



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



SOUTH:SOUTH COLLABORATION ON CLIMATIC RISK MANAGEMENT

Workshop Proceedings

23rd-24th July 2018, NEW YORK

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South:South Collaboration on Climate Risk Management

23rd-24th July 2018

New York

1. Introduction and Objectives

The workshop was organized by CCAFS in New York to mobilize stakeholders in different regions to facilitate the diffusion of learnings and advances in climate risk management from one region to another. The workshop was timed with CCAFS Flagship 4 ('Climate Services and Safety Nets') meeting. Discussions focused on challenges and prospects to synergize expertise towards climatic risk management as well as to develop joint approaches to better utilize the science based tools of risk management. The workshop served as a practicum for the scientific tool- Crop Loss Assessment Monitor (CAM) and provided an opportunity for the participants to assess the effectiveness of the tool and identify opportunities to improve and co-develop it by regional cooperation.

The objectives of workshop were:

1. To understand the needs of the regions for science based insurance products and for climate-socio-economic analogues for scaling out CSA.
2. To raise capacity in the regions to understand the potential of tools available for these purposes.
3. To develop a work plan for future work and collaboration on crop insurance and climate-socio-economic analogues.

The meeting specifically focused on the following two tools:

- I. Crop Loss Assessment Monitor (CAM): Developing, adopting and evolving CAM for designing region specific crop insurance products/schemes.
- II. My Future Farm: A Multi-Criteria Analogues approach for technology targeting and scaling out.

2. Crop Insurance-scope, schemes, designs

Ana Maria Loboguerrero Rodriguez on behalf of CCAFS opened the workshop. Pramod K. Aggarwal welcomed the group and presented the purpose and objectives of the workshop. Pramod in his presentation outlined the purpose of the workshop and mechanisms to achieve the purpose of south: south collaboration. He underlined that a successful south-south collaboration is possible through project formulation around Resources-Technology and Knowledge Exchange and Triangulating South: South Cooperation in CSA within the CCAFS family.

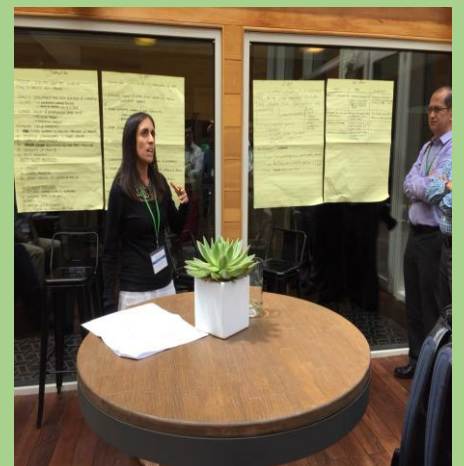
Ana Maria presented the opportunities for south-south collaboration. She stressed on the importance of global learning platforms in CCAFS that allows sharing of knowledge amongst CCAFS regions as well as with all CGIAR partners and CRPs. Similarly, she explained the contribution of south-south cooperation to development outcomes within the impact pathways for each CCAFS region and flagship programs. She concluded the presentation with experiences and accomplishments of south-south exchange for climate services in Latin America.

Daniel Osgood presented further background to the global perspectives on crop insurance for risk management. He shared in details the vast experience of the Financial Inclusion Sector Team at IRI and how their team has been successful in bringing index insurance from small pilots to millions, in over a dozen countries across Africa, Latin America and Asia. He stressed on assessing the importance of understanding the need of insurance (Individual/Meso/National insurance schemes) along with the ways to evaluate the success for such programs. According to Daniel, the risk coverage of insurance products (limited coverage versus full coverage) along with choice of coverage (late or early) are major challenges in successful adoption of insurance. It is thus important to shift the focus from index technology to coverage choices that are based on science and make sense from the ground, such that the insurance complements the suit of risk management and response activities. He concluded by discussing the importance of new generation of bottom-up, science based projects focusing at all scales which can be a way forward for effectively applying climate information in decisions around the world.

To bring all the workshop participants to a common awareness on the prominence of crop insurance as part of risk management strategies in different parts of the world, the representatives from different regions presented the status of crop insurance in their regions. The ensuing discussions presented the opportunities to share different regional experiences and pointed out difficulties and challenges encountered during formulation, implementation and scaling out of agriculture insurance programs in the regions.

Jose Manuel Iraheta Bonilla presented the status of crop insurance in Latin America. The Global Climatic Risk Index (CRI) developed by Germanwatch includes 7 countries from Latin America in the first 20 positions of global ranking, reflecting the high level of exposure of Latin American countries to extreme events. The share of agriculture insurance primes in the total primes in the region is very low. The latter shows the low penetration of agriculture insurance in the insurance sector as well as in GDP. To improve agriculture penetration in the region numerous actions have been taken by national, regional and international institutions in Latin America and the Caribbean.

Degefie Tibebe and Jemal Seid presented the status of crop insurance in East Africa. Small-holder farmers in East Africa widely use traditional ex-ante (risk smoothening, risk sharing, productive safety net program) and ex-post (selling of livestock and other assets, informal institutions, government emergency assistance as a relief work) risk mitigation mechanisms. The first national index based insurance was introduced in Ethiopia in 2006. UN-WFP introduced and piloted a macro level weather risk insurance program targeting 5 million farmers. According to WFP, the pilot project has



evidenced the fact that transferring catastrophic risks to global market is possible within the Ethiopian context. Indeed as the pilot did not involve local insurers, the take away points for the industry players in the market were restricted. Post this, a number of pilot weather index insurance programs as well as bundled programs integrating traditional risk mitigation options with index base insurance have been initiated in Ethiopia by various national and international agencies. Apart from Ethiopia, agriculture insurance programs have also been started in other countries of East Africa like Kenya, Rwanda and Tanzania. Pilot programs in East Africa have failed to scale due to a number of challenges including lack of farmer awareness, lack of farmer trust in insurance, lack of reliable data to determine risk, incomplete legal and regulatory framework and limited financial capacity of farmers and insurance companies. The role of government and other public institutions in ensuring that insurance markets develop in a way that provides high quality products to poor households is imperative.

The next speaker - Issa Ouedraogo spoke of the crop insurance program in West Africa. Crop insurance is quite recent in West Africa with the launch of pilot program of index insurance in Mali (Cotton), Benin (maize and cotton), Burkino Faso (maize and cotton), Senegal (maize, groundnut) and Ivory Coast (maize). The insurance systems in these countries are based on statistical approaches using remote sensing data for the coverage of drought risk. Its potential for scaling out however faces challenges like low skills, late disbursement of input loans, patchy satellite data and high cost of automated weather station in West Africa. In 2011, the World Bank assisted CIMA in the drafting of the required amendments of the current regulation to allow for the promotion of micro-insurance and the commercialization of agricultural index based insurance products. Prior to the revision of the CIMA code, there was no legal or regulatory framework for micro insurance and agricultural index-based insurance in the CIMA zone. CCAFS has also contributed to insurance industry in West Africa through various projects. However, there are challenges that impede the uptake of insurance in the regions, which include lack of infrastructure for accurate data recording, low risk awareness by smallholder farmers, lack of insurance culture, lack of affordability and weak enabling regulatory framework. The way to build a sustainable agriculture insurance program includes insurance capacity building, agriculture risk financing, agriculture business segmentation (social versus commercial insurance) and agriculture risk assessment.

Nguyen Do Anh Tuan presented the crop insurance status in Southeast Asia. Six out of ten countries in the region have agricultural insurance schemes. Amongst these, Philippines, Thailand, Malaysia, and Vietnam have a long history of agricultural insurance in their countries. Gradual acceptance of agricultural insurance can be evidenced through developments like promulgation of agricultural insurance law (Philippines, Indonesia and Vietnam), strong involvement of governments and enterprises in the application and replication of agricultural insurance, increased insured products and risk cover, increased understanding and awareness of government agencies, insurers and farmers on agriculture insurance. Despite increasing popularity, various factors at the end of farmers, enterprises and government limit the development of insurance in Southeast Asia. The lessons from the experiences of various countries highlight the importance of government intervention in the introduction of insurance schemes in a country as well as of allowing close cooperation between the private sector and farmers.

Next, Sheshkumar Goroshi presented the status of crop insurance in South Asia. Of 8 countries in South Asia, 5 countries have insurance schemes in their countries. Among those, India has the largest and longest crop (since 1985) insurance experience. At present there are two agriculture insurance schemes running successfully in India i.e. Prime Minister Crop Insurance Scheme (yield index) and Weather Based

Crop Insurance Scheme (weather index). Pakistan has started its crop insurance scheme in kharif 2018. Despite high coverage, agriculture insurance in South Asian countries face numerous challenges like:

- Social Problem: Low awareness among farmers leading to low penetration.
- Economic Problem: low affordability by farmers, high cost of business, lack of funds for providing insurance products.
- Political problem: Political instability, lack of supervision from the government, problems of planning and administration.
- Legal Problem: Complex regulations.
- Other Problems: Lack of qualified officials, traditional method and lack of training for the employees, lack of innovative product designs, and limited participation of private industry.

3. Summary of Panel Discussion

In the second session of the workshop on Day 1, representatives from each region shared the various limiting factors in CCAFS regions related to schemes, product, capacity and capital for designing insurance products and schemes, through a panel discussion. Among those, the following limiting factors were identified as most critical towards designing successful insurance products:

1. The non-availability of good quality historical data limits the assessment of risk and premium, as well as the designing of new and scientific products.
2. Most of the national governments lack capital for market and product developments in agriculture insurance.
3. Despite availability of insurance products and schemes in the different regions, the coverage is poor due to little awareness among farmers.
4. Absence of free insurance market as well as enabling environment and regulatory framework in many countries leads to absence of agriculture insurance industry in the region. In other countries, the immature markets are usually unattractive for private players of the industry.
5. Over-simplification of risk faced by farmers; outdated products lack current climatic vulnerability.
6. Learnings from other sectors must be incorporated in agriculture insurance industry.
7. The gender gap in relation to access to information.

4. Crop Loss Assessment Monitor

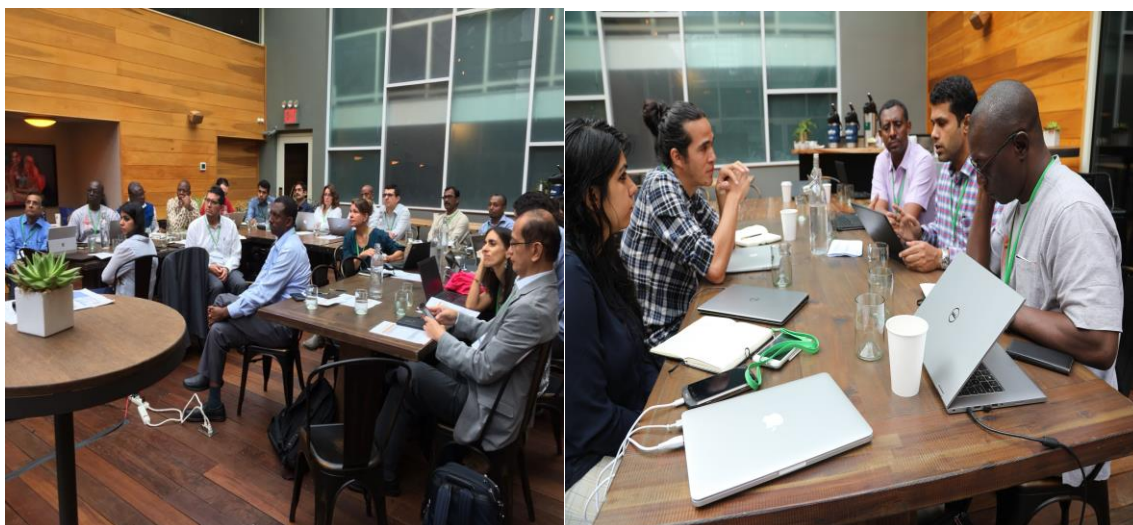
The post-lunch session began with a brief overview of CAM tool by Pramod K. Aggarwal. The multi stage tool is based on user choice of the insurance product. Using multiple inputs like weather, remote sensing, soil and historical crop yields, the tool provides information on seasonal losses as well as helps in monitoring losses in the selected region along with providing insurance analytics to the user. The output of CAM has been calibrated and validated at sentinel sites. Pramod highlighted the importance of the co-development of the tool by all regions as it is still work in progress. According to him, crop insurance is a combination of policy, scheme design, product, operations, finance, infrastructure, institutional framework and political will. The CAM tool being a vital source of information for product and operations needs to be accompanied by further scientific designing outside the tool in order to accommodate other characteristics for a successful crop insurance scheme.

The next speaker Paresh Shirsath who is a lead contributor in the development of CAM, made a detailed presentation of the CAM architecture to the participants. He presented the CAM framework including weather engine, insurance engine, CSM engine, and VIs Engine used in the Web Portal interface for user. The detailed CAM architecture and theoretical basis behind the framework were explained along with the future research and development needs.

Sheshakumar Goroshi then presented the first case study using CAM for estimating prevented sowing. He explained the rule sets for identifying in CAM the prevented sowing and sowing failure regions. These rule sets drew heavily from literature and expert judgement. He then presented a case study in western India to compare normal sowing and prevented sowing using satellite images. He further explained steps in CAM to estimate accrued claims under prevented sowing/sowing failure.

The next speaker, Shalika Vyas, presented the case study of Weather Based Index Insurance in India using CAM. She highlighted how CAM can be used to design better and more efficient weather indices for crop loss assessment, as yield data scarcity is cited as one of the major roadblocks for increasing coverage of crop insurance across the world. She presented how statistical techniques and biophysical crop modelling can be channeled to develop weather indices using CAM. Next, she presented Farmer Satisfaction Index as an evaluation tool for gauging the efficiency and accuracy of weather indices. She also presented application of CAM in monitoring and evaluating weather index policy. Finally, she showed some practical applications of weather index insurance using CAM, by comparing different weather index products and their performance in long term both under present and future climate scenario.

Mansi Nagpal presented the insurance and scheme design analytic section of the CAM and its usage to develop a viable area yield index crop insurance in Andhra Pradesh state of India. She outlined the use of CAM in designing pure premium rates since the current actuarial rates included heavy loadings on pure premium rates due to lack of good quality historical data. She presented the case of overcoming this hindrance through use of CAM. She further explained the role of CAM in assessing the financial viability of crop insurance scheme for various stakeholders. According to her, it is difficult to design a successful crop insurance scheme since it affects three major stakeholders: government, private industry and farmers. Its success is only relative and depends on the angle where its accomplishment is analyzed.



In the following session, the workshop participants were given an hour to explore the CAM web portal and to involve themselves in active personal participation by using CAM tool. The participants had an exposure to the tool and many of them were interested in such tools even though these tools can't be directly applied to regions. Participants voiced the need to tailor such tools according to local requirements.

4.1 Other Tools

Pierre C. Sibiry Traore presented the case of Earth observation and IoT tools incorporated in Nurturing Africa Digital Revolution for Agriculture (NADiRA) project to control risk and improve the productivity, security and welfare of farmers of Africa. Such tools offer a unique opportunity to transform agriculture using digital technologies like high-resolution satellite data, crowd sourcing, etc. The economic and commercial viability of combining earth observation, IoT and mobile technology was also explained.

Giriraj Amarnath next presented the case of innovative flood risk-management solutions through Index Based Flood Insurance (IBFI). He presented the salient features and highlights of the IBFI, demonstrating its positive impact in terms of agriculture resilience. The scientifically advanced product-IBFI combines the hydrological and hydraulic modelling along with newly available 10m resolution satellite images. Supporting both Ex-ante and Ex-post climate risk managements, the IBFI in its pilot study could help farmers generate additional net returns of USD 250 per hectare. It has been adopted within the district disaster management plan in the state of Bihar of India as well as its specific package included in the World Bank disaster and agriculture project in Assam. A pilot study is ongoing in Sri Lanka and plans to expand in Nepal.

The next two speakers Wolfgang Pejuan and Sofia Martinez Saenz presented the Honduran case of participatory design of index insurance. The presenters discussed the participatory design of drought risk financial tool: index insurance with focus on micro level as opposed to the traditional products offered in the market of crop insurance schemes. The key in this project was the focus on developing local capacity on index insurance, to enhance bottom-up approaches. Under this project, the scientists worked with all the different types and levels of stakeholders throughout the process, ultimately leading to interest coming from within the country to implement a commercial product. They concluded the presentation with the results of participatory tools like interactive exercises and experimental dry-run and their importance in crop insurance.

Following these presentations and brief discussions, the workshop was closed for the day.

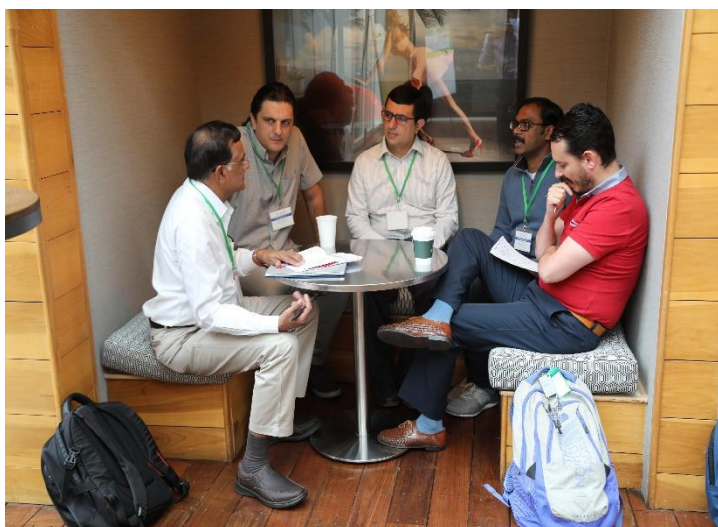
5. Future Work and South:South Collaboration on Crop Insurance

Day 2 began with round table discussions on future work and south-south collaboration on crop insurance. For the first group discussion, the participants were divided into 4 groups to strategize and plan areas of future collaboration across regions to develop user engaged tools for insurance. Each group was guided by one Regional Program Leader and comprised of at least one member from each region. Following the group discussion, the insights were shared amongst the workshop participants in an open discussion. The details are presented in Annex 1.

The participants were also asked to develop preliminary regional proposals and collaboration plans for south-south collaboration on crop insurance. The participants were divided into region wise groups guided by the Regional Program Leader in order to design regional proposals for collaboration. These are organized into a table and attached to this report as Annex 2.

6. Technology Adaptation

Domains for Climate Risk Management



The last session of the workshop began with Robert Zougmore's presentation on review of approaches for technology adoption domains for climate risk management. In his presentation, he explained the need for technology transfers and frameworks to support more effective research prioritization and development of programs as well as to facilitate adoption by farmers. He discussed in detail the technology approaches for scaling out-Technology Extrapolation Domain (TED) and CSA Compendium. Robert also presented the major challenges for development of analysis for technology transfers/ scaling out as well as major challenges in development of such frameworks.

Julian Ramirez-Villegas presented a background of the Climate Analogues tool developed by CCAFS for technology transfers. He explained how the tool connects sites with statistically similar climates across space and/or time along with the possible analogues (backward looking, forward looking and current to current). The practical application of the tool in the form of genetic resource exchange as well as farms of the future was explained using examples. He further stressed the importance of the climatic comparison in analogues to be accompanied by socio-economic comparisons; expansion of tool to calculate temporal analogues and incorporation of new climate projections.

Pramod K. Aggarwal then introduced the analogues of climate and socio-economic development. He elaborated on how a combination of socio-economic and agronomic variables together with key climatic variables can potentially help a lot in technology targeting and capacity building of stakeholders. A sound knowledge of genotype by environment by management interactions needs to be captured in such a tool.

Paresh Shirsath then presented the overview of "My Future Farm" tool. The outline and idea presented in this tool was about the extension of Climate Analogue tool to take into account non-climatic factors in scaling out of agriculture technologies and knowledge. The initial flow chart of the tool with a case study was also presented to show the potential of the tool.

Following the two days of insightful discussions on various tools and frameworks on technology adoption and domains for climate risk management, the workshop floor was open for a full house discussion followed by regional round table discussions for development of regional proposals for south-south collaboration on any of the possible domains based on regional interests and needs. The perspectives of the workshop participants shared via open house are detailed below and the regional proposals are organized in a table and presented in Annex 3:

1. Need for identification and development of new approaches to tap women's participation.
2. Climate analogues and role of gender in coping strategies.
3. Imperative to factor in the sustainability as well as maintenance of tools and projects after project completion.
4. Inclusion of national teams in development stages of tools for regional uptake and utilization.
5. Integration of tools in different projects.
6. Opportunities for involvement of government and private agencies in building awareness of the tools.
7. Development of framework for CRP collaboration.
8. Need for comparing effectiveness of regional tools versus global tools.

7. Outcomes of the Workshop

Crop-Loss Assessment Monitor tool was presented in CCAFS South-South Collaboration workshop in New York. The methodology was discussed at length in the workshop. It has been decided to evolve the CAM tool into a more robust and comprehensive package, which has to be further tailored for regional needs.

Based on discussion in IRI, Columbia, the activities have been planned in two phases. Phase-I activities focus on identifying user requirements, regional specificities and improving the methods. The following work plan has been planned for CAM:

Table 1: Planned activities, time lines and responsible person for CAM development

Planned Activities	Responsible person (Country)	Months											
		1	2	3	4	5	6	7	8	9	10	11	12
Phase-I													
Identify region and local institution(s)	K(E), P-S(V), J(G), P(I) & G(S)												
Define user requirements and update backlog	K(E), P-S(V), J(G), P(I) & G(S)												
System architecture	P + All												
Incorporating region-specific crop models / multi-models (e.g. APSIM in SEA, InfoCrop in SAS, DSSAT in LAM/EAF)	P + All												
Incorporate translators	S												
Including existing country-specific calibration/evaluation	CL												
Incorporation of station data	P												
Station data QC and gap filling	J												
Bias-correction of SRE	G, K, S												

Annex I: Round table discussion on priority areas for future collaboration across regions for insurance

Group	Participants	Priority areas for collaboration
1	Pramod Kumar Aggarwal, Pablo Imbach, Wolfgang Pejuan, Shridhar Gummadi and Pierre Sibiry Traore	<ul style="list-style-type: none"> • Climate services and insurance • Industrialization of tools and knowledge • Lessons from meso-insurance in Latin America • Bundling insurance and CSA
2	Ana Maria Loboguerrero Rodriguez, Giriraj Amarnath, Issa Ouedraogo, Shalika Vyas, Daniel Osgood, Jana Korner and Jemal Sied	<ul style="list-style-type: none"> • Developing guidelines for participatory process • Business models • Integration and collaborative modelling efforts • Crowd Sourcing
3	Dawit Solomon, Sheshkumar Goroshi, Timothy Joseph Krupnik, Nguyen Do Anh Tuan and Degefie Tibebe	<ul style="list-style-type: none"> • Increase stakeholder awareness • Availability of quality data • Analytical capital development sharing • Integrated online framework and appropriate ontology • Contextualized application of CAM
4	Robert Zougmore, Julian Ramirez-Villegas, Paresh Shirsath, Kindie Tesfaye Fantaye and Mansi Nagpal	<ul style="list-style-type: none"> • Common platform for insurance design and monitoring • Consideration to regional specific issues

Annex II: Regional round table discussion to develop preliminary proposals on future collaboration across regions for insurance

Group	Region	South: South Opportunities
2	East Africa	<ul style="list-style-type: none"> • Participatory approach to identify insurance and climate services across the regions • Build integrated database and data infrastructure through crowd sourcing and participatory approach • Capacity building through training and experience sharing • Participatory product development and maintenance • Scaling region-specific products and services • Develop science and enabling policy platform
4	Latin America	<ul style="list-style-type: none"> • Development of user oriented guidelines for insurance • Enabling evaluation of relevant aspects through collation of success stories across regions
5	South Asia	<ul style="list-style-type: none"> • Facilitation of exchange program for researchers, insurance agencies, regulatory bodies and other stakeholders for cross regional learning • Data analytics and modelling for all stakeholders across regions • Climate information services –the Senegal experience, CSR4D-leverage bilateral and bundling of insurance products
3	Southeast Asia	<ul style="list-style-type: none"> • Develop business model for insurance linked to specific value-chains

		<ul style="list-style-type: none"> • Capacity development for data analysis and integration of tools like CAM through training and learning by doing • Exchange program and information sharing to support policy and governance
1	West Africa	<ul style="list-style-type: none"> • Learning from institutional arrangement in government led initiatives (like India) to reduce investment risk • Bottom up process (like Honduras) and data infrastructure (CAM) for building trust around agriculture insurance in the region • Participatory process and farmer engagement for insurance inclusiveness • Create science-industry linkages and business model to ensure sustainability and scalability of insurance programs

Annex III: Regional round table discussion to develop preliminary proposals on future south-south collaboration across regions

Group	Region	South: South Collaboration Opportunities
2	East Africa	<ul style="list-style-type: none"> • Co-development of tools with national institutions for regional use • Technical capacity building • Aggregation of data and experience sharing • Validation of tools
4	Latin America	<ul style="list-style-type: none"> • Use network of CSV's and partners for parametrization of my future farm analogues through vertical trials and preference studies • Inclusion of socio-economic scenarios in analogues using CGIAR and partners data sets from different regions • Need monitoring of community of users
5	South Asia	<ul style="list-style-type: none"> • Prioritize and target of application of climate analogues • User driven request for information for climate analogues • Innovation in addressing scale dependency of the analogues • Link of CSA sites for data sharing and validation using proxy data indicators • Developing guidelines for methodology development
3	Southeast Asia	<ul style="list-style-type: none"> • Research cooperation on drought/flood/land slide monitoring and forecasting • Models for PPP in agricultural insurance sector
1	West Africa	<ul style="list-style-type: none"> • Use of My future farm tool in discovering as well as scaling technologies • Identification of entry point other than climate • Sharpening focus on scales that incentivize private investment • Model validation based on existing and emerging south-south ventures

Annex IV: Program

Day	Time	Topic	Resource persons
Monday, 23 July 2018			
23-Jul	08.30-9.00	Registration	
	09.00-11.00	Session 1: Crop insurance scope, schemes, designs <i>Chair: Ana Maria Loboguerrero Rodriguez, CIAT-CCAFS, Colombia</i>	
	09.00-9.05	Introductions	
23-Jul	09.05-9.15	Welcome and objectives of the workshop	Pramod Aggarwal, <i>CIMMYT-CCAFS, India</i>
23-Jul	09.15-9.30	South: south collaboration for climate risk management: Opportunities	Ana Maria Loboguerrero Rodriguez, <i>CIAT-CCAFS, Colombia</i>
23-Jul	09.30-10.00	Crop insurance for risk management - Global perspective	Daniel Osgood, <i>IRI, United States</i>
23-Jul	10.00-10.10	Current status of insurance in Latin America	Jose Manuel Iraheta Bonilla, <i>ECLAC, Mexico</i>
23-Jul	10.10-10.20	Current status of insurance in East Africa	Jemal Sied and Dr. Degefie Tibebe, <i>EIAR, Ethiopia</i>
23-Jul	10.20- 10.30	Current status of insurance in West Africa	Issa Ouedraogo, <i>ANACIM, Senegal</i>
23-Jul	10.30-10.40	Current status of insurance in Southeast Asia	Nguyen Do Anh Tuan, <i>IPSARD, Vietnam</i>
23-Jul	10.40-10.50	Current status of insurance in South Asia	Sheshkumar Goroshi, <i>CIMMYT-CCAFS, India</i>
23-Jul	10.50-11.00	General discussion	
23-Jul	11.00-11.30	Break	
23-Jul	11.30-12.30	Session 2: Designing insurance products and schemes- what is limiting in CCAFS regions-schemes, products, capacity, capital? <i>Panel discussion moderated by Pramod Aggarwal, CIMMYT-CCAFS</i>	
23-Jul	11.30-11.35	Latin America	Jose Manuel Iraheta Bonilla, <i>ECLAC, Mexico</i>
23-Jul	11.35-11.40	East Africa	Sridhar Gummadi, <i>ICRISAT, Ethiopia</i>
23-Jul	11.40-11.45	West Africa	Pierre Sibiry Traore, <i>ICRISAT, Senegal</i>
23-Jul	11.45-11.50	Southeast Asia	Pablo Imbach, <i>CIAT, Vietnam</i>
23-Jul	11.50-11.55	South Asia	Paresh Sirsath, <i>CIMMYT-CCAFS, India</i>
23-Jul	11.55-12.30	Discussion	

23-Jul	12.30-13.30	Lunch	
23-Jul	13.30-17.00	Session 3: Introduction to Crop Loss Assessment Monitor (CAM) and other tools <i>Chair: Robert Zougmore, ICRISAT-CCAFS</i>	
23-Jul	13.30-13.40	CAM overview	Pramod Aggarwal, <i>CIMMYT-CCAFS, India</i>
23-Jul	13.40-13.55	CAM architecture	Paresh Shirsath, <i>CIMMYT-CCAFS, India</i>
23-Jul	13.55-14.10	Discussion	
23-Jul	14.10-14.20	Case study using CAM: Estimates of sowing failure	Sheshkumar Goroshi, <i>CIMMYT-CCAFS, India</i>
23-Jul	14.20-14.30	Case study using CAM: Viability of crop insurance in Andhra Pradesh	Mansi Nagpal, <i>CIMMYT-CCAFS, India</i>
23-Jul	14.30-14.40	Case study using CAM on Weather Based Index Insurance	Shalika Vyas, <i>CIMMYT-CCAFS, India</i>
23-Jul	14.40-15.00	Discussion	
23-Jul	15.00-15.30	Break	
23-Jul	15.30-16.30	Hands-on on CAM	Paresh et al., <i>CIMMYT-CCAFS, India</i>
23-Jul	16.30-16.40	Earth Observation and IoT tools (NADiRA)	Pierre Sibiry Traore, <i>ICRISAT, Senegal</i>
23-Jul	16.40-16.50	Flood insurance	Giriraj Amarnath, <i>IWMI, Sri Lanka</i>
23-Jul	16.50-17.00	Insurance approach and tools in Honduras	Wolfgang Pejuan, <i>Zamorano University, Honduras</i> and Sophia Martinez, <i>IRI, Honduras</i>
Tuesday, 24 July 2018			
24-Jul	09.00-12.00	Session 4: Future work and South:South collaboration on crop insurance <i>Chair: Leo Sebastian</i>	
24-Jul	09.00-09.30	Round table discussions- 3-4 Tables guided by RPLs	
24-Jul	09.30-10.00	Open discussion	
24-Jul	10.00-10.30	Break	
24-Jul	10.30-11.30	Development of preliminary regional proposals	All regions
24-Jul	11.30-12.00	Presentation of regional proposals and collaboration plans	Regional Reps
24-Jul	12.00-13.00	Lunch	
24-Jul	13.00-17.00	Session 5: Technology adaptation domains for climate risk management <i>Chair: Dawit Solomon, ILRI-CCAFS</i>	
24-Jul	13.00-13.30	Technology adaptation domains for climate risk management: Review of approaches	Robert Zougmore, <i>ICRISAT-CCAFS, Mali</i>
24-Jul	13.30-13.45	Climate analogue tool	Julian Ramirez-Villegas, <i>CIAT, Colombia</i>

24-Jul	13.45-14.00	Analogues of climate and socio-economic development- Introduction	Pramod Aggarwal, <i>CIMMYT-CCAFS, India</i>
24-Jul	14.00-14.30	My Future Farm tool - An overview	Paresh Shirsath, <i>CIMMYT-CCAFS, India</i>
24-Jul	14.30-15.30	Open discussion, future work and collaboration	
24-Jul	15.30-16.00	Break	
24-Jul	16.00-16.30	Preliminary proposal development by the regions	All regions
24-Jul	16.30-17.00	Synthesis, conclusions and next steps	RPLs, CCAFS
24-Jul	17.00	Close	

Annex V: List of Participants

SL. NO.	NAME	ORGANIZATION
1.	Pramod Aggarwal	CCAFS
2.	Giriraj Amarnath	IWMI
3.	Paresh Shirsath	CCAFS
4.	Shesh Goroshi	CCAFS
5.	Shalika Vyas	CCAFS
6.	Mansi Nagpal	CCAFS
7.	Robert B. Zougmore	CCAFS
8.	Pierre C. Sibiry Traore	ICRISAT
9.	Issa Ouedraogo	ICRISAT
10.	Bouba Traoré	ICRISAT
11.	Pablo Imbach	CIAT
12.	Nguyen Do Anh Tuan	Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD)
13.	Leocadio S. Sebastian PhD	CCAFS
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