



Climate Information Services, Climate-Smart Agriculture, and One Health Innovations for Resilient Food Systems: Capacitation of Intermediaries and Lead Farmers in Ghana

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Abstract

Capacity building is an essential component of climate change adaptation initiatives. Towards increasing the resilience of communities, the Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) project organized training workshops for extension officers and lead farmers from AICCRA intervention communities. Two hundred and nineteen participants of which 31% and 29 % were females and lead farmers respectively, were trained in June and November 2022 on climate information services, climate-smart One Health innovations and sustainable finance. Beneficiaries of these training workshops were from eleven (11) Districts and Municipalities in the AICCRA intervention regions namely; Cape Coast and Komenda Edina Eguafo Abirem in the Central Region, Ga South in Greater Accra Region, Kintampo North, Kintampo South and Techiman North in Bono East Region, Jirapa and Lawra in Upper West Region, Bongo, and Kassena Nankana in Upper East Region and Tolon in Northern Region. Training content included basic concepts of climate change and its impact, climate adaptation and mitigation options, sources of climate information, understanding and interpreting historical climate information and graphs, seasonal forecast, and short-term forecast and warnings. The trainers were also provided with knowledge on understanding climate-smart One Health concept, conducting One Health risk assessment and action plan, and developing One Health risk register. In addition to these, participants were introduced to business opportunities and matchmaking, and enablers and opportunities for sustainable financing of bundled services using AICCRA value chains and prioritized technologies. The practical sessions of the workshop help participants to work in teams/groups to share knowledge and experiences on climate change impact and agriculture-based coping strategies and adaptation options as well as develop initial adaption activities and future training needs for improved livelihood. Increased capacitation of beneficiaries will help address the challenges of climate change and climate variabilities of smallholder farmers in Ghana.

Background of Training

Climate change poses a great threat to food security in Ghana (Yeboah et al., 2021), where agricultural production is dominated by smallholder farmers who produce under rainfed conditions. However, changes in rainfall amounts and patterns, with shifts in the start of the rainy seasons and their influence on the health of plants, soil, water, animals, and the environment have contributed to making smallholder farmers, particularly those in ecologically fragile, risk-prone agroecological areas like Ghana, more vulnerable to food and nutrition insecurity (CIKOD and PFAG, 2018).

Towards building the resilience of communities, particularly AICCRA intervention communities, AICCRA project organized training workshops for staff of the Department of Agriculture, lead farmers, and stakeholders to build their capacities on AICCRA prioritized climate-smart agriculture practices, climate information services, and climate-smart One Health Innovations, which are tailored to the needs and aspirations of the communities.

Training Objectives

The objective of the training workshops was to strengthen the capacity of extension officers, and lead farmers on climate information services, climate-smart agriculture technologies, and climate-smart One Health Innovations. The training further demonstrated the relationship between climate information services, climate agriculture technologies, and One Health Innovations.

Training Approach

The trainings adopted face to face interactions, group work, lectures, focus group engagement and practical assignments to deliver contents to participants. The training was structured around four main segments: 1) Climate Information Services, 2) Climate-smart One Health innovation, 3) Climate Smart Agriculture technologies, 4) Sustainable Financing

Training Participants

Participants were drawn from Cape Coast Metropolitan Assembly and Komenda Edina Equafo Assembly in the Central Region, Ga South in Greater Accra Region, Kintampo North, Kintampo South and Techiman North Municipal Assembly in Bono East Region, Jirapa and Lawra in Upper West Region, Bongo, and Kassena Nankana in Upper East Region and Tolon in Northern Region.

The map below shows beneficiary communities across Ghana's climatic zones.

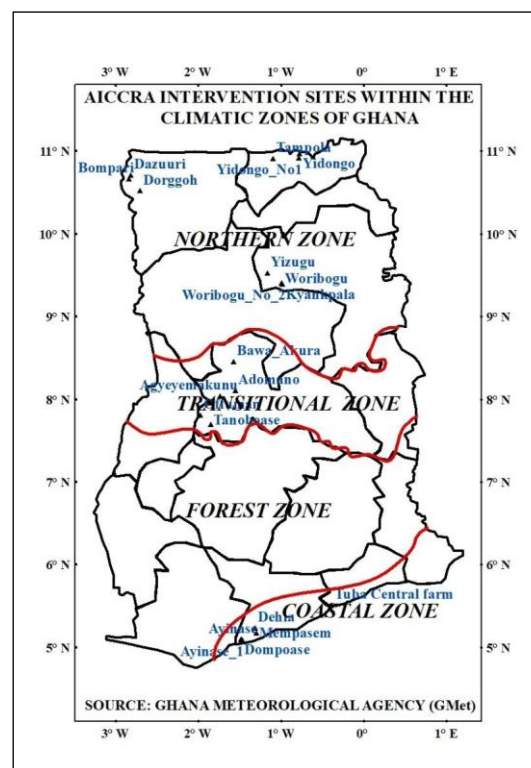


Figure 1: Map of AICCRA beneficiary communities within climatic zones of Ghana

Training Clusters and sessions

Participants were grouped into three (3) clusters depending on climatic zones as shown in Table 1 below. Participants were drawn from six (6) regions and eleven (11) districts, which covered the Coastal savannah zone, Transition zone, and Northern climatic zones. Two training sessions were conducted per cluster and majority (95 % of beneficiaries) took part in both training sessions. The training days per session was two (2) days.

Table 1: Training cluster and schedule

Clusters	District/Municipal/Metropolitan	1 st Training	2 nd Training
Coastal Zone	Ga South, Cape Coast and Komenda Edina Equafo	23 rd and 24 th June 2022	10 th and 11 th November 2022
Transition Zone	Kintampo South, Kintampo North, and Techiman North	20 th and 24 th June 2022	7 th and 8 th November, 2022
Northern Zone	Tolon, Jirapa, Lawra, Bongo and Kassena Nankana	1 st and 2 nd November 2022	3 rd and 4 th November 2022

Training Content

1. Climate Information Services

Participants were taken through the following concepts and terminologies in climate information services. These were to help them appreciate various information they receive and how to interpret and utilize them for their activities.

a) Seasonal Calendar

Seasonal Calendar is used by farmers to plan what they intend to do in the next season. Participants understood that these seasonal calendars enable farmers/users to explore the timing of their individual activities (crop, livestock). It showed them how their activities can be affected by the weather and climate and how information on the weather and climate could help in making decisions.

b) Sources of climate information

Participants were taken through how climate information is generated, processed, and delivered. Participants were therefore taken through the process to help them understand and know the sources of different climate information services and how it is collected. These will help build the trust of end users.

c) Understanding and interpreting historical climate information and graphs

It is useful for end users to understand the historical climate information of their location. Historical climate information is useful to end users as it enables them to better understand their local climate and conditions and make more informed decisions about activities related to their crop, and livestock livelihood options. Decisions regarding onset of rainfall, seasonal length, temperature, number of dry spells, length of longest dry spells, timing of dry spells, and extreme rainfall events in their areas are better made with this information.

d) Exploring differences between perceptions and the historical climate information

Trainers were taken through differences between farmers' perception of the weather and climate over the past years and the data collected by meteorological agencies. It is important to explain to end users to understand why these differences exist.



Plate 1: Group photograph of trainers from Coastal, Transition and Northern zones

e) Using graphs to calculate probabilities to improve farmer decision making

Knowing the probabilities of different weather and climate characteristics is helpful in making important decisions about crops (choice of varieties), planting times, livestock management, and livelihood choices. It is important to know that farmers are the decision makers and bear the risk of their business. The training approach was to enable end users make better decisions to minimize risk associated with their livelihood options.

f) Seasonal Forecast, Short term forecast and warnings

Facilitator help participants to appreciate how seasonal forecast is produced by the National Meteorological Agency. It was explained that it is a product that is provided shortly before the season begin.

Farmers/participants were helped to read and understand the seasonal forecast for their locality for a season and the implications of this on decisions they make. Also, participants understood that short-term forecasts and warnings are produced by national and sometimes international meteorological organizations normally for the next day or few days. Farmers can use these to make short-term decisions about their farming activities and other livelihoods.

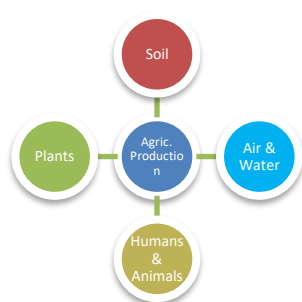


Plate 2: Facilitation at a training session

Climate-Smart One Health Innovations

a) Understanding the Concept of One Health

Facilitator discussed with participants the concept of one health, which was explained as the interconnection between the health of humans, animals, plants, and their shared environment (the health of the ecosystem) as shown in the figure below:



Participants discussed the need to assess the health of these components of nature (the ecosystem) by their sustainability, financial savings, and social resilience achieved during any human economic activity

Figure 2: Understanding One Health Concept

b) Understanding the Interconnection

Participants were led to understand and find as many interconnections of One Health as possible from figure 3 below. Understanding the interconnection between the icons promotes a better appreciation of the One Health concept.

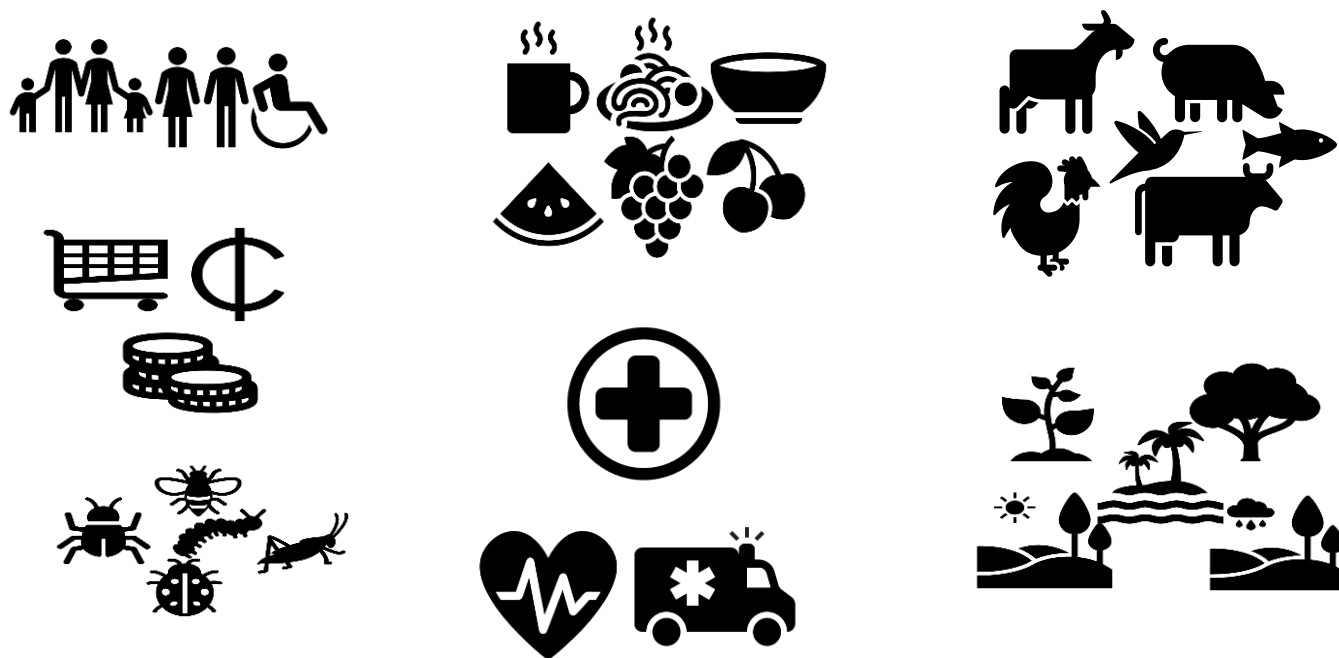


Figure 3: Understanding the interconnection between the Icons

c) One Health Risk Assessment

Participants were taken through the steps of One Health risk assessment and action planning. Participants discussed the One-Health risk register, identify what might go wrong (hazard) with humans, animals, plants and their shared environment (soil, water and air) now or in the future. The One Health Risk assessment depicts how risk can occur due to the operation and determine the needed measures to prevent or minimize the negative effects to the ecosystem's health (i.e. sustainability, financial savings, and social resilience)

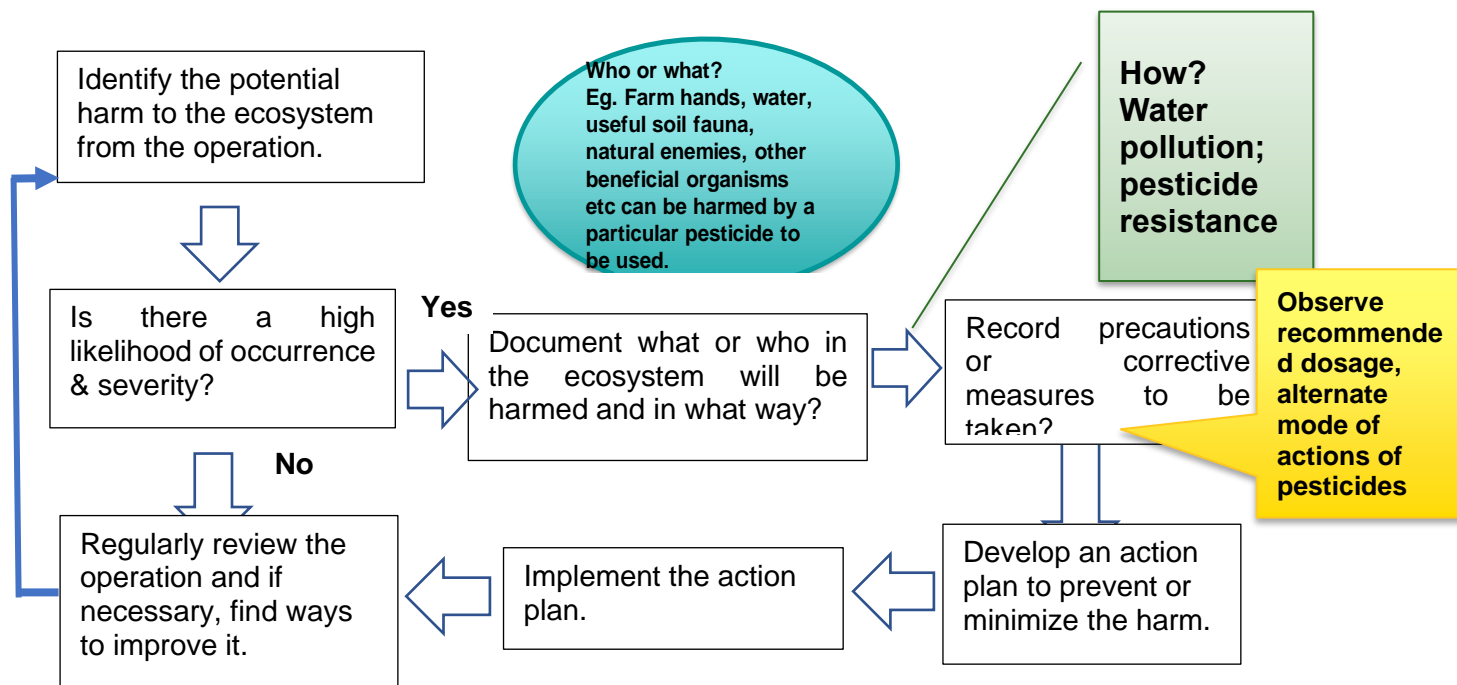


Figure 4. Flow diagram of one-health decision support system



Plate 3: Practical training session in the Coastal, Transition and Northern Zone

C) One Health Risk Register

Participants were taken through the steps of completing a risk register. Through practical activities, participants identify one health issues and develop risk register using various activities they carried out on their farms as indicated below:

- 1) In the conduct of a maize varietal demonstration, kindly assess the possible One Health risks from the following operations and fill out a risk register for them.

i) Herbicide application

ii) Insecticide application against Fall Army worm

2) For the conduct of the yam miniset demonstration, you will have to immerse seeds/setts in a cocktail of Chlorpyrifos at 0.05% concentration and Mancozeb (Fungicide) – 100 g/10 litres of water for 5 mins. Spread treated seeds/setts under shade for one hour for cut surface to dry and cure before planting. Kindly assess the possible One Health risks from this operation and fill a risk register for them.

3) In the conduct of a demonstration on sweet potatoes weevil control, you are to immerse/ dip cut vines in chlorpyrifos at 0.05% concentration – 50 and Mancozeb (Fungicide) – 100 g/10 litres of water for 5 mins to protect the cut surface from soil borne pathogen and insect attack. Kindly assess the possible One Health risks from this operation and fill a risk register for them.

Table 2: One Health Risk Register

Risk Area/ Hazard (What may go wrong? How can it occur due to the operation?)	Specific risks and implications (Who or what might be harmed and its extent?)	Evaluate Risk LxS=I			Management Strategy for dealing with risk to either prevent it or minimize its impact	Evaluate Risk Residual Risk (LxS = I)	Increased ↑ or decreased ↓	Further Required Action & Timelines	Responsible Individual (s)
		L	S	I					

NB: L is the Likelihood of occurrence; S is the Severity of the risk and I is the impact on the subject

The impact is Likelihood x Severity: Likelihood, severity, and impact can be scored qualitatively or quantitatively

- Qualitatively as Low, Medium, or High
- Quantitatively can be 1, 2, and 3 respectively. They can also be scored over a range of 10 or 100 if there are many risks to prioritize and one needs to make mark differences among the risks.
- Participants were made to document their findings and develop an action plan to prevent or minimize the harm.
- Participants also discussed how the action plans (precautions/corrective measures) can be incorporated into the on-going AICCRA project demonstration protocols.



Plate 4: Presentation of group work during the training

2. Sustainable Financing

g) Understanding sustainable financing

Participants discussed sustainable finance in the context of AICCRA value chains and the prioritized technologies. The content discussed included: the concept of sustainable finance, provision of financial resources, opportunities in a variety of asset classes and, financial flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. Participants also discussed business opportunities & matchmaking (Figure 3) as well as enablers and opportunities for sustainable financing of bundled services.

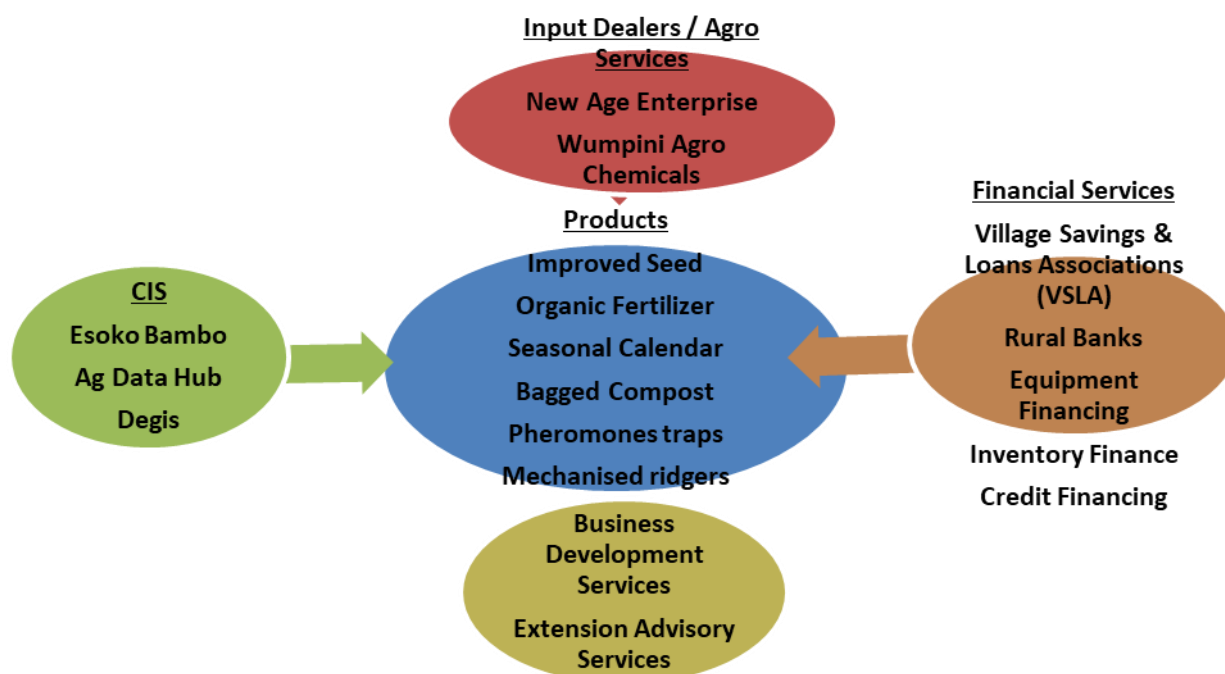


Figure 5: AICCRA Ghana matchmaking and business opportunities

Category of training and number of beneficiaries

1) Intermediaries and Lead farmers

One hundred and thirteen extension officers and lead farmers were trained at both training sessions. The total number of participants from the six regions and eleven districts trained during the sessions are shown in Table 3. Of the total participants, ninety (90) and twenty-three (23) were extension officers and lead farmers respectively. Thirty (30) of the trainers were female, which represent 36% of the participants.

Table 3: Number of extension and Lead farmers trained

Participants	Training Clusters			Total
	Coastal zone	Transition zone	Northern zone	Total
Male	26	36	21	83
Female	12	9	9	30
Total	38	45	30	113

Training on AICCRA Value Chain Pilot Protocols

Three training workshops were organized, one in each climatic zone (coastal, transition and Northern zones). Participants included agriculture extension officers, Crop officers, Regional agriculture officers responsible for Plant Protection and Regulatory Services Directorate (PPRSD), and Monitoring and Evaluation (M&E) officers as well as the Directors of Agriculture,

and Lead Farmers from AICCRA intervention districts and communities. Participants were taken through the AICCRA value chain (Maize, Yam, sweet potato, tomatoes, and cowpea) pilot protocols. Participants also discussed AICCRA upscaling strategy and the rationale underpinning each climate information service, Climate-smart agriculture technology and One Health innovation being deployed, as well as the actor's responsibilities. A total of forty-one (41) participants were trained, with six (6) being female as shown in the table below.

Table 4: Number of participants trained on AICCRA Protocols

Participants	Coastal zone	Transition zone	Northern zone	Total
Male	10	14	11	35
Female	4	1	1	6
Total	14	15	12	41

2) Training on Bundling Climate Information Services (CIS) and Climate Smart Agriculture (CSA) Practices

Participants were taken through the guidance on bundling agricultural innovations associated with climate-smart agriculture with other services such as climate information and financial services. For example, participants were taken through how to combine crop varieties that are drought tolerant with recommendations regarding best practices. The training further showed the relationship between climate information services and climate smart agriculture and the complementarity of each to support the scaling of the other. One hundred participants were trained as shown in the table 5 below.

Table 5: Number of participants trained on AICCRA Protocols

Participants	Coastal zone	Transition zone	Northern Cluster	Total
Male	26	20	28	74
Female	12	9	11	32
Total	38	29	39	106

Results Achieved

- i. Participants understood the interconnection between their livelihoods (crop and livestock) and weather events.
- ii. Participants could develop Seasonal Calendar to support farm decisions to minimize climate risk.
- iii. Participants understood historical climate information and can interpret climate graphs showing annual rainfall totals, start and end of the season, seasonal length,

dry spells, and temperature and their implications for crop, livestock, and other livelihood activities.

- iv. Trainers understood climate graphs and could interpret them which is helpful for planning for the season
- v. Participants can establish whether the data showed climate change or climate variabilities
- vi. Participant could calculate the probability of a season being a specified length and understand the implications of this probability
- vii. Participants understood terciles and how they are used in the seasonal forecasts and from this, how this information may be used to calculate probabilities
- viii. Trainers also understood the advantages and the limitations of the seasonal forecast
- ix. Participants appreciate the interconnection between actors and how their activities affect each other.
- x. Participants can assess the risk of their farm decisions and develop an action.
- xi. Trainers now understand and appreciate the One health concept and its implication for environmental sustainability
- xii. Participants could assess the sustainable financing potential of AICCRA value chains.

Lessons Learned

- i. Climate information services and climate-smart One health concepts were new concepts to participants so a lot of time was needed to enhance their understanding
- ii. The training content requires the mobilization of many resources so early planning is helpful in meeting project delivery timelines
- iii. The training on AICCRA value chain protocols and strategy for implementation of the AICCRA scaling mechanism has been useful in strengthening the deployment of the technologies at the community level.
- iv. The training on One Health has been useful in improving the compliance of extension officers and farmers to farm safety practices involving the use, of pesticides, herbicides, and chemical fertilizers.
- v. The capacitation of partners on One health risk assessment and action plan offered an added value to reduce the agroecological footprints of the project interventions.
- vi. Linking the technical content of the training to their previous experience and situation was helpful in improving understanding.

Concerns and Challenges

Some concerns and challenges that requires attention are:

- i. The training content was a bit technical and the explanation should be linked to their experience, existing activities, or real situation
- ii. Participants requested for inclusion of field excursions, and field visits to learn from the real community adaptation activities
- iii. Training material needs to be improved and simplified as much as possible with more pictures and posters to enhance understanding by participants

Conclusion and Way forward

The training workshops were successful with useful feedback received from participants. Every section was well elaborated and discussions at the training sessions helped to strengthen the deployment of AICCRA pilots and enhance understanding of the pilot protocols. The project will monitor the progress of the implementation of the climate information, One Health concept, and sustainable finance in the livelihood activities of extension officers and lead farmers. The higher participation of women in the training is helpful in promoting gender and social inclusion for improved livelihood of beneficiaries. The training reflection and learnings will be used to update the training manual and subsequent activities will also include further training at the community level with farmers.

Additional readings

1. Yeboah, S., Owusu Danquah, E., Oteng-Darko, P., Agyeman, K and Narteh Tetteh, E. (2021). Carbon Smart Strategies for Enhanced Food System Resilience under a Changing Climate. *Frontiers in Sustainable Food System*. 5:715814. Doi: 10.3389/fsufs.2021.715814
2. Adeniyi, M.O. (2016). The consequences of the IPCC AR5 RCPs 4.5 and 8.5 climate change scenarios on precipitation in West Africa. *Climatic Change* 139:245–263
3. Centre for Indigenous Knowledge and Organisation Development (CIKO) and Peasant Farmers Association of Ghana (PFAAG). (2018). Assessment of Ghana's Agricultural Development Budget and Farm Input Subsidy Programmes 2008–2017

ANNEX 1: AGENDA

Programme for Training Workshop

Theme: Training of Intermediaries on AICCRA CSA-CIS One-Health Innovations

Sessions	Activities	Facilitator
Time	Activity	Facilitator
1 st Day-		
8:30-9:00	Participants registration	Team
9:00-9:20	Welcome address	
9:30 – 11:00	Seasonal forecast	Francisca
11:00-11:20	Coffee Break	Team
11:30-12:45	Seasonal forecast	Francisca
12:45-1:45	Lunch	Team
AFTERNOON		
1:45 – 3:00	Climate-Smart One-Health Approaches	Victor/Joseph/Stephen
3:00-3:20	Coffee Break	Team
3:30-4:30	Climate-Smart One-Health Approaches	Victor/Joseph/Stephen
2 nd Day		
9:00 – 11:30	Calculating probabilities of weather and climate characteristics	Francisca
11:30-12:30	Interpretation of CIS alert; Basic phone navigation	Gordon
12:30-1:30	Lunch	Team
1:30-3:00	Sustainable Financing	Osman
3:00-4:30	Climate-Smart One-Health Approaches	Victor/Joseph/Stephen
	Feedback & Closing remark	
Sessions	Activities	Facilitator

Time	Activity	Facilitator
	1st Day-	
8:30-9:00	Participants registration	Team
9:00-9:20	Welcome address	
9:30 – 11:00	Production and communication of short term forecast	Francisca
11:00-11:20	Coffee Break	Team
11:30-12:45	Understanding and interpreting climatological information	Francisca
12:45-1:45	Lunch	Team
AFTERNOON		
1:45 – 3:00	Introduction to One Health Concepts	Victor/Joseph/Stephen
3:00-3:20	Coffee Break	Team
3:30-4:30	Understanding the role of plant health in One Health approaches	Victor/Joseph/Stephen
2nd Day		
9:00 – 11:30	Understanding/interpreting climatological information- Group activities on interpreting historical data.	Francisca
11:30-12:30	Interpretation of CIS alert; Basic phone navigation	Gordon
12:30-1:30	Lunch	Team
1:30-3:00	Sustainable Financing- Budgeting	Osman
3:00-4:30	Conducting/Developing One health risk assessment/ Group activities on One health risk assessment	Victor/Joseph/Stephen
	Feedback & Closing remark	

REGIONAL TRAINING WORKSHOP AGENDA

“Scaling Bundled Agro-climate Advisories for Improved Agricultural Risks Management”- GHANA

DAY ONE: Time	Activity	Facilitator / Presenter
09.00 – 09.15	Introduction of participants	All
	Welcome remarks	Dr Stephen Yeboah CSIR-CRI
09.15 – 09.45	Overview of the training workshop	Dr Patrick Mvuyibwami Alliance Bioversity CIAT (ABC)
09.45 – 10.15	Participants’ Expectations	Dr Osman Damba Tahidu UDS
10.15 - 10.45	Coffee break-Group photo	Workshop Assistant
10.45 – 11.45	Basics of Agro-climate Advisories for Improved Agricultural Risks Management:	Dr Stephen Yeboah CSIR-CRI
	<ul style="list-style-type: none"> • Climate Information Services and Climate Smart Agriculture • Climate change and variability Q&A session	Dr Patrick Mvuyibwami Alliance Bioversity CIAT (ABC)
11.45-12.30	Practical work through guided exercises ONE	Participants
12.30 – 13.30	Lunch break	Workshop Assistants
13.30-14.30	Presentations from groups for exercises ONE in plenary	Dr Osman Damba Tahidu UDS
14.30 – 15.15	Accessing climate information through digital (online) platforms (e.g.: DACA, Maproom, etc.)	Dr Patricia Amankwaa- Yeboah-----CSIR-CRI
		Dr. Patrick Mvuyibwami Alliance Bioversity -CIAT (ABC)
15.15 – 16.00	Understanding and Use of Climate Information/services	Dr Joseph Adomako CSIR-CRI Dr Patricia Amankwaa- Yeboah---CSIR-CRI
16.00 – 16.30	Coffee break	
16.30 – 17.00	Practical work through guided exercises Two	Participants
17.00 pm	End of DAY ONE	

DAY TWO:	Activity	Facilitator / Presenter
09.00 – 10:30	Continued practical work through guided exercises Two	Participants
10.30 – 11.00	Coffee break	

11.00 – 11.40	Presentations from groups for exercises Two in plenary	Dr Osman Damba Tahidu UDS
11.40 – 12.30	Exploring the relationship between Climate Information Services and Crops/livestock/Fisheries Q&A session	Dr Joseph Adomako CSIR-CRI Dr Patricia Amankwaa-Yeboah CSIR-CRI
12.30 – 13.30	Lunch	
13.30 – 14.30	<ul style="list-style-type: none"> Understanding Climate-Smart Agriculture (CSA) and its processes Crop Based CSA Technologies and Practices Q&A session	Dr Stephen Yeboah CSIR-CRI Dr Osman Damba Tahidu UDS
14.30 – 15.30	Practical work through guided exercises Three	Dr Osman Damba Tahidu UDS
15.30 – 16.00	Coffee Break	
16.00 – 17.00	Continued practical work through guided exercises Three	Dr Joseph Adomako CSIR-CRI
17.00 pm	End of DAY Two	

Day Three	Activity	Facilitator / Presenter
9.00 – 9.30	Recap of Day Two	Dr Patricia Amankwaa-Yeboah CSIR-CRI
9.30 – 10.30	Presentations from groups for exercises three in plenary	Dr Patrick Mvuyibwami Alliance Bioversity CIAT (ABC)
10.30 – 11.00	Coffee Break	
11.00 – 12.00	Principles of bundling CIS, CSA and others services/products	Dr Osman Damba Tahidu UDS Dr Stephen Yeboah CSIR-CRI
12.00 - 13.00	Practical work through guided exercises four	Dr Joseph Adomako CSIR-CRI
13.00 - 14.00	Lunch	Workshop Assistants
14.00 – 15.00	Presentations from groups for exercises four in plenary	Dr Joseph Adomako CSIR-CRI

15.00 – 15.30	Developing a seasonal calendar	Dr Patricia Amankwaa-Yeboah, CSIR-CRI
15.30 – 16.00	Coffee Break	Workshop Assistants
16.00 – 16.30	Developing a seasonal adaptation plan	Dr Stephen Yeboah CSIR-CRI
16.30 – 17.00	Developing a farmer' budget	Dr Osman Damba Tahidu UDS

DAY FOUR	Activity	Facilitator / Presenter
09.00 – 09.30	Recap of DAY 3.	
09.30 – 10.30	Practical work through guided exercises Five	Dr Patricia Amankwaa-Yeboah CSIR-CRI
10.30 – 11.00	Coffee Break	Workshop Assistants
11.00 – 12.30	Presentations from groups for exercises Five in plenary	Dr Joseph Adomako CSIR-CRI
12.30 –13.00	Presentation of M&E Tools	Dr Osman Damba Tahidu UDS
13.00 –14.00	Lunch	
14.00 –15.00	Each participant develops a dissemination plan for CIS/CSA training rolled out	Dr Osman Damba Tahidu UDS
15.00 – 16.00	Training Evaluation and feedback	Dr Patrick Mvuyibwami Alliance Bioversity CIAT
16.00---	End of the training workshop and closing remarks	Participants Dr Stephen Yeboah CSIR-CRI

ANNEX 2: Attendance Register

Table 1: Training of Intermediaries on AICCRA CSA-CIS One-Health Innovations in Elmina, Central Region

No.	Sex	Number of participants
1	Male	19
2	Female	11

Table 2: Training of Intermediaries on AICCRA CSA-CIS ONE-Health Innovations in Kintampo, Bono East

No.	Sex	Number of participants
1	Male	37
2	Female	8

Table 3: Training of Intermediaries on AICCRA CSA-CIS ONE-Health Innovations in UDS, Tamale

No.	Sex	Number of participants
1	Male	23
2	Femal	7

Table 4: Training on AICCRA Value Chain Pilot Protocols in Elmina, Central Region

No	Sex	Number of participants
1	Male	12
2	Female	2

Table 5: Training on AICCRA Value Chain Pilot Protocols in Kintampo, Bono East Region

No	Sex	Number of participants
1	Male	12
2	Female	1

Table 6: Training on AICCRA Value Chain Pilot Protocols in UDS, Tamale

No.	Sex	Number of participants
1	Male	11
2	Female	1



AICCRA

Accelerating the Impact of CGIAR
Climate Research for Africa



Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

AICCRA is led by Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

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