

South-South Collaboration in CCAFS for Developing Capacity on Weather Index Insurance

New Delhi, 25th to 28th February, 2019



Workshop Proceedings

Introduction

Climate risk management has become a key area for research and policy dialogue due to increasing threats of disasters and climate extremes, which are likely to increase due to climate change. These climatic risks threaten food production systems, creating sudden food supply shocks and increase vulnerability of farm livelihoods, especially the smallholders. Global south (including Latin America, Africa, South and South-east Asia) is a major hotspot for climatic risk challenges due to high exposure to climate extremes when compared to temperate regions, high incidences of poverty, poor enabling environments and low regulatory support.

With this backdrop, the CGIAR Research Program Climate Change, Agriculture and Food Security ([CCAFS](#)) has been working in Africa, Latin America and Asia together with its partners on accelerating climatic risk management through a dedicated [research flagship](#) to Climate services and safety nets. Over time, these regions have acquired a lot of expertise in site-specific technologies, practices, institutional models and policies that can potentially also be used in other regions. CCAFS therefore decided to mobilize stakeholders in different regions to facilitate the diffusion of learnings and advances in climate risk management from one region to another. This workshop was planned after feedback and follow-up from [South: South collaboration on climatic risk management workshop in New York](#), concurrent with the needs and demands of the stakeholders.

The specific objectives of this meeting were:

1. To raise capacity in the regions to develop index insurance products and weather trigger atlas for the regions
2. To work with other regions on creating location-specific weather triggers, through excel based exercises
3. To work with other regions to develop index insurance contract and it's ratemaking through excel based exercises
4. To discuss the current status and develop future work plan of [Crop-loss Assessment Monitor](#) as a tool for strengthening climate risk initiatives in respective regions

The workshop was designed to engage all stakeholders and raise their capacity on weather index insurance through simple excel-based exercises on the first two days. The third and fourth day were dedicated to indemnity insurance (area-yield insurance), increasing use of multiple models for loss assessment and to develop a road-map for CAM, map the key stakeholders to engage for initiating weather index insurance in respective regions, along with required processes, resources and timeline to achieve the same. The agenda of the workshop and the list of participants who attended, is appended as annexure 1 and annexure 2 at the end of the report.

Day 1

The first day focused on follow-up of SSC workshop in New York and exercise sessions on weather index design and premium estimation. *Session 1* started with registration of the participants, brief introduction followed by introduction, objectives and key expectations for the workshop. Pramod Aggarwal introduced the participants to the design and objectives of the workshop, the follow-up plan after SSC meeting in New York and the current status of the work plan developed in New York, including key focus areas. Representatives of each region then elaborated on their specific expectation from this workshop, key skills and knowledge which their region expected from this workshop.

Session 2 was designed for raising the capacity of the participants for developing specific weather triggers for an index insurance scheme. The session was introduced by Pramod Aggarwal, who also discussed the key steps for developing an insurance scheme in a country, including the specific focus areas of this workshop in the design process. Kindie Tesfaye next gave a detailed overview of crop-weather relationship including critical phases in a crop's life cycle and their relationship with weather. This knowledge was critical for developing weather indices in the following exercises by the participants. Paresh Shirsath first gave an overview of the weather trigger design process, the methodology followed in weather derivatives market, followed by 5 excel-based exercises, which the participants were required to complete. The demonstration of first and second exercise was given by Paresh Shirsath which dealt with developing weather trigger for a single and multiple rainfall based weather trigger, using crop-weather regression. The rest of the exercises were increasingly complex in nature, with fifth exercise dealing with development of weather trigger for disease and pest conditions for potato crop.

Session 3 continued the hands-on trigger design process by Paresh Shirsath, followed by a presentation by Shalika Vyas on ratemaking (premium estimation) and other cost components for developing weather-index insurance scheme. The concepts and methodology required for premium estimation in index insurance was explained in detail. The presentation was followed by five excel-based exercises to be completed by the participants. The first two exercises for demonstrated in detail, upon which the participants themselves practices premium-estimation. The five exercises increased in complexity, with the last exercise designed for calculation premiums for multi-phase and multi-peril index insurance contract. Both the exercises in session 2 and session 3 were highly interactive in nature. Participants hand-holding was done at every step initially, and afterwards ample time was provided to do their own calculations using the excel templates.

Day 2

This day focused on methods to improve index insurance products, cross-regional learnings and use of satellite data in index insurance. *Session 1* started with introducing the participants to optimization techniques to improve weather triggers. Paresh Shirsath gave a presentation on the optimization procedure followed by hands-on excel-based exercises for the same. This was followed by presentations on evolution and status of index insurance in Senegal by Issa Ouedraogo. Manuel Brahm presented participatory approach of index approach using a combination of remote sensing and participatory rural appraisals in Honduras. Peter Laderach presented the case of Nicaragua where index insurance was developed using satellite weather generator MarkSIM.

The next session, *Session 2* focused on use of satellite weather data for insurance. The panel discussion included a thematic presentation by Sridhar Gummadi on use of satellite weather data in Vietnam for developing index insurance, including improving the accuracy of satellite weather data by observed station data training using tools like CDT (Climate Data Tool) developed by IRI, Columbia. This was followed by discussion by panelists Manuel Brahm, Pierre Sibiry Traore, Sridhar Gummadi and Teferi Demissie on opportunities and challenges in developing and scaling out index insurance from satellite data.

Next, Pramod Aggarwal outlined how to develop a weather trigger and premium rate atlas, presenting the results from India. After this, the participants grouped themselves in region-wise groups and discussed how to develop a weather trigger and premium rate atlas for their respective regions. The results from the group discussion are summarized in the table below:

Table 1: Summary of group discussion on weather trigger atlas development

Topic	Details in your region/country	Additional Comments, if any
Important crops for which index insurance is desired	Maize, Cotton- <i>West Africa</i> Pigeon pea- <i>South Asia</i> Rice, Cassava, Coffee- <i>South-east Asia</i> Maize, Wheat, Sorghum- <i>East Africa</i> Coffee, Maize- <i>Latin America</i>	
Data Availability Station weather Data-RF Station weather Data- Temperature	Station data and crop production data not available - <i>West Africa</i> All data available- <i>South Asia</i> Station weather data of temperature not available- <i>South-east Asia</i>	Soil health data needed- East Africa

<p>Historical Crop yield data Satellite Data Any other</p>	<p>Crop production data at provincial level available, crude data for station data of temperature - <i>East Africa</i> Historical crop production data missing, station rainfall data available at some places- <i>Latin America</i></p>	
<p>Critical Perils to be covered Rainfall Distribution Droughts Floods Pests and Disease Hailstorm Extreme Temperature Frost</p>	<p>Dry spell, drought- <i>West Africa</i> Drought, flood- <i>South Asia</i> Flood, salinity, excessive rainfall- <i>South-east Asia</i> Rainfall distribution, drought, pests/diseases- <i>East Africa</i> Drought, El-Nino effects, Rainfall distribution- <i>Latin America</i></p>	<p>Include salinity- South-east Asia</p>
<p>Farming systems and management characteristics (Rainfed/irrigated, Mixed farming etc.)</p>	<p>Rainfed, mixed- <i>West Africa</i> Rainfed and Irrigated- <i>South Asia</i> Irrigated, single- <i>South-east Asia</i> Rainfed, mixed - <i>East Africa</i> Rainfed, mixed- <i>Latin America</i></p>	<p>Smallholder cultivation, very small farm size- West Africa</p>
<p>External Support Needed in which area</p>	<p>Trigger design, ratemaking- <i>West Africa</i> Trigger design- <i>South Asia</i> Product design, improvement- <i>South-east Asia</i> Index development- <i>East Africa</i> Index development, trigger design- <i>Latin America</i></p>	

Day 3

This day focused on follow-up from SSC meeting in New York, need for CAM tool and future work plan. In *Session 1*, Deissy Baron recapped the proceedings from previous day, followed by a detailed presentation by Pramod Aggarwal on CAM (Crop-Loss Assessment Monitor) tool. He described the current status of the tool, opportunities for collaboration and an introduction to hybrid models (also used in CAM tool). This was followed by a group discussion on further development of CAM- as a region-specific tool or a global product.

Session 2 dealt with hybrid insurance products, which included a combination of statistical models, remote sensing, satellite weather data, observed station data and crop modelling outputs. Sibiry Traore gave a presentation on Phygital agriculture using blending of index and indemnity insurance for smallholders. This was followed by a brief overview of work done on remote sensing in ICRISAT by Md Irshad and how it can be used for developing index insurance products. This was followed by a group discussion from all participants on how to use hybrid products for index insurance development.



Day 4

This day focused on discussion initiated on day 3 for CAM tool, and a detailed assessment of future priority areas and work plan design was carried out on this day.

Session 1, Ana Maria Loboguerrero Rodriguez recapped the discussions from day 3. This was followed by a panel discussion on challenges in scaling-out insurance in different regions by panelists Diego Pons, Issa Ouedraogo, Peter Laderach and Kindie Fantaye. The panelists shared their experience in scaling out various index insurance pilots in their regions. Diego Pons also presented his experiences from Act-today program of IRI. Peter Laderach shared his experiences on how to scale out insurance projects with organizations like IFAD and WFP. This was followed by discussion from all the participants on work plan for CAM tool development. All regions presented their work plans of their regions and key priority areas for future development. All regions stated that they have already done stakeholder engagement through meetings and informal discussions since SSC meeting in New York. It was agreed that next step for all regions included a demand assessment for a tool like CAM, assessing whether it will be useful to different stakeholders for the future, and developing a clear work plan to pilot and scale out insurance for risk management in their respective regions.



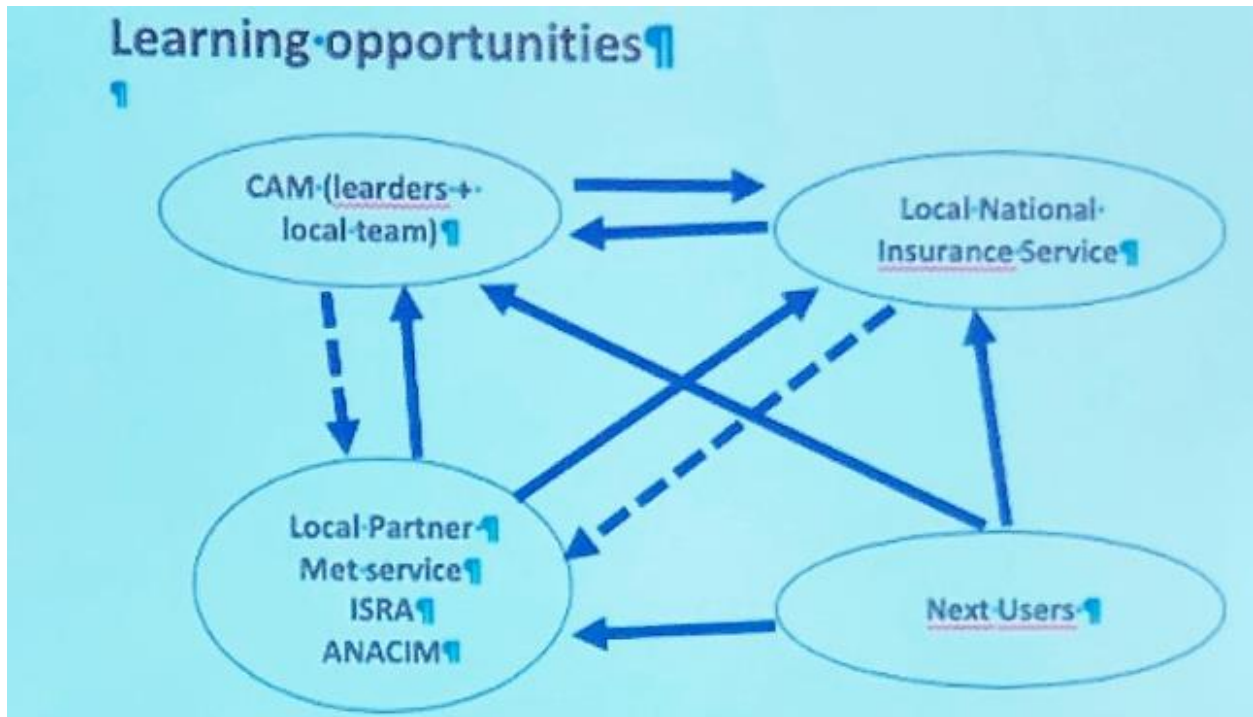
Regional Work plans

East Africa

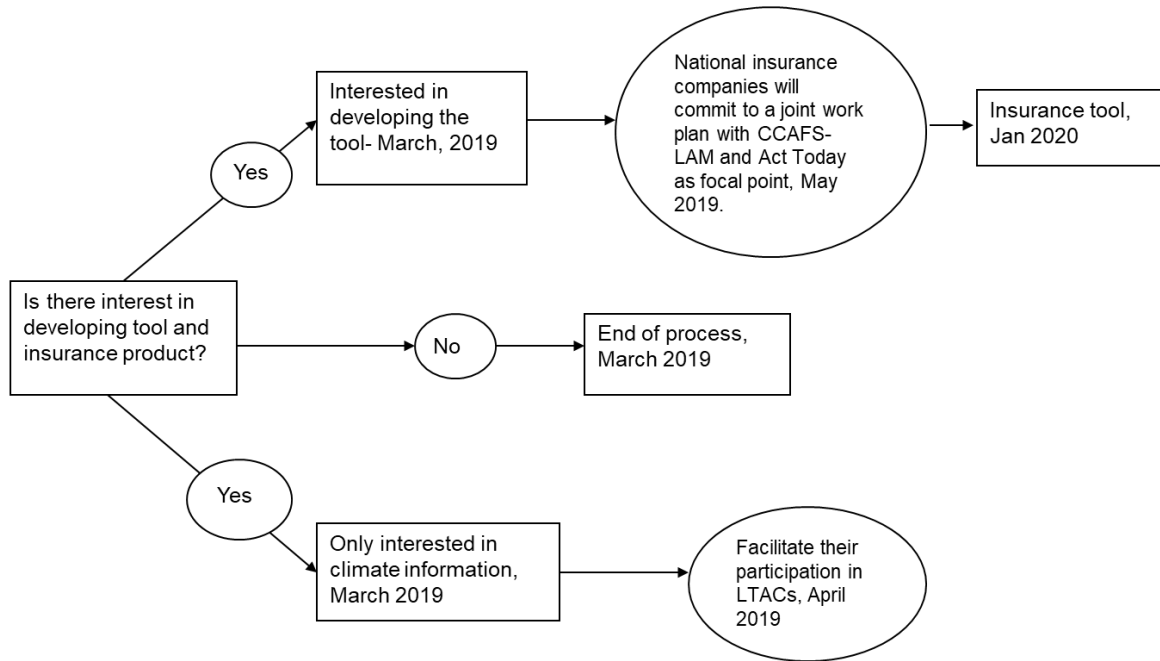
No	Activity	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Finalize Demand Assessment										
2	Prepare and standardize the required input data for CAM										
3	Assess existing indices being used by the insurance companies										
3	Finalize programming of the existing CAM platform as a unifying global platform										
4	Customize the global platform (CAM) to EA (Ethiopia) and test the system in East Africa (Ethiopia) for selected commodity										
5	Experience sharing with other region										

West Africa

<i>Date</i>	<i>Activity</i>	<i>Comment</i>
March-April	Data collection and cleaning	Issa, Sibiry and Bouba for data collection and cleaning
May-June	Data-validation	Senegal team to work with India team for CAM development
May-June	Image processing for extracting relevant data	CCAFS-WA to work with ICRISAT for remote sensing model of CAM
May-June	Partner involvement (CNAAS,PG,ANACIM, CSE, Research institutes)	CNAAS/Planet GAURANTEE will be actively involved in tool development
June-September	Testing CAM for Senegal	CAM India team to visit Senegal for CAM tool finalization and other inputs
November to December	Stakeholder engagement workshop	Results and final tool to be presented to all the stakeholders



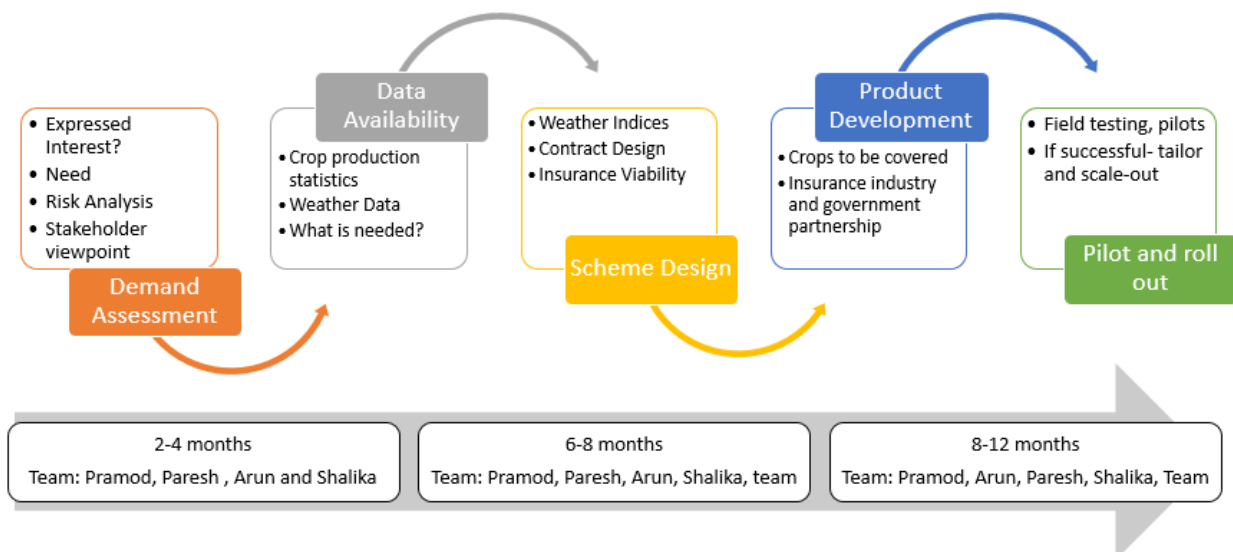
Latin America



South Asia

Work plan for South Asia

Develop weather-index scheme for Nepal and later Bangladesh-?

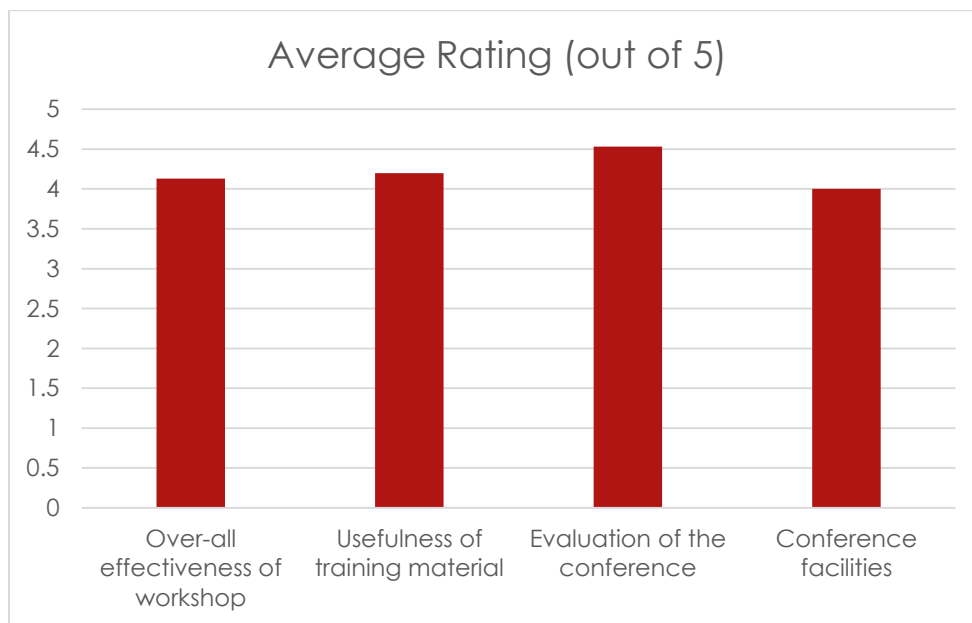


South-East Asia

South-east Asia focused on building their ongoing partnership with IPSARD and VinaRE, and developing CAM as a regional tool for crop loss monitoring. Work plan also included developing index insurance tools for salinity and excessive rainfall, which is the most important peril for Vietnam.

Concluding Session

Session 2 was the concluding session of the workshop where all participants shared their feedback (based on feedback survey), which is summarized below in the chart and specific comments are appended at the end of report. The workshop was concluded by closing remarks from all region program leaders.



Annexure 1

Agenda for South-South Collaboration in CCAFS for Developing Capacity on Weather Index Insurance

Day#1 [25 February, 2019]

Time	Activity	Resource Person
Setting the agenda		
<i>Session Chair: Dawit Solomon</i>		
0915 to 0930	Registration	Meenakshi Chandiramani
0930 to 0955	Introduction, objectives of the meeting and Follow-up of SSC meeting in New York	Pramod Aggarwal
0955 to 1020	Expectations and Setting the agenda	Pierre C. Sibiry Traore Paresh Shirsath Sridhar Gummadi Kindie Tesfaye Fantaye Deissy Martinez Baron
1020 to 1050	Tea/Coffee break and Group Photo	
Weather Index Design		
<i>Session Chair: Issa Ouedraogo</i>		
1050 to 1055	Session Introduction	Pramod Aggarwal
1055 to 1130	Steps for developing an insurance scheme	Pramod Aggarwal and teams
1130 to 1200	Critical phases in a crop's life cycle and their relation with weather	Kindie Tesfaye Fantaye
1200 to 1300	Trigger Design Process and hands-on exercises based on Excel	Paresh Shirsath
1300 to 1400	Lunch break	
Premium Estimation		
<i>Session Chair: Deissy Martinez Baron</i>		
1400 to 1445	Hands-on on trigger design- continued	Paresh Shirsath
1445 to 1515	Calculation of Premium and other related cost components	Shalika Vyas
1515 to 1545	Tea/Coffee break	
1545 to 1700	Hands-on exercises on premium calculations using Excel	Shalika Vyas
[Day-1 Ends]		

Day#2 [26 February, 2019]

Time	Activity	Resource Person
Index Insurance approaches		
<i>Session Chair: Vu Xuan Thanh</i>		
0915 to 0930	<i>Recap of the Day#1</i>	Pramod Aggarwal
0930 to 1100	Optimization/fine tuning of triggers for satisfaction of all stakeholders: Introduction and hand-on exercises	Paresh Shirsath, Pramod Aggarwal and Shalika Vyas
1100 to 1130	Tea/Coffee break	
1130 to 1230	Index insurance approaches in other regions	Peter Läderach Manuel Brahm Issa Ouedraogo
1230 to 1330	Lunch break	
Use of Satellite Weather Data for Insurance		
<i>Panel Moderator: Pramod Aggarwal</i>		
1330 to 1430	Panel Discussion	Thematic Presentation: Sridhar Gummadi Panel: Manuel Brahm Pierre C. Sibiry Traore Sridhar Gummadi Teferi D Demissie
1430 to 1445	Atlas of insurance triggers- Outline	Pramod Aggarwal
1445 to 1515	Tea/Coffee break	
1515 to 1700	Individual Team discussion on trigger design process for their country (60 mins) and strategy for weather trigger atlas (45 mins)	All participants
[Day-2 Ends]		

Day#3 [27 February, 2019]

Time	Activity	Resource Person
Crop-loss Assessment Monitor		
<i>Session Chair: Dawit Solomon</i>		
0915 to 0930	<i>Recap of the Day#2</i>	Deissy Martinez Baron
0930 to 1000	CAM (Crop-loss Assessment Monitor): Overview, current status and opportunities for collaboration; including introduction to hybrid models	Pramod Aggarwal
1000 to 1100	Discussion on further development of CAM : A global CCAFS tool or regional versions	All participants
1100 to 1130	Tea/Coffee break	
Hybrid Insurance products		
<i>Session Chair: Peter Läderach</i>		
1130 to 1200	Phygital agriculture blending index and indemnity based insurance for smallholder farmers	Pierre C. Sibiry Traore
1200 to 1300	Discussion on Hybrid models for CAM/insurance	All participants
1300 to 1400	Lunch break	
1400 to 1930	Field visit followed by workshop dinner	

Day#4 [28 February, 2019]

Time	Activity	Resource Person
Scaling out Insurance		
<i>Session Chair: Ana Maria Loboguerrero Rodriguez</i>		
0915 to 0930	Recap of the Day#3	Ana Maria Loboguerrero Rodriguez
0930 to 1030	Panel Discussion: Challenges in scaling out insurance in different regions	Moderator: Ana Maria Loboguerrero Rodriguez Panel: Diego Pons Issa Ouedraogo Peter Läderach Kindie Tesfaye Fantaye
1030 to 1100	Tea break	
1100 to 1200	Bilateral discussions and agenda guided by participants on collaboration in insurance/ modelling	All participants
1200 to 1300	Lunch break	
1300 to 1400	Region wise work plan and way forward- Team work	All participants
1400 to 1430	Tea break	
Concluding Session		
<i>Session Chair: Ana Maria Loboguerrero Rodriguez</i>		
1430 to 1500	Presentation of regional work plans	Team Leaders
1500 to 1530	Discussion on planning a global study on weather index insurance: outline, responsibilities and timelines	All participants
1530 to 1545	Comments from all regions and Closing	Ana Maria Loboguerrero Rodriguez Dawit Solomon Pramod Aggarwal


Annexure 2

Participant List

Number	Name of the participant	Contact: Email
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6	Deissy Martinez Baron	d.m.baron@cgiar.org
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8	Issa Ouedraogo	I.Ouedraogo@cgiar.org
9	Jemal Seid	jemsethio@gmail.com
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18	Md Irshad	Irshad@CGIAR.ORG
19	Paresh Shirsath	P.Bhaskar@cgiar.org
20	Pramod Aggarwal	P.K.Aggarwal@cgiar.org
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Annexure 3 Registration Form

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4	Daniel Amariles	D.Amariles@CGIAR.ORG	
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6	Deissy Martinez Baron	d.m.baron@cgiar.org	
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17	Kumara Charyulu Deevi	D.KumaraCharyulu@cgiar.org	
18	Md Irshad	Irshad@CGIAR.ORG	
19	Paresh Shirsath	P.Bhaskar@cgiar.org	
20	Pramod Aggarwal	P.K.Aggarwal@cgiar.org	
21	Shalika Vyas	S.VYAS@cgiar.org	

Annexure 4

Workshop Feedback- Specific Comments

What additional features do you expect from such training?

Visiting farmers and some insurance companies; More sample historical data to play with; The training was very effective; I expect to have more hands-on exercises and more specific demonstration of the tool such as CAM; more hands-on exercises with the excel templates; CAM and any other hybrid models of insurance; more practice on uploading data for CAM. More practice on climate index like temperature or soil water holding capacity; the practical training on CAM tool; collectively evaluate the products for various regions, to understand and share lessons individuals has learnt; Hands-on training; Training materials on all the methods and documentation with exercises; More exercises and connect with industry.

What type of insurance products are you interested in? (Weather index, yield index, blended or other)

Yield index and blended; All; weather index; Both; Weather index and blended products; all; Weather and yield index and blended products as well; yield index basically; Index insurance and area yield insurance; Area yield and weather index based on the needs; Weather index and blended; Blended; Blended;

What aspects of the conference were of most value to you?

Learnings from other regions; presentations, panel, coffee break talk; The training and hearing from other regions; Hands-on exercises on developing weather index based insurance product; excel templates; Capacity development and global demand for weather index based insurance products; trigger analysis, premium calculation; the practical exercises; Index designing; Exchange of challenges and learnings from other regions; CAM; Discussion; Exercises.

What aspects of the conference were of least value to you?

Missing parallel sessions to share specific aspects such: legal, finance, software; All aspects of the conference are valuable to me; ACToday; Nothing; The demonstration of the CAM tool.

Please give your suggestions for topics for future South-South Collaboration?

Climate extremes; Demonstration on finished tools; visiting insurance companies, case studies on real life experiences and interventions; consider this methodology http://www.kstoolkit.org/open_space; Insurance for rainfed crops, sharing the experiences and success stories for WBIS products, south-south collaboration for future development; Collectively develop CAM as a global product.

Annexure 5 Workshop Photos

