou Kapran, Dougbedji, Fatondji, Chris Ojiewo, John Nzungize, Felix Badolo, Ramadjita Tabo
19:00-20:00	<b>Dinner/Reception (Azalai Hotel Bamako)</b>	All

<b>DAY 3 – Friday, 21<sup>st</sup> February 2020</b>		
<b>Session 7</b>	<b>ICRISAT Strategic Planning</b>	<b>Chair: Robert Zougmore. Rapporteurs: Birhanu Zemadim and Baloua Nebie</b>
8:30-10:30	<b>ICRISAT Strategic Planning in the Context of One CGIAR Reform</b>	Peter Carberry
10:30-12:00	<b>Capital Investment</b>	Ramadjita Tabo/Kiran Sharma/Birhanu Zemadim/Seydou Sankare/Issaka Yougbare/Yaya Seck
12:00-13:00	Closure	Peter Carberry/Kiran Sharma/Ramadjita Tabo
<b>13:00-14:00</b>	<b>Lunch</b>	<b>All</b>
14:00-17:00	Cntd...2020 Workplan development with respective supervisors	All