

Reconciling economic, social, and environmental sustainability objectives within cocoa landscapes in Africa: Identifying research needs

26 -27 April 2022, Hillview Hotel, Accra, Ghana.

Workshop report



Preface

The workshop reported on is an output of the [CocoaSoils](#) programme component on planning and prioritizing for sustainable cocoa production under climate change: meeting production, biodiversity and ecosystem services objectives. The CocoaSoils programme is a multi-country, multi-partner public-private partnership working towards sustainably increasing cocoa yields to improve local livelihoods whilst reducing pressure on forests funded by the Norwegian Agency for Development Cooperation (NORAD) under the CocoaSoils project (RAF-17/0009 –CocoaSoils).

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Background

Cocoa production systems and landscapes are increasingly targeted for multiple objectives from the farm to the national scale: they need to produce cocoa, support farmer livelihoods and resilience, help avoid deforestation, restore degraded areas and store carbon to support climate change mitigation commitments.

Efforts to increase the sustainability of cocoa production and meet these different objectives focus on two main fronts: increasing cocoa productivity to avoid further expansion into forests and increase farmer incomes; and promoting agroforestry to help diversify farmer incomes sources, increase system resilience, and support local and global biodiversity and ecosystem services in cocoa landscapes.

Yet, reconciling these multiple objectives in cocoa landscapes remains a challenge and requires better understanding of opportunities and barriers, integration of knowledge and experiences and co-learning between different stakeholders, from researchers to civil society, private and public sector policymakers.

In this context, the CocoaSoils programme partners UN Environment World Conservation Monitoring Centre (UNEP-WCMC), Alliance Bioversity International – CIAT and the International Institute for Tropical Agriculture (IITA) convened a workshop for knowledge sharing and prioritization of research needs on 26 and 27 April 20220 at the Hillview Hotel in Accra, Ghana.

The workshop had two main objectives:

- Facilitate productive interactions between researchers and other stakeholders
- Identify research priorities to support achieving social, economic and environmental objectives in cocoa landscapes at different scales, including to inform the next phase of the CocoaSoils programme.

The workshop built on lessons learnt through the CocoaSoils programme and the knowledge and experience of the participants and also offered the opportunity for Ghanaian students to present research supporting the workshop theme to a broader audience and actively engage in identifying further research priorities.

The one-and-a-half-day workshop brought together research, civil society, government, and private sector actors to exchange on progress, challenges and opportunities to reconcile economic, social and environmental sustainability objectives within cocoa landscapes in Africa.

Workshop process

The workshop process was structured around two main elements: 1) presentations on research and action seeking to reconcile different objectives in cocoa landscapes to inspire 2) the development of simple impact pathways as a tool to identify knowledge gaps and research priorities.

Workshop structure

Day 1

- Introduction on conceptual framing around reconciling different objectives in cocoa landscapes
- Presentations and identifying Theory of Change Impact Pathway elements

Day 2

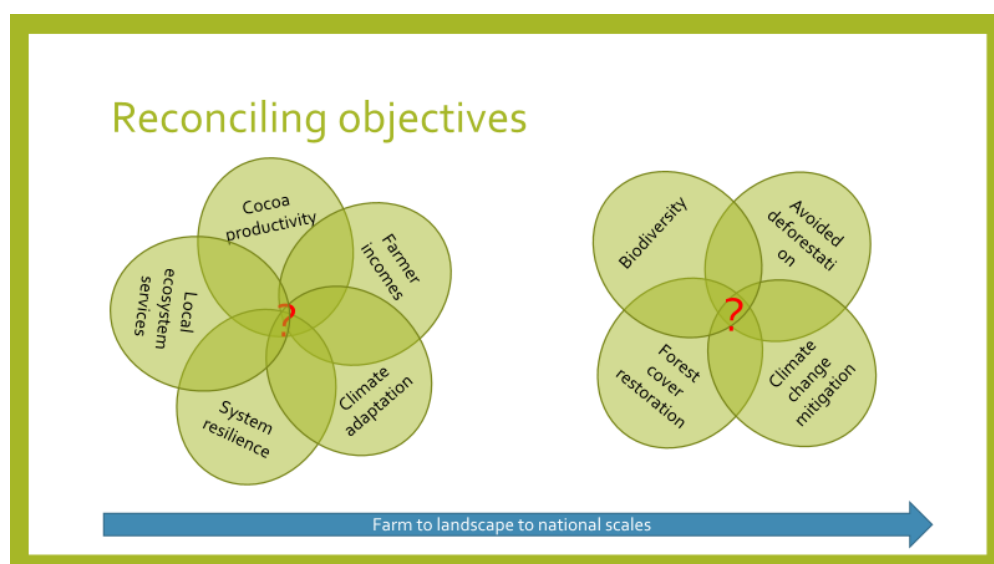
- Using the Theory of Change approach to identify research gaps and prioritise research needs

Conceptual framing around reconciling different objectives in cocoa landscapes

After opening by Dr Richard Asare (IITA) and an introductions round, Marieke Sassen (UNEP-WCMC) presented the background and context for the workshop and the conceptual framing around reconciling different objectives in cocoa landscapes.

There are many efforts to improve cocoa farmers livelihoods, increase cocoa productivity, adapt cocoa to climate change and at the same time addressing cocoa-driven deforestation. Countries and companies also made commitments to reduce emissions and store carbon, while global demand for cocoa continues to increase.

Many ecosystem services (e.g. cocoa yield, carbon sequestration, micro-climate regulation, pollination, pest and disease regulation) desired in cocoa landscapes are positively affected by biodiversity, though there are also potential trade-offs. Furthermore, focusing on only one ecosystem service (i.e. cocoa yield, carbon) can lead to unexpected negative trade-offs with important other ecosystem services (e.g. biodiversity, farmer resilience). In addition, objectives, potential synergies and trade-offs may vary at different scales.

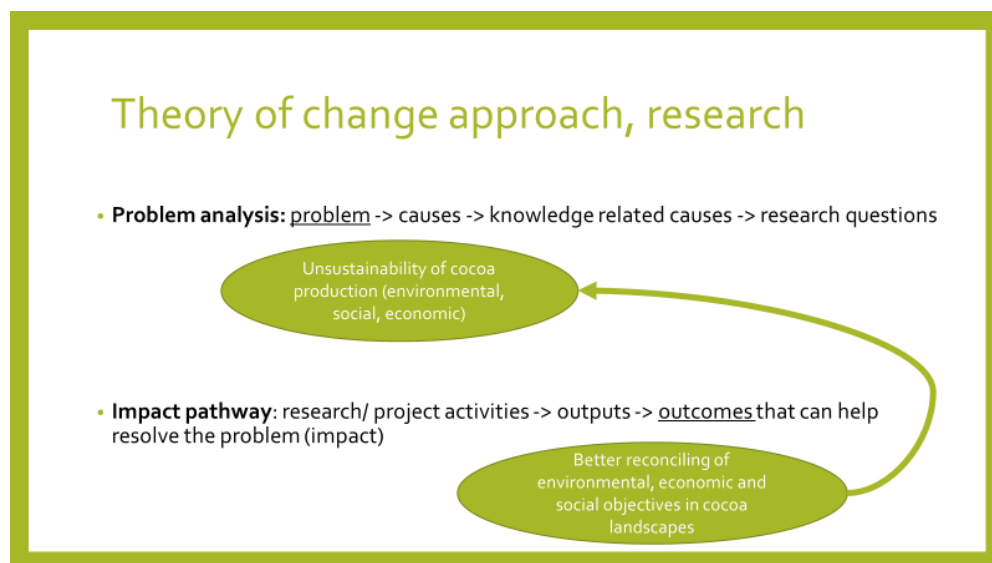


Cocoa agroforestry was used as an example to illustrate this: it is seen as a system that may be able to help reconcile many objectives, but there are trade-offs and barriers to its success and scaling, both in terms of implementation and outcomes. What are these barriers and what are the

knowledge gaps that could help address them? Developing an impact pathway can help identify these.

The workshop used Theory of Change's Impact Pathway development to help identify knowledge gaps and other barriers to achieving a combination of social, economic, and environmental objectives in cocoa landscapes. The method helped think through the following questions:

- What is needed to achieve the sought for reconciliation of economic, social and environmental objectives in cocoa landscapes?
- How and where can research support this?



Participant presentations

To foster exchange and inspire thinking about the Impact pathways, 10 participants (civil society, private sector, academia, and research for development) presented their work seeking to reconcile different objectives. The presentations are available [here](#).

During the presentations, the audience was asked to make notes of the objectives, problems addressed, opportunities, challenges, assumptions, risks, and research needs that came to their minds when listening to the presentations. These were noted on sticky notes which were classified on brainstorm sheets on the wall according to the different categories for everyone to see and use (Contents in Annexe 3).

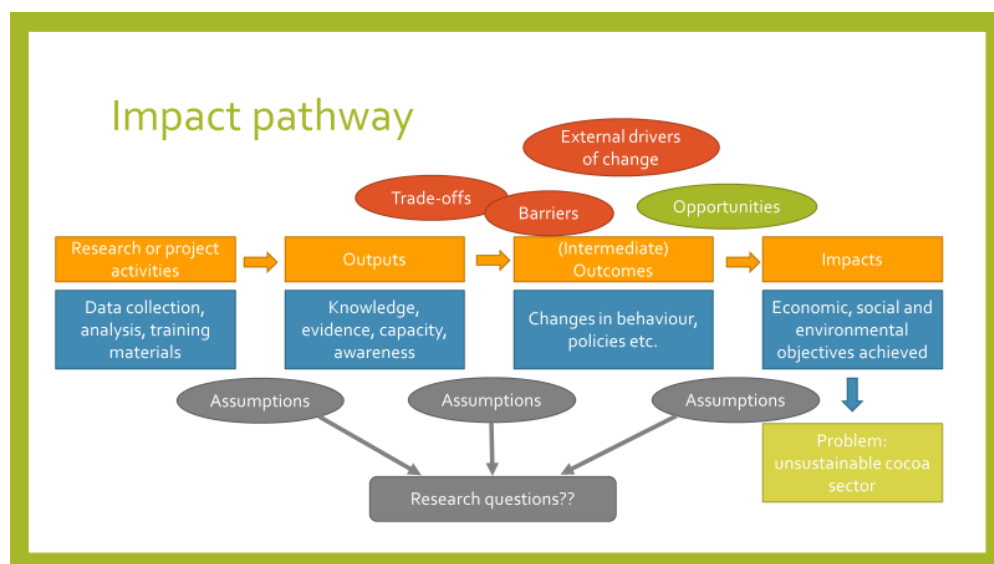
Developing Impact pathways to identifying knowledge gaps and research needs

After the presentations, participants were randomly split into 5 groups, working for the rest of Day 1 and the first half of day 2. Each group was asked to:

- Develop a draft impact pathway to reconcile at least two different objectives (outcomes or impact level) (results in Annexe 4)
- Consider risks (barriers, trade-offs), opportunities (e.g. co-benefits) and assumptions along the pathway
- Identify knowledge gaps that may affect the impact pathway leading to the expected outcomes.
- Identifying gaps in knowledge, tools or other gaps that may affect the impact pathway leading to the expected outcomes or impacts to reconcile different objectives in cocoa landscapes

- “Turn-tables”: visit other groups impact pathways and discuss assumptions, risks, trade-offs, barriers, opportunities

The Impact Pathway development exercise did not aim to develop complete Impact Pathways, as more time would be required. Rather it was used to foster exchange and thinking through of the challenges to reconcile different objectives in the sector and identify knowledge gaps and research needs (see Annexe 4).



Prioritising research needs

After finalising the work on the impact pathways and identifying research needs, each group identified the five most important and urgent research need according to them. These were put up on the wall and all participants were asked to distribute three votes to those that they thought were most important. Participants also indicated whom they thought should be working on or be involved in addressing the research needs (examples below, see Annexe 5 for all results).

KNOWLEDGE GAP	VOTES	WHO SHOULD ADDRESS IT?
PLANET CSA/REGENERATIVE COCOA • SOIL HEALTH • ADAPTATION • BIODIVERSITY	3	Research Int Research Inst Earthworm Foundation ISTA
People Sustainable livelihoods payment as incentive for forest protection vs agriculture & animal husbandry	3	Voluntary Carbon Mkt (Forest, Agroforestry) Research Universities (KIST/FRISE) Development Partners
How can we achieve effective participation of women/youth in sustainable cocoa production?	3	Earthworm Foundation Research Int

KNOWLEDGE GAP	VOTES	WHO SHOULD ADDRESS IT?
2. What are the perceived risks & limitations to the adoption of CSAs by farmers?	3	FDRIG Rainforest ISTA Research Int
Appropriate research method to restore mining sites.	3	Research Int
What are the challenges to adoption of shade tree seedlings in local agroforestry systems?	3	Forest - Common FDRIG, C&I Agroforestry - Common Agroforestry - Common COEBOD CSIR Rainforest Earthworm Found ICRAF ISTA

Workshop results summary

General

- People really enjoyed the **cross-country and cross-disciplinary exchange**, opportunity to network and learn from each other (participants feedback in Annexe 6)
- Theory of change/Impact pathway approach is a good way for people to think about what needs to be achieved and the knowledge gaps that need to be addressed to support this
- Important topics from general discussions:
 - Climate hazards are an important risk
 - Need to better understand (non)adoption of practices
 - Need to embed agroforestry in livelihood-based approaches

Knowledge gap prioritisation exercise:

1. Potential for sustainable environmental payments as an incentive for forest protection on farmland (e.g. off-reserve and admitted farms in Ghana)

2. Barriers to adoption of shade trees in agroforestry systems

3a. Perceptions and limitations to the adoption of GAP by farmers

3b. How to achieve CSA/regenerative cocoa, their aims and what they mean in context:

- Soil health
- Agroforestry
- Biodiversity

3c How to achieve effective participation of women and youth in sustainable cocoa production?

Closing

The organisers thank all participants for their active participation, the presenters for taking the time to prepare and present their work, including the online presenters who were not able to join the workshop physically due to Covid-19 related measures.

The following workshop materials can be found through the following links:

- Presentations:
 - Main workshop presentation:
https://drive.google.com/file/d/1paTDOwiTtBI6b1uebaoTt0q4j_eVQAXd/view?usp=sharing
 - Participants' presentations:
https://drive.google.com/drive/folders/171fQp9VEDH0_VwkeoZvh_OuHPCWe1z--

Annexes

Annexe 1: Programme

Day/time	Session	Main actors
26 April 2022		
8:30	Registration and presenters provide their presentations	Janet Owusu-Asabre (IITA)
9:00-9:15	Opening of the workshop	Richard Asare (IITA)
9:15-10:00	<ul style="list-style-type: none"> - Introductions - Workshop process explanation - Introduction on conceptual framing around reconciling objectives in cocoa landscapes 	Marieke Sassen (UNEP-WCMC)/ Christian Bunn (CIAT)
10:00-10:45	Session 1a: Company/CSO presentations (3) <ul style="list-style-type: none"> - Presentations by actors/programmes that seek to reconcile these different objectives - Participants identify objectives, problems addressed, opportunities, challenges, assumptions, risks, research needs 	Participants
10:45-11:05	Coffee	
11:05-12:45	Session 1b: Company/CSO presentations (4) <ul style="list-style-type: none"> - Presentations by actors/programmes that seek to reconcile these different objectives - Participants identify objectives, problems addressed, opportunities, challenges, assumptions, risks, research needs 	Participants
12:45-14:00	Lunch	
14:00-16:00	Session 2: Research presentations (2x3) <ul style="list-style-type: none"> - Presentations by actors/programmes and research addressing the reconciliation of objectives - Participants identify objectives, problems addressed, opportunities, challenges, assumptions, risks, research needs 	Participants
16:00-16:20	Coffee	
16:20-18:00	Session 3: Developing theories of change to reconciling objectives in cocoa landscapes <ul style="list-style-type: none"> - Background on Theory of Change and Impact Pathways - Group work: Develop an Impact Pathway reconcile at least two objectives including observations from session 1 and 2 - Include policies and programmes that support or pose challenges to reconciling the different objectives 	Marieke Sassen/Christian Bunn Participants
18:00	Cocktail	
27 April 2022		
9:00-10:30	Session 4: Challenges and research needs <ul style="list-style-type: none"> - Continue working on the Impact pathway: assumptions, risks, trade-offs, barriers, opportunities - Identifying gaps in knowledge, tools or other to support action and policy to reconcile different objectives in cocoa landscapes - "Turn-tables" QA on other groups' impact pathways: focus on assumptions, risks, trade-offs, barriers, opportunities. - Incorporate feedback 	Participants
10:30-10:50	Coffee	
10:50-12:30	Session 5: Opportunities and research needs <ul style="list-style-type: none"> - List top 5 research needs for your Impact pathway - Prioritization of research needs to help address the challenges to reconcile multiple objectives in cocoa landscapes - Identify who you think should do the research or work together to carry out this research? - Checking final results and adding potential collaborations 	Participants
12:30-13:00	Closing	All
13:00-	Lunch and departure participants	

Annexe 2: Participants

First Name	Surname	Organisation	Country
Bismark Kwesi	Asitoakor	CSIR-Plant Genetic Resources Research Institute / University of Ghana	Ghana
Nicholas Oppong	Mensah	University of Energy and Natural Resources	Ghana
Eric Opoku	Mensah	CSIR-Plant Genetic Resources Research Institute	Ghana
Hannah	Boateng	Ofi (Olam Food Ingredients) -	Ghana
Calum	Maney	UNEP-WCMC	Ghana
Willem-Albert	Toose	Agro Eco	Accra
Dennis	Oppong	Agro Eco	Ghana
George	Ashiagbor	KNUST	Ghana
Sylvester Afram	Boadi	CLIMCOCOA Project (University of Ghana, IITA)	Ghana
Frank	Okyere	Kuapa Kokoo	Ghana
Winifred Tawiah	Kyereko	TACHIBANA	Ghana
Kwadwo	Nti Baniako	Rainforest Alliance	Ghana
kofi	afari	Ministry of Lands and Natural Resources	Ghana
Francois	RUF	CIRAD	Côte d'Ivoire
Amos	Quaye	CRIG	Ghana
Michael Ekow	Amoah	Ghana Cocoa Board	Ghana
Alain	Atangana	ICRAF	Cote d'Ivoire
Eric	Bani	Ghana cocoa Board	Ghana
Jacob	Amoako	Forestry Commission	Ghana
Eva Mmah	Agana	Earthworm Foundation -	Ghana
Abigail	Ayitey	Cargill Ghana Limited	Ghana
Samuel	Quaque	GIZ	Ghana
Gwladys	Mabah Tene	Institute of Agricultural Research for Development (IRAD)	Cameroun
Edward	Kumah	Mondelez	Ghana
Charles	Adzagbre	University College of Management Studies	Ghana
Amamata	Alhassan	LGS	Ghana
Ansong	Ofosu	Yara	Ghana
Meghan	Gillis	Sucden	Ghana
Augustina	Amaechi	IITA Nigeria	Nigeria
Olivier	Marchand	Nestle Central and West Afria Ltd	Ghana
Omotayo Atinuke	Ayo-Afolabi	IITA Nigeria	Nigeria
Adalbert	Onana	IITA Cameroon	Cameroun
Abigail	Tettey	IITA Ghana	Ghana
Richard	Asare	IITA Ghana	Ghana
Rich Kofi	Kofituo	IITA Ghana	Ghana
Marieke	Sassen	UNEP-WCMC	United Kingdom
Christian	Bunn	Alliance Bioversity -CIAT	Germany
Lawrence	Damnyag	FORIG	Ghana
Charles	Brefo Nimo	IDH	Ghana
Victoria	Owusu	Farmer- Kuapa Kokoo	Ghana
Abena	Appiah-Bentil	Rockwinds/Transroyal	Ghana
Kwakye	Odjiobi	Escape Poverty Africa	

Aaron	Nii Lante	Girls Excellence Movement - GEM project	
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Annexe 3: Brainstorm sheets

Problem Addressed / Outcome Sought

- Illegal logging
- Farmer respectability & engagement
- Low yields
- Deforestation and environmental challenges
- Afforestation
- More and unimportant species of shade trees affect the growth of cocoa which reduces yields in some parts of the country, in terms of productivity.
- Low income of farmers
- Child labour <14 yr
- Adoption of agricultural innovation by farmers
- Culture is not often taken into consideration for innovation adoption
- Poor nutrient mineralisation and organic carbon decomposition in harsh climatic conditions
- Fertilisation du sol // soil fertilisation
- Lute contre les ravageurs // pest control
- Deforestation // deforestation
- Productivite // Productivity
- Inclusion financière // Financial inclusion
- Maladie (CSSD), aged cocoa farm // Disease (CSSD), aged cocoa farm
- Difficulties with tree registration
- Deforestation (how to increase afforestation through smallholder farmers)
- Soil nutrient management
- Deforestation
- SDGs
- Improve farmer livelihoods
- Increase productivity
- Promote agroforestry
- Design agroforestry systems that support soil fertility, water management and protect
- Build capacity of communities to be responsible for protecting their natural resources
- Community involvement in cocoa management process
- Low income of farmers
- Unsustainable practices by farmers
- Lack of community-based approaches in cocoa farming
- Deforestation and environmental sustainability
- Increasing soil productivity to support increased productivity
- Pest and disease management

Outputs

- Evidence of additional income get by farmer
- 50% of child will be assist for their education and trained to good AP
- Tree registration
- Reforestation
- Development and establishment of landscape management board
- Stepwise approach
- Broadcasting of fertilizer application yield great result in terms of productivity and managing soil fertility
- LMB formed
- Lands reclaimed
- Initiating tree registration
- Capacity building
- Biodiversity conservation
- Sustainable landscape
- Capacity
- Awareness
- Support financial inclusion
- Agroforestry intensification de la cacaoculture, HCV, HCS // Agroforestry intensification of cocoa farming, HCV, HCS
- Surveillance satellitaire, plan de gestion de paysages // Satellite monitoring, landscape management plans
- Bonne pratique agricole pour augmenter la productivité // Good agricultural practice to increase productivity

Risks, barriers and trade-offs

- Competition for nutrients and water when associated trees are planted
- Child labour increase
- Tree tenure
- Carbon market not well established and not accessible by farmers
- Agroforestry projects conflict between trees for timber and trees for carbon (which cannot be cut)
- Not focusing enough on livelihood / income / poverty
- Policy barriers on tree registration
- Is there any intention of getting revenue/ income from the carbon stored in agroforestry activities?
 - If yes, how do you see the future of those questions on carbon projects?
- Land tenure systems is a major reason why some farmers are not rehabilitating old & unproductive farms
- Illegal mining
- Land litigation
- Farmers not adopting tree planting because they don't see immediate benefit
- Choice of trees by farmers could be further explored {knowledge gap?}
- What is the cost of the chemicals, pesticides etc. in the trials against affordability and adoption/usage by smallholders?
- Risks to farmers income as a result of low farm productivity
- Trade-off between productivity and biodiversity
- Misplaced priority of interventions by beneficiaries
- Sustainability of LMBs
- Utilisation abusive cout élevé des biopesticide // Misuse and high cost of biopesticides
- Programme pilot // Pilot programme
- Faible ratio cout/benefices par agroforesterie // Low cost/benefit ratio per agroforestry
- Government commitment
- Programmes are “pilots” / short term
- Access to forest tree seedlings
- Technical and financial support
- Increased productivity leads to deforestation
- Social cycle, e.g. aging farmers
- Farmers want regular revenues
- Scaling up of promising designs
 - Markets, payments for carbon
- Affordable and timely availability of labor and **recommended** agrochemicals
- How to finance and sustain landscape management board
- Labor competition for off-farm activities in rural areas
- Decreasing labor availability in rural areas to carry on agricultural tasks

Opportunities

- Diversification of source of income by farmer
- Assist in building capacity education fees of children
- Going beyond concept of soil considered as “reservoir of nutrients”... how to improve soil health?
- *illegible* relationships to collaboratively increase soil productivity & P&Ds.
- Forest seedling provision ongoing -> regeneration -> biodiversity restoration implications for connectivity in a cocoa matrix
- Fruit trees association with NTFP with a clear marketing plan could go a long way to alleviate poverty
- Make agriculture sexy
- Farmer innovations! E.g. chicken manure
- Diversification with other commodity crops e.g. rubber, cashew
- Assess nutrient uptake by plant depending on plant varieties and the relationship with productivity
- On agroforestry, has there been any work on the effects of the number of tree species on cocoa productivity?
- Going beyond usual concepts of yield to other concepts of profitability, resilience.
- Tree biodiversity and drought resilience co-benefits
- Solution: improve the good practices
- The combination and inventions of farmers to the problems identified.
- Increased use of technology (e.g. momo) to address livelihood issues
- Enable countries to market requirements by EU, US, UK, etc
- Make Ghana cocoa attractive and marketable
- Reduced incidence of child labour
- Improving on livelihood of farmers
- Improving [illegible] farming
- Technology transfer
- Employment opportunities for youth
- Tree planting 1000ha + registration
- Landscape management board
- Promoting afforestation through carbon trading
- Job creation
- Promoting afforestation through seeking[illegible] up tree registration system
- Utiliser le cacao pr la reforestatie
- Marche de produit durable
- Paysans sont conscient du climate change
- Creer un marche pr les fruits issu des systemes agroforestier
- Use of local materials to improve productivity (poultry manure)
- Use of labour saving device[illegible]
- Diversification of tree species use for shade

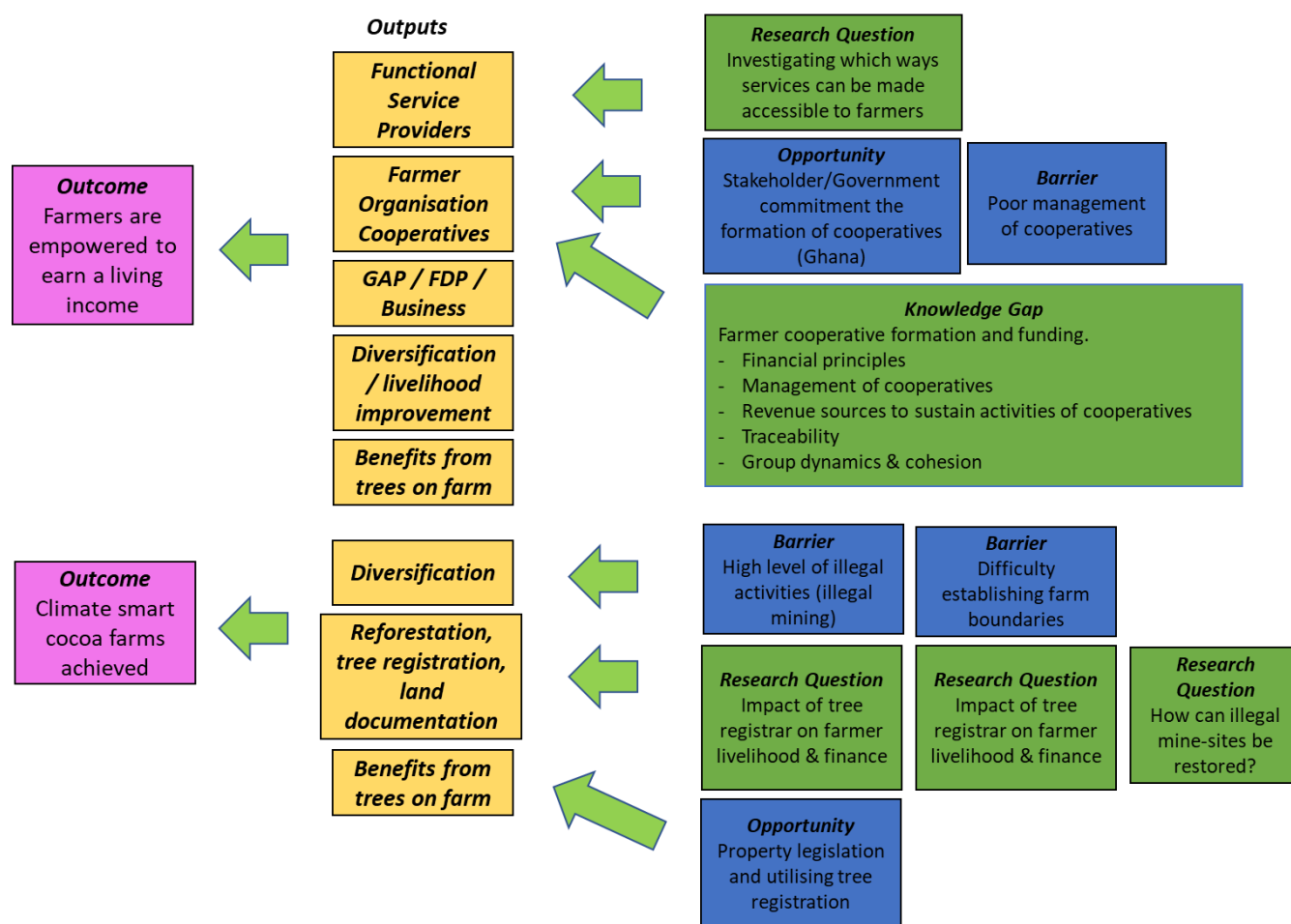
Knowledge gaps

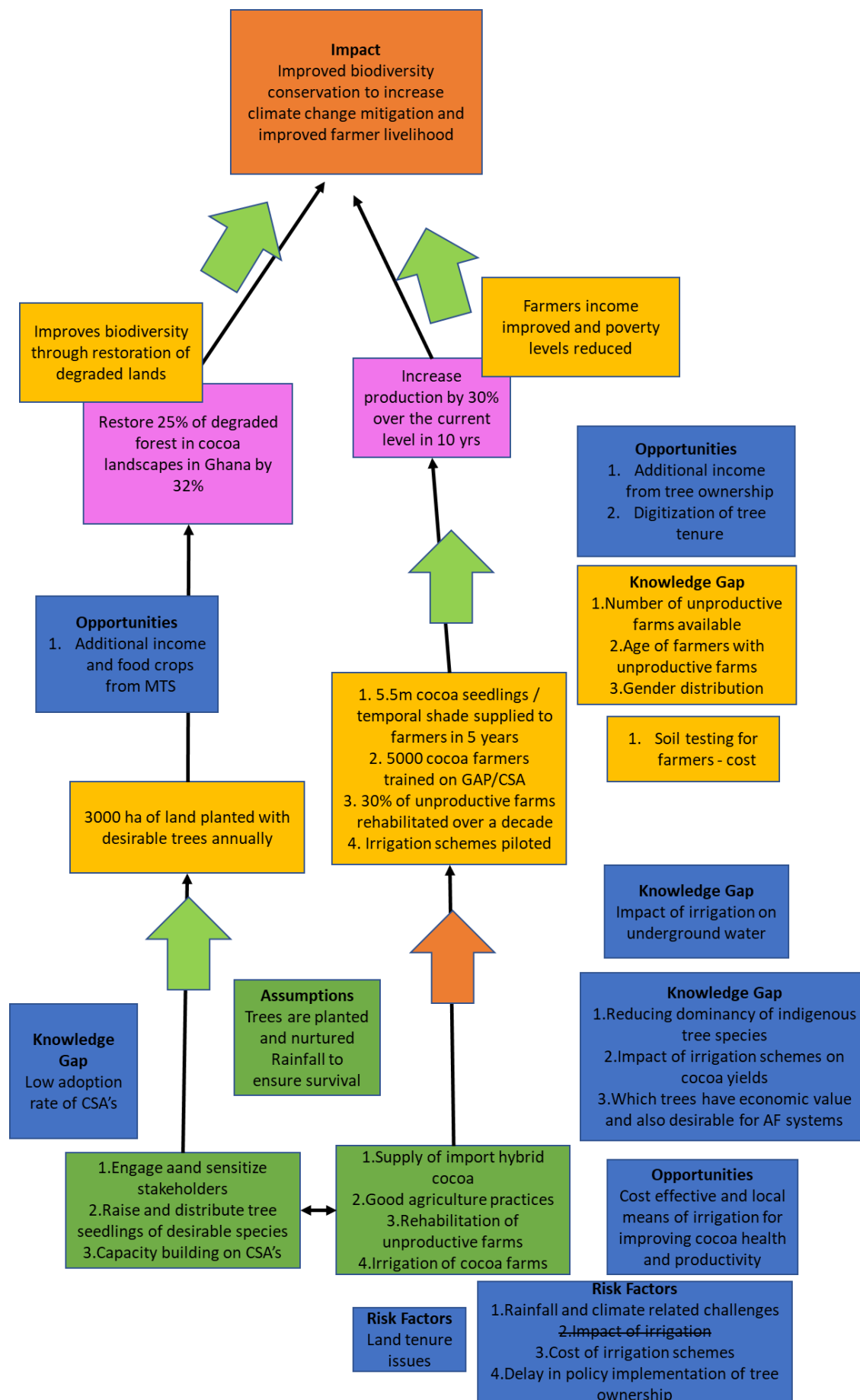
- The role of the youth in environmental sustainability and afforestation, especially mining areas
- Tree planting and ownership as an incentive – choice of trees problematic
- Why are farmers not so upbeat about tree planting?
- LMB: diagnostic approach
 - Gaps: Research is not (or poorly) informed on the results of diagnostics
 - Forest restoration gaps
 - Seedlings should be planted, monitored and mapped
- Definition of “healthy soils” – chemical, physical, biological
- Pesticide impacts on likely cocoa pollinators – specificity/ES trade offs. Risks
- Biodiversity implications of “landscape level/mosaic”, vs “onfarm” ‘agroforestry (importance of scale in agroforestry systems for biodiversity)
- Cost of converting forest lands into agricultural land
- Cost & benefit analysis [of?] landscape management boards
- Sustainability of landscape management board
- Impact of productivity enhancement programs in addressing deforestation or increasing afforestation
- GAP: >12 species “real AF”
- Farmers behavioral change and acceptance of incentivizing afforestation
- BG [Below ground?] biomass of commercially in[illegible] trees
- IP Madqot[illegible]
- Socioeco/financial profitability of AF
- Carbon sequestration
- Pest & disease reduction (how)
- Understanding of farmer-led innovations (in cocoa & food security)
- Why cashew “promotes” cocoa regeneration
- Which tree opp[illegible] & planting designs would increase cocoa productivity?
- (tree) diversity: disease reduction mutualisms?
- Instrument pr securiser les services ecosystemiq qui seront developper
- Apport socio-economique de l’agroforestry
- Role de l’agroforesterie dans la productivite (fertilite du sol)
- What are divers/motivations and effects of current intercropping farmers practices on cocoa production (yields, quality of beans), soil fertility, pest management and farm households livelihoods
- Soil organic matter
- Soil organic carbon
- What s the of converting forest for cocoa cultivation against using fertilizer or crop protection to increase production
- Empirical evidence to support the theory that increase productivity leads to increase deforestation
- buffer when planting new farm to prevent disease transmission
- Soil microbiome characterization
- Soil as living ecosystem
- More practical approach at creating youth interests in cocoa production
- Reconciling the different interests and priorities
- Child labour narrative should be well placed
- Evaluation of the nutrient requirement and nutrient uptake and consequences influence on crop productivity

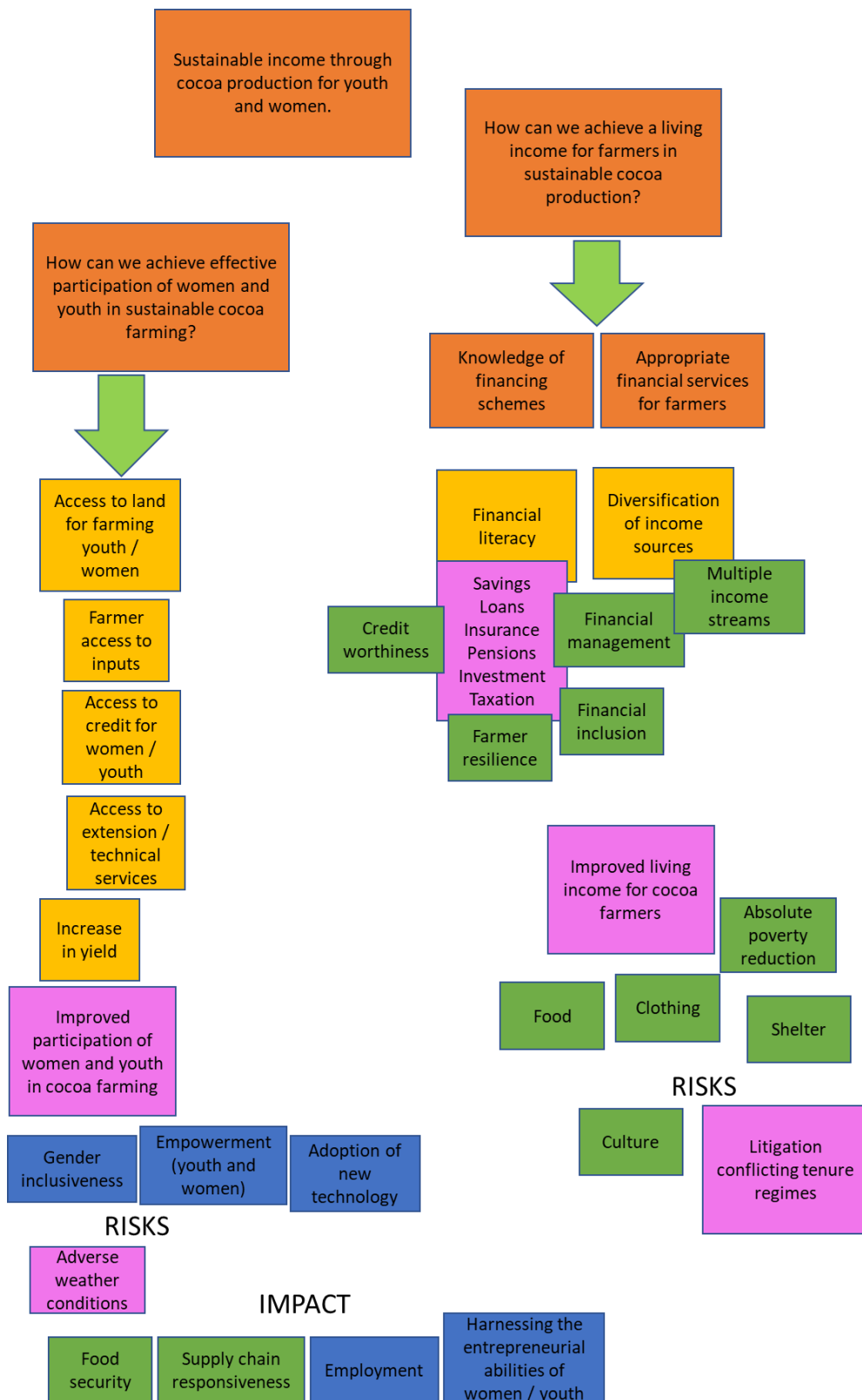
- Relationship between cocoa leave nutrient content & leave content of associated

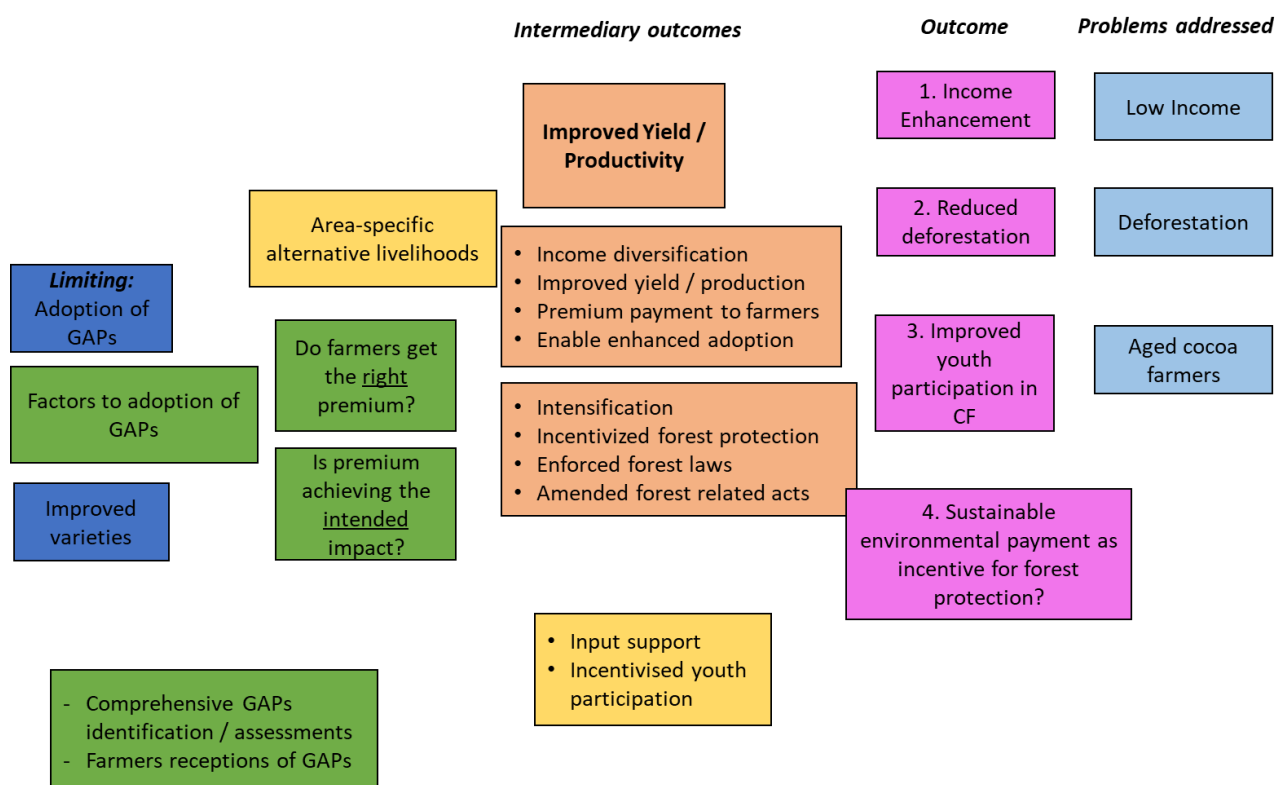
Annexe 4: Results of the impact pathways exercise

Please note that these are not meant to be textbook impact pathways, but the results of the thinking through the different elements of an impact pathway done by the workshop participants. Some are more complete representations than others, but the main purpose was to foster exchange and thinking through of the challenges to reconcile different objectives in the sector and identify knowledge gaps and research needs.











Annexe 5: Prioritisation of knowledge gaps/research needs

Knowledge Gap	# of Votes	Who should address it?
Explore sustainable environmental payment as incentive for forest protection in off-reserve admitted farms	15	Voluntary carbon markets (FORIG, EcoTrust, Uganda), Research Universities (KNUST/FNRN), Development Partners
What are the challenges to adoption of shade trees in cocoa agroforestry systems	13	Forestry Commision, FORIG, CRIG, Earthworm Foundation, Agro Eco, Meridia, COCOBOD, CSIR, Rainforest, ICRAF, IITA
What are the perceptions & limitations to the adoption of GAPs by farmers?	8	FORIG, Rainforest, IITA, CRIG, IRAD, CRIN, CNRA, Earthworm Foundation, Agro Eco, CICC
Planet - CSA/Regenerative cocoa (soil health, agroforestry, biodiversity)	8	Research Int, Research (???), Earthworm Foundation, IITA
How can we achieve effective participation of women/youth in sustainable cocoa production?	8	Earthworm Foundation, Research Int
Management of cooperatives (group dynamics, finances)	6	Farmers, RA, LBCs, COCOBOD, Solidaridad, Agro Eco, EarthWorm Foundation
Planet - Develop cocoa planting material for tomorrow (Climate change, disease)	5	Researchers, CRIG, CSIR, Universities, IITA, IRAD
How can we improve access to land for youth and women?	5	Earthworm Foundation, Ministry of Agriculture, Ministry of Planification, Ministry responsible for land tenure
What financial literacy programs are appropriate to women and youth?	3	IITA, IRAD, Earthworm Foundation
What are the viable alternative or additional livelihoods to bridge the income gap?	3	Rainforest, IITA, IRAD
Profit - Compare \neq existing models of cocoa production to improve farmer livelihoods income	3	Cocoa board, FRNR-KNUST, FORIG, IITA
Impact of irrigated cocoa farms on underground water systems in cocoa landscapes	2	IITA, CSIR-Water Research
Evaluating the effect of dormancy on indigenous tree species for restoration of degraded forest	2	FORIG, FRNR-KNUST
Impact of cocoa irrigation systems on yields	2	World Bank, Int., IITA
Accessibility and availability of services to farmers	1	Cooperatives, National Research Institutes
What are the appropriate financial services and products for youth/women in sustainable cocoa production?	1	IITA (Enable Youth), IRAD
Assessing the economic value of trees in agroforestry systems	1	Forestry commission, FORIG, FRNR-KNUST

What are the income diversification options available to women/youth in sustainable cocoa production?	1	-
Impact of tree registration on farmer livelihood and finance	1	Rainforest Alliance
Appropriate research method to restoring mining sites.	0	Research Int
Is the premium achieving the intended impact?	0	-

Annexe 6: Participants' feedback

What have you enjoyed about this workshop?

Mentimeter

Discussions	Presentations	Learnings
The group discussions and brainstorming sessions	Knowledge sharing among participants	Educative
Science presentation	It has been very participatory and the presentations were good too	The Networking with the other colleagues
Practical	Participatory	The breakout session and group exercise is quite good and innovative
Geoupwork and knowledge sharing	I have enjoyed the round table group work.	Timely
It was very interactive and thought provoking	Group discussions on research areas	Working groups
Coming out with much research ideas to improve farmer livelihood and income	Cocoa break	The ideas shared on the environmental sustainability on cocoa
Knowledge sharing	Organization of sessions, discussions on the topics, participation of attendants in the discussions	Cocktail 🍹 and networking
The dynamics of the working groups	Networking	Very interactive
Networking	Engaged interaction	The opportunity to interact with people from different backgrounds in connection to sustainability, networking.
I have really enjoyed the engaging and thought provoting nature of discussions.	Food	Network is quite good
I have met people I have not seen in a long time	It promoted networking	Research ideas

Good participation and educative	Very interactive	Interdisciplinary
Growing my knowledge in the cocoa sector in West Africa	Interactions with various stakeholders working with cocoa farmers in different contexts/producing countries.Brainstorming on impact pathway.	Very interactive
Enlightenment about cocoa production and research	Networking	Giving me much ideas to help improve their productivity
Learning more on how to involve our farmers on every level of decision when it comes to the cocoa industry.	Good agricultural practices	Networking and meeting peopleExperience sharing and the opportunity to contribute to policy
Lots of new knowledge from the presentations . Really very good	I enjoyed the hospitality of both the organizers and sponsors	Science presentation , Connection with other colleagues

Do you have any recommendations for new or different things you'd like to see at future workshops like this one?

More coffee	Government level participation	Less presentations, more questions (in Menti)
No	There should be farmer groups and farmers involved	More days should be allocated to allowed for brainstorming
More room for discussions during question and answer. Debate of issues helps advance the agendas	Farmer participation	The structure of the workshop could be varied. A mix of presentations and group discussions instead of the whole of first day for long presentations
More time for discussions	Farmers/Farmers groups participation to the workshop to have a direct feedback from them and their views.	I want to see more audio visual resources like short video documentary cases
More time allocated for questions and interactions	Need more participants and a higher representation of the Cocoa Sector Stakeholders (eg. LBCs)	Distribution of results of this workshops (report...)
I would like to see farmers invited to workshops like this.	Better Zoom interaction	You may bring in Finance specialist that can also have some presentation on how to support these cocoa farmers as the ultimate thing to the farmer is generation of income
Farmers Representatives	None	There should be more than one slot for the organisations
More days needed for better assimilation of the ideas discussed	People from Soil research institute of Ghana should be invited	Traditional authority/Land owner representation
Most research ideas ideas for trial should involve some participant on cocoa soil meeting. Eg phd or master research	Ministry of Agriculture representative	Hold workshops in a cocoa growing area.
National institutes, banks	Have more farmers included in the workshop	less presentation/More discussing after presentation
There should be action plan for implementation after the research work done.	Need more structure / framing at the beginning. Too many research presentations. There was not enough time for the TOC	Could collate all presentation into a book or pamphlets for reference for participants
More of research group have to be represented. More days allow to brainstorm the workshop topic. There should be more than one slot for organisation to attend the workshop	After the workshop, participants must have a cocoa farm visit.	Take videos recording of external presenters
Virtual presentations needs to be minimised or technicians and internet should be checked	The first day was very packed	
	Reduce prwsentation per day to help understanding and participation	