Workshop report: Climate-Smart Villages (CSVs)

Ludhiana, India
September 3-6th 2015

Executive Summary

This 3-day workshop convened nearly 50 representatives from Climate-Smart Village related Flagship projects across Latin America, Africa, Asia and South Asia to share experiences and foster learning and exchange in order to:
1. Define a common vision of what CSVs are, their purpose to CCAFS and its partners, and direction moving forwards
2. Reflect on lessons learnt from different CCAFS regions and identify a set of best practices going forwards
3. Identify opportunities for harmonization of methodologies to enable cross regional analyses and global learning, and
4. Respond to emerging CCAFS external evaluation recommendations on CSVs and incorporate adjustments into Flagship projects during Extension and Phase 2

Plenary and fruitful group discussions, combined with field visits to the Haryana CSVs enabled deep reflections and the collective building of a common vision on the objectives, key elements and generic theory of change of CSVs.

Various success stories of CSVs were highlighted including the development of climate-smart integrated portfolios based on holistic approaches, participatory action research and empowerment. CSVs were seen as particularly important models for articulation and partnerships between a variety of actors and institutions at all levels. Nevertheless, it was noted that certain areas had potential for improvement and this included concerns over the viability of sustainability beyond the project cycle, a lack of evidence of climate-smartness beyond productivity, a need to balance technology and socio-economic aspects, the need to better acknowledge indigenous knowledge, a lack of involvement of 'poor' farmers and youth, and more research, engagement and documentation needed to facilitate scaling out.

There was general agreement on the **farmer-driven nature of the CSVs processes** and convergence on **a minimal set of criteria for the participatory approach** to be considered while acknowledging that the levels of participation must be **context-specific,** reflecting local realities. The criteria included the focus on evidence building, integration of knowledge to actionable science, understanding farmer priorities and institutional landscapes, promotion of empowerment and ownership through effective multi-stakeholders partnerships to support scalability and sustainability through integration in the agricultural system.

Discussions on the CSV Theory of Change reflected some initial confusion by the participants around the CSV replications (e.g 500 CSVs in Haryana) and the scaling up component, but finally a common understanding was reached. Put in simple words, **CSV Theory of Change** is based on generating solid evidence with farmers, on the effectiveness of integrated CSA portfolios (incl. climate smart technologies and practices, business models and associated supporting services and resource leveraging mechanisms). This is in addition to working with partners, governments and private sector on developing implementing pathways to scale it up (e.g. integration into gov. and local planning documents) in order to reach farmers that are not in CSVs (Haryana's 500 CSVs are villages who are adopting climate-smart technologies and practices that come from learning within CSVs).

It was also pointed out that: i) - We have a common CSV model among the different regions made of **a set of replicable processes aiming to build solid evidence that leads to enable wide adoption** but where implementation and scaling up of this evidence are context-specific, ii) In order for CSVs to be scalable, a simpler model is required to piggyback on existing large scale initiatives and iii) CSV Theory of Change should be a combination of the two complementary bottom-up and top-down, science led approaches.

When discussing the issue of **CSV scale** and research units, it became clear once again that one size does not fit all, with CSVs being defined at different levels in different regions. (E.g. in SA villages defined by administrative boundaries. In SEA: landscape, (micro) watershed level; LAM: territorial/

catchment level approach based on production system). However, in general, it was agreed that the CSV scale should be a manageable unit with similar conditions based on biophysical, socio-economic-political context and dependent on CSA technologies being tested and research questions addressed.

The need to further develop and strengthen the **CSV Research framework** was also highlighted with useful discussions around three proposed thematic building blocks:

- *The creation of more systematic and targeted science-led evidence at the relevant scale* (landscape, value-chain) and for the different stakeholders, specifically some topics where evidence is particularly weak including addressing longer term climate variability and change, avoiding maladaptation, defining CSA versus Sustainable Intensification, layering of technologies vs individual options.
- Development of a methodological transferability framework based on processes (not context-specific) where its "ingredients" or components are transferable but bring the context specificity; incl. establishing appropriate metrics, adaptation domains (incl. more work on farmer typologies and CBA); using biophysical and socio-economic Analogues; building more on big data analysis (capitalizing baseline data) and learning from dis adoption.
- *Developing relevant business models* as vehicles for scaling up/out (CCAFS role: informing vs developing?).

Opportunities for methodological harmonization were also identified and included among others:
- *For the Agronomic trials***:** The need to establish a minimum common framework to enable comparable set up of several scenario trials
- *For GHE emissions*: Develop guidelines and protocols on the different methods available (incl. landscape level); address how to validate the mathematical models; agree on relevant measurement scale (plot emissions, life cycle or full footprints?)
- *For Business models*: indicators to assess climate-smartness of a business model,
- *For Scaling out*: to develop a framework to integrate CSA into local planning
- *For Gender*: the need for a general assessment on what has been done and what have been the different results across the regions; strategies to enhance women's decision making in the hh; to address how can CSVs be a factor that influences youth staying in rural areas.

This first CSV workshop was a real success and allowed the CSV community to make major progress on the collective development of the CVS.II Vision to be reflected in the full CCAFS Phase II proposal.

Specific next steps identified include:

- Co-develop a 3-page Synthesis of CSV concept, TOC and objectives, to be shared for comments by October.
- Develop the CSV research framework and share
- Establish CSV practitioners (email list); Interest in group on business development and regional learnings
- Bring other flagships into this CSVs discussions and future actions (mitigation and climate information components have big roles to play) to further catalyze synergies
- Consider Writing Workshops to harmonize methodologies (of what is context specific) and clearly identify and strengthen the science
- Synthesis paper ideas: Framework for Agricultural Trials, mainstreaming CSA into planning/LAPAs
- Carry out a second CSV workshop towards the end of 2016 before Phase II (highlighting the science and including poster sessions)

CONTENTS

Minutes
Day 1

1. Opening session

Introduction and workshop objectives *(Andy Jarvis)*
-Recall of FP1 high level objectives, integrative role of CSVs (Expression of CSA at local level) and current CSV approach definition:
- *Integration of technologies, practices and services, examining how token technologies function in a broader ecosystem of approaches*
- *Built on a participatory approach to understand adoption barriers, farmer acceptance*
- *Wider lens of evaluation: going beyond productivity to also incorporate adaptation and mitigation*
- *Building of evidence for scaling out, piggy-backing the opportunities that climate context adds to a traditional technology roll out approach (e.g. using climate finance, bundling with climate services among others)*
- Recall on evaluators' recommendations.

CSV concept, experiences and way forward in India *(Pramod Aggarwal)*
Origin (2011 in IGP) and evolution of CSV concept. Need to address criticisms (old wine in new bottle? No science but demonstrations; landscape vs village approach, what is the difference?)
What does CSV mean? Where are many farmers practicing some, one, all the practices?
CSV temporal considerations? Need more focus on social components. Need of CSV.II

Virtual tour to CSVs in India *(ML Jat)*
CIMMYT: Three projects, system and participatory focus approach.
Participatory platform; 9 sites across IG to collect evidence on what is working where. Efficient use of fertilizers (Android phone App for greenSeeker N Calculator). Precision land management, agroforestry, typologies of farmers; local adaptation planning workshops

2. CSV vision, approach and activities in the different CCAFS regions
In this information sharing session, the CSV coordinators from South East Asia, East and West Africa and Latin America gave a short overview of their Climate-smart villages, their vision, approach and ongoing activities.

Introduction to Climate-Smart Villages in Southeast Asia *(Yen Tan Bui)*
This presentation by the coordinator of the CSV villages in SEA addressed: the selection of CSVs, the climate-smart components present in each of them, and introduced the aspect of the relevant scale to be addressed, including the landscape level. The implementation structure from national to community level was also presented: the identification activities of the baseline work, initial capacity building, land use planning, and priority interventions carried out based on a bottom-up and participatory approach. Also mentioned were upcoming activities related to capacity building of CSV teams, household-based land-use optimization and opening of CSV research proposals.

East Africa CSVs: vision, approaches & activities *(John Recha)*
The presentation addressed the risk profiles of the EA CSV villages, the regional vision and impact pathway ending with a focus on the Nyando Case documented in the CCAFS info note.

Development of CSV models in West Africa: current status and lessons learned (Mathieu Ouedraogo)
Mathieu provided the general context and background of CCAFS work in the region since 2011 and introduced the development of CSV models through the project "Developing community-based CSA through PAR in five benchmark sites in West Africa", which was carried out in partnership with the World Agroforestry Centre (ICRAF). It addressed the CSV integrated approach and its contribution to the broader West Africa vision and development outcomes. Activities carried out at the community level were also presented (baseline studies, capacity building, M&E planning for PAR, gender

mainstreaming activities, evaluation of drought tolerant and short cycle technologies -matrix by CSV- and portfolios by farmers, climate information and forecast, water harvesting, vegetation rehabilitation); the development of local multi-disciplinary and multi-organizational partnership frameworks; Llocal adaptation plans through participatory planning using TOP-SECAC and gender tools; climate information services - Partnership for Senegal Early warning system. The presentation ended by highlighting some future perspective including: synergistic action with other programs; demand for CSV; Niger CSA project in development – funded by World Bank; CSA project in Cote d'Ivoire with ICRAF.

CSV Los Cerrillos, Cauca, Colombia: (Ana Maria Loboguerrero on behalf of Luis Alfonso Ortega)
The fourth presentation introduced one of the three CSVs from Latin America located in the Cauca Department (Colombia), as well as the territorial approach adopted to articulate a shared goal on adaptation strategies, organizational, environmental, economic and political processes of the communities and institutions present in the area. Ana Maria pointed out the current efforts on the development of local adaptation plans and adaptive management, empowerment of women and youth, and implementation of Field Schools (Mother plot-> daughter plot -> granddaughter plot scheme). The main ongoing activities were presented (baseline, economic games and ICTs for planning, participatory identification of autonomous and planned adaptation measures, assessment of best adaptation practices, participatory GIS, consolidation of institutional platforms for joint action, incorporation of CSV results into rural school curricula to promote culture of adaptation, local agroclimatic technical groups) as well as key partnerships. The presentation ended by presenting current plans to share lessons learned so far with other municipalities and to replicate the CSV model in the Atlántico department.

Day 2

(Morning) Field Visit to CSVs -Noorpur Bet and Bagga Khurd- and BISA farm, Ludhiana

Site I: *CSV research platform Noorpur bet*

- Overview of CSVs in Ludhiana, Punjab by ML Jat.
- 50% of the village's households and Ha are under CSA.
- Second year of experimentation
- **Key interventions** and current testing of 6 different **Scenarios** going from business as usual (current technologies) to different levels/layers of intensity in CSA options and range of interventions including: land levelling; residue management; water management; residue management; nutrient management; ICT-based decisions; crop insurance. (See **ANNEX 1**).
- Quantification of profitability of different CSA practices (not yet included in measure of impact on livelihoods as only second year of implementation)
- Last winter season (abnormal with continuous heavy rains). How people adopted CSA practices got less damaged (only 10% yield losses vs up to 50%)

Travel to site II: *Field site within Noorpur Bet CSV*

CSAPs- what is new in the portfolio?
- Agro-forestry (5 year cycle; evaluation of most suitable varieties)
- Smallholder precision nutrient management – Nutrient Expert Tool (questions allowing to access information resulting from field testing and data basis analysis across large geographies)
- CSAPs and crop-livestock interactions
- Role of women & youth in decision making (selection of technology and practice) and scaling CSAPs
- CSV and LAPA: convergence opportunities

Travel to site III: *Farmer cooperative*

- Farmer Cooperative Society as service window for scaling CSAPs- what is different with CSAP integration?
- Technology-led business case
- How other cooperatives are learning from this model
- My village- my price scheme (researchers supporting farmers)

BISA farm

- Overview of BISA & scale appropriate climate smart mechanization solutions
- Automatized irrigation system

Climate-Smart Agriculture Research for Development

- Precision **sub-surface water and nutrient management** in cereal-based systems
- GHG mitigation in CSAPs
- Stress tolerant maize; Stress tolerant wheat (G x E x M)
- Designing portfolios of precision conservation agriculture for resilient maize-wheat systems; 11 treatments. Objectives:
    o Optimize water and nutrient rates, times and methods of application
    o Improve system productivity, water and nutrient use efficiency
    o Reduce environmental footprints of tillage, water and nutrient use
    o Capacity development of precision conservation agriculture
    o Develop science-based policy guide for sustainable intensification
- Significant savings observed of nitrogen fertilizers (50%) and possibility to produce wheat with very low amounts of water (-75%), harvesting 6x more in some seasons.
- (direct) maize seeding in between 2 rows of wheat residues (with machine planting)
    ⇨ **Trying to marry conservation agriculture with precision nutrient management concepts.**
    ⇨ Tensiometers in the field inform when irrigation is required

3. CSV science: Establishing a common vision and framework
- Opening with results of the Twitter exercise on CSV concept*: See results under session 7*
- Stocktaking exercise on most innovative aspects from CSVs (observed in the field and heard from Day 1 presentations)

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Most exciting aspects and CSV's successes

- ✓ **Evaluation and evidence building** of "climate-smartness" (productivity, adaptation and mitigation impacts) of innovative and **integrated portfolios** based on **PAR** and empowerment principles.
  - Involvement of farmers (and women) in "joining up" a culture of experimentation for decision making at household level
- ✓ Use of a **wide range of technologies** developed by scientists (from simple to high tech).
- ✓ **Holistic approach** based on evaluations that combine or "layer" different levels of climate-smart components/options (technologies/practices –incl. water and livestock, diversification strategies and services).
- ✓ **Great platform for successful articulation and partnerships** (between CG, NARS, universities, farmers, cooperatives and a wide range of institutions) as well as **government engagements/investment**.
- ✓ **Scaling out/up strategy** and capitalization of other initiatives or existing structures like farmers cooperatives

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Areas for improvement

- **Sustainability:** Some concerns were related to CSV implementation by (small) local institutions and to the fact that some promoted options are resource intensive and need financial supporting mechanisms to enable sustainability beyond the project cycle.
- **Lack of evidence on "climate-smartness" beyond productivity.** How do the CSA technologies balance the achievement of the CSA pillars? Where are synergies and trade-offs? What is the role of diversification?
- **Balance between technology and socio-economic aspects**: CSVs seem mainly oriented on technology but more balance could be encouraged.
- **Role of Indigenous knowledge**: Need to better document how indigenous knowledge systems are factored into the development of climate-smart technologies in the field.
- **Market linkages:** Key incentive for farmers to adopt not always considered in CSVs (assumption that they can always sell their products).
- **Beneficiaries:** Avoid possible technological *bias* towards "rich" farmers; need to ensure mechanisms that bring CSA options/services to poor farmers.
- **Policy needed to incentivize uptake and scaling out:** More engagement, research (economic analysis) and documentation needed to convince key stakeholders to provide enabling environment, services and mechanisms to financially support farmers.
- **Addressing youth:** Further research needed to document interest, entry points, and benefits for **youth.**

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Scaling up and out: Group discussion

Andy Jarvis invited the participants to address and discuss, in group tables, the following aspects related to the scaling up and out of strategies behind the CSV approach:

o **What is the theory of change for a CSV?**
  - Is it about establishing a model for local adoption of CSA and scaling out that model e.g. CSVs everywhere? Or
  - Setting up high intensity participatory action research sites to evaluate options, learn and then infer scaling out mechanisms: Policy, Investment, Business cases?
o **What theory of change is most appropriate?**
  - Does one size fit all, or should there be country/region specific strategies?
  - Specify for the different regions present at your table
o **What challenges need to be overcome?**
o **Success cases of scaling out**

- Our outcome-driven approach leads us towards impact and applicability. After several years of research and evidence building we now need to reflect on the most appropriate scaling model e.g. for engaging the government, for industry.
- How to make better use of climate information services?
- Are we properly addressing climate vulnerability and CC issues?

The 8 groups came up with interesting reflections and suggestions on how they see the CSV theory of change **(ANNEX 2)**.

Synthesis
Theory of Change - Scaling up and out -
Despite the diversity of visions and reflections on what is the CSV Theory of Change, key elements were frequently highlighted. Those included:

- **CSV Theory of Change should be a combination of the two proposed models:** the more local/ bottom up, as well as the higher intensity, "top down" or science led setting.
- **No one size fits all.** CSV Theory of Change needs to be e*mbedded in the local/regional context* and could build on context specific ecological and socio-economic typologies**.**
  - We might have a common CSV concept among the different regions but implementation and scaling up process will be very different and context/region specific
- CCAFS CVS are testing grounds but the ultimate goal must be to build **robust science-based evidence** around Climate-Smart Agricultural Portfolios to increase resilience of rural livelihoods to climate change.
  - Evidence on the CSA outcomes to monitor the impacts
  - Long term vision of the CSV approach: enabling all villages in CCAFS regions to become climate-smart (which does not mean that they have to become CCAFS climate- smart villages).
  - **Need for global metrics** to be able to identify where we have CSVs (and what makes them CS)
  - **CCAFS needs to identify clear domains of action** where to work in order to obtain this ultimate goal (where CCAFS is adding value? E.g.: Incentives to governments to invest in CSA; Value chain)
  - Should aim to integrate CSA technologies in the agricultural systems.
- The concept of CSV is **a set of processes that leads to wide adoption** of CSA practices. The actual technologies are secondary to this.
- CSV process/models need to be **scalable.**
- A fundamental challenge is to take knowledge-intensive processes to scale. There are currently different degrees of knowledge/input intensity across CSVs. For a CSV model to be scaled, a *simpler model is required* to piggyback on existing large scale initiatives (e.g. good Agricultural Practices; adopt a village).
  - Building capacity in our NARES and public/private sector partners fundamental to taking the CSV concept to scale.
  - Local work has to be linked with policies at national level that can support scaling (and identify conflicting ones)
- Different **business and institutional models** will enable CSV implementation at scale leading to more resilient food systems.

See Example of CSV Theory of Change: *Business cases for scaling (ANNEX 2b)*

Success Story: Haryana case – Engagement of the State Government of Haryana
As there are several instances of difficulty and/or failure of bringing government stakeholders onboard the program and implementing them, Haryana has a different story. In Haryana, the state government has been actively involved in the CSV program being implemented – right from the inception phase of the program which has developed a sense of ownership and participation. They have been key in government endorsements of documents, local level plans as well as influencing and implementing policy changes to promote Climate Smart Agricultural Portfolios.

Day 3

4. CSV Science (continuation)

The morning of day three was devoted to continuing the CSV science session. Three major topics were address through short opening presentations followed by group discussions. Key aspects are summarized below.

i. *Participatory Action Research*

CSVs are founded upon an action research framework whereby communities are an integral actor in the research process. Different participatory approaches with local institutions and farmers themselves have been implemented across the different regions. Are we observing regional differences on its implementations (e.g. farmers as implementers vs farmers as drivers of the agenda or hybrid process)? To open up the discussion, an introduction on *What is PAR* and its *key principles* was made by John Recha:

Participatory action research is an outcome-driven approach to research in communities that emphasizes farmer participation and action. PAR seeks to understand the community by trying to change it, collaboratively and following reflection. It emphasizes collective inquiry and experimentation grounded in experience and social history. K*ey principles include:*

- Recognizing community as a unit of identity
- Building on strengths and resources within the community
- Facilitating collaborative partnerships in all phases of the research
- Integrating knowledge and action for mutual benefit of all partners
- Promoting a co-learning and empowering process that attends to social inequalities
- Continuous monitoring and involving a cyclical and iterative process
- Disseminating findings & knowledge gained to all partners
- Scaling up through local policy makers

Questions addressed in groups:
- Are there success stories that might help us to identify which might be the best PAR practices?
- Do we need different strategies for PAR or are we on the right track?
- Which might be the minimum requirements for a PAR approach?

Synthesis
PAR session

Building on the collective discussion the following principles and requirements came out (**in blue, novel elements** compared to the initial definition are highlighted).

Elements on CCAFS PAR definition
PAR is a tool to generate scalable, cost-effective and socially relevant CSV models for different agro-ecologies. The out scaling of the CSV model does not necessarily require PAR.
PAR in CSVs needs to be an Eye Opener allowing to create awareness and showcase available technologies and tools

Ten principles of "CCAFS' PAR approach"
1. Focuses on actionable science and evidence building
2. Integrates Knowledge to Action
3. Establishes tradeoff between CSV being a demand driven process and project demand (should match farmer's broad priorities)
4. Understands institutional landscape
   - *E.g. stakeholders mapping for roles identification in the system*
5. Encourages farmer empowerment and ownership (e.g. co-design of research framework, co-definition of indicators and M&E methods; active roles and responsibilities) building on strengths and resources within the community:
   - CBO set up if necessary to have "units" of people that will work together
   - Selection *of champion farmers open to taking up/trying and sharing the technologies*
6. Facilitates collaborative and effective partnerships (grassroots institutions, organizations, public/private sector) in all phases of the research
   - Uses specific and differentiated approaches to involve and engage farming communities (incl. *women, youth and marginalized groups),villages and landscape level stakeholders (public/private institutions, business communities, decision makers) across all the research cycles (from planning to implementation, monitoring, evaluation and learning).*
7. Promotes capacity building, mentoring process and co-learning mechanisms (incl. farmers and participatory evaluation of stakeholder's participation) to transform into action.
8. Disseminates findings & knowledge gained to all partners
9. Scales up successes through local policy makers and innovative mechanisms
10. Ensures sustainability
    o identifying how CSVs will be linked to the agricultural systems (e. g cooperatives; actors able to maintain a business model)

Other key requirements listed for the CSV approach include:
- Site selection: should be region specific/representative and scalable
- Conduct situation analysis /baseline and vulnerability Assessment
- Identify climate risks, incentives and benefits of participation in CSVs
- Fosters initial community mobilization to build common understanding of the vision and goals

Comments
- Essential need to understand the specific history of the community rather than assuming that we are starting from a blank page.
- Recognizing that a project might have a limited scope, and will only contribute to addressing some aspects/needs of the community.
- Need to make some distinction about Participatory Action Research (might develop some model and protocols on which participatory action in needed) and Participatory Action.

Open questions:
- Do we know which the best PAR practices are (things that will really make a difference to help us achieving out outcomes)?
- Now that CCAFS is reaching its first 5 years, should we think about evaluating the PAR work already done in the different sites and assess how far have we have got so far?
- At which level is PAR being used: CCAFS level, project level?

Conclusion from the session
- After having collectively reflected and established the PAR minimum requirements the questions that arise are: Are we meeting all those PAR minimum requirements? Should we try and use a similar "set level" of participation across all the regions or should it be grounded in the cultural and institutional realities of each site? Should PAR be taken as "one size fit all "approach in its implementation?

  ⇒ Collective agreement was reached on the fact that in the case of PAR's implementation in the CSVs, one size does not fit all and the levels of participation must be context-specific depending on the regional/local realities.

ii.   CSV Scale session

Village is in the name, but this may not always be the most appropriate scale for a CSV. In Asia and Latin America, perhaps landscapes or catchments are more appropriate. The issue of scale of a CSV has been brought up by the external evaluation. In this discussion, the group reflected on which might be the appropriate scale, and tried to clarify the CCAFS strategy across and within regions.

 In its opening presentation Julian Gonsalves recalled, in a great and very illustrative way (See Video), the CSV purpose, focus, principles and scale, opening the floor to the table discussions around two questions:
  o Is our current CSVs scale appropriate?
  o Which are the strategies needed to scale out the lessons learned emerging from the CSVs?

Synthesis
CSV scale session

Appropriate CSV Scale
- Not easy to define concrete concept of CSV research unit. Current diversity observed on scales across regions. (E.g. in SA villages defined by administrative boundaries. In SEA: landscape, (micro) watershed level; LAM: territorial/ catchment level approach based on production system)
- One size does not fit all.
- CSV scale should be a manageable unit with similar conditions, context specific, considering:
  - Biophysical, socio-economic-political context
  - Scale dependent on technologies being tested
  - CSA technologies/ portfolio tested
  - Research questions addressed (importance not only of landscape/catchment area but also administrative boundaries, value-chain etc.)

Strategies for scaling up the CSV model
- Strategies for scaling up are **context-specific** (e.g. India: Government & private sector involvement, corporate responsibility, 2% of profit mobilization; Africa: Government and Community; Nepal: government + community + private sector).
  - builds on having representative CSVs in different agro-ecologies
  - Analysis of *what is working (success stories)*

Synthesis - *CSV scale session ...*

o Must be **supported first by strong evidence base**
o Might be **driven by the CSA portfolio** evaluated in the specific location (e.g. practices, technologies, policies and finance) **and targeted business models** to promote CSA value chains.
   • *Value chains driven by market (and financial incentives) and regulated by the government (enabling environment)*
o Should **support the development of resources leverage mechanisms**
o Should generate strategies to ensure **wide multi-stakeholder engagement** from the early stages of the project (who, when, where and why), build trust and ownership.
   - *Importance of public-private partnerships*
   - *Need to define roles for private sector*
o Should involve the **development of implementing pathways** aiming towards the integration of CSV **findings into government documents and plans** (subnational-national).
   - May include developing guidelines for scaling up

General comments
- Scaling out/up is also a research question to be addressed. Do we also look at what is the large scale impact of this scaling (many farmers growing X crop, influence on prices; many water reservoirs?)? Do we have relevant research questions to look at upstream and downstream impacts?

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iii. *CSVs Research framework*

From the variety of approaches being developed in the distinct regions, can we define a research framework that is common and that can drive CSV-based research over the coming years?
The session was introduced by Pramod Aggarwal who echoed the main research questions gathered from interactions with the workshop participants, recalling the main goal:
   o To develop a scalable model
   o Create evidence base for it
   o Ultimately lead to some business models

Three key components of the research framework are:

1. To create **science-led evidence** on the efficiency of the model (at the relevant scale: landscape, value- chain etc.).
   • Are we properly addressing climate change (longer term) and climate variability? Or are we addressing climatic risk?
   • Need of more scientific analyses to evaluate that what we are promoting today will not lead to maladaptation.
   • How to make better use of climate information services? Some sort of distinction needs to be made between sustainable intensification and climate-smart agriculture. Need to be more specific on what is and what is not CSA
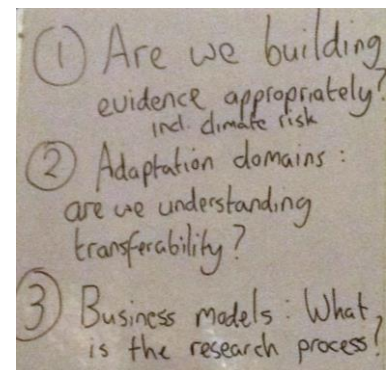
2. Define **adaptation domains** to facilitate transferability of successful research
3. Identify and develop the **business models** that are needed. Our outcome-driven approach leads us towards impact and applicability. After several years of research and evidence building, we now need to reflect on the most appropriate scaling model e.g. for engaging the government and for industry.

Questions identified for group discussions:

- o Are we building evidence appropriately to address climate variability and future climate change? (Method)
- o Adaptation domains: Are we understanding transferability? (Tool)
- o Business models: What is the research process and how do we mainstream it in the thinking of a region?

Synthesis Research framework discussions
Are we building evidence appropriately?

Most of the discussion groups (4 out of the 6 tables) concluded that CCAFS is currently NOT doing enough to build evidence base and that opportunity for improvement exists and focuses around:
- **Targeted evidence:** defining the targeted stakeholders (farmers, investors, policy makers), the different types of evidence needed and how it needs to be framed and communicated.
- **More systematic evidence base processes** (establishing clear trade-offs between the research and the scaling out goals), and consider specifically some topics where evidence is particularly weak.
- **Strengthening innovative aspects of research:** focus evidence base on portfolios and layering of technologies (not occurring everywhere so far) vs traditional individual technologies evaluation.
- **Establishing CSA metrics** for M&E and enabling more breakdown of evidence around the three pillars.
- **Addressing future climate variability and risk** (incl. appropriateness of current coping mechanisms from farmers for future CC conditions).
- **Building more on big data analysis** opportunities (capitalize baseline data).
- Learning from dis adoption of technologies and fast spreading technologies (i.g cell phones).
- **Agenda guidance**: can weather and climate information services be used to drive the CCAFS research agenda?

Adaptation domains: Are we understanding transferability?

The group agreed overall that so far CCAFS has not adequately addressed transferability within its projects (no evidence) and shared the need to further address and understand both current and future adaptation domains and ensure future sustainability of CSA technologies and options despite context specificity associated to technology adoption. In terms of available tools, the Climate Analogue was recognized as being of key importance if embracing the socio-economic and soil aspects. Suggestions on aspects to be further considered include:

- **Development of a methodological transferability framework** based on *processes (not context specific)* where its "ingredients" or components are transferable but bring the context specificity.
- Carrying out more work on farmers typologies and CBA (costs associated to implementation of CSA)

> ## Business models:
> ## *What is the research process and how do we mainstream it in the thinking of a region?*
>
> This discussion led to the following key reflections:
>
> - *Business models as framework or vehicle for upscaling the CSV model*
>   - o CSV concept is a process/approach, thus need for BM that are different than for products.
>   - o BMs for CSVs should be market driven but need to be dynamic.
>   - o Need to identify target specific investors (e.g. private enterprises, gov, cooperatives, and self-help groups) and define processes that promote investments at CVS level accordingly.
>   - o Need to engage and involve those "clients".
>
> - *BM and role of CCAFS science: Informing rather than developing?*
>   - o Lack of clarity was expressed on the research behind BMs for CSVs and who the customers of this research are. Call for more work.
>   - o Questioned role of CCAFS researchers/policy makers (partners) on trying to develop BM by themselves.
>   - o CCAFS science role should be informing investors and entrepreneurs on potential business opportunity, providing them the necessary inputs (e.g. evidence for cost recovery, microcredit etc.)
>   - o Research process might include documentation of BM benefits (M&E)
>
> **Other comments included:**
>   - o Need for business case for capacity building for famers, in collaboration with private sector.
>   - o Existing CCAFS SEA platform to enable different groups to come together and develop BMs

5. Plenary session: CSA Scaling examples and lessons learned from India

Rajbir Singh's presentation (Video) focused on sharing learning from the Indian and ATARI experience at the CSVs. See highlights in **ANNEX 3.**

6. Opportunities for methodological harmonization

i. Gender and Youth

In its opening presentation Surabi Mittal (CIMMYT) recalled the current key challenges:
- Majority of farmers are small and bounded by limited subset of knowledge and access to resources
- Male farmers are moving for secondary income leading to increasing feminization of agriculture
- Youth moving out of agriculture
- Gender gap- literacy, limited access to assets, and cultural barriers and traditional mind set- "Women don't need information"
- The problem of lack of information is even more pertinent among women engaged directly or indirectly in agriculture
- Limited experience/ confidence in decision making

CSV research has strong focus on technologies, innovative platform and partners, and how foster uptake, adoption, scale-out and impact of those technologies. However, the key catalyst in between is **behavioral change**.

Conceptual Framework
Source: Mittal S (2015 Draft)
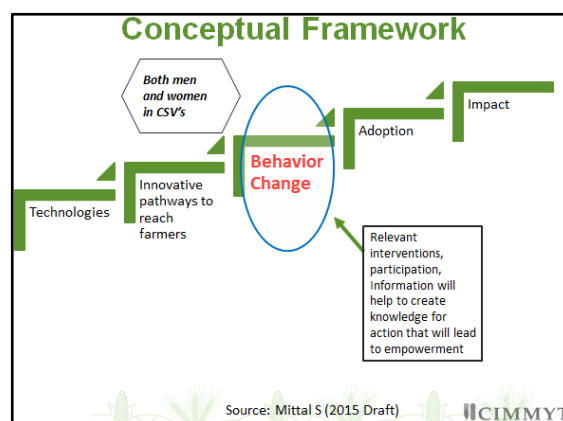
Examples from India:
- What the existing gender gap is (survey analysis 2012 reflected poor access to assets but also to information and knowledge, where ICT can act)
- Enhancing the role of gender in hh decision making to adopt CSAPs (reducing information asymmetry and empowering them; making women in hh accountable for record keeping)
- Enhancing understanding by training (green seeker, inclusiveness in ICT services, weather info, creation of service windows)
- Gender empowerment index

Important considerations
- Gender should be incorporated in activities where possible but is difficult to understand (and in some locations even more challenging)
- What role do women play in agriculture and related activities? Do we know this? Should this be the starting point? Do we have data and information on this?
- Technologies, especially mechanization, might displace labor- the first loss might be to female labor- how this will be accounted for? (**Gender neutral**? Same impact on men and women?)
- **Men and women think differently**, might internalize information and implement it differently- so should we have a disintegrated (only women) vs integrated (men and women) approach?
- What is the role of gender in the decision making process?
- **What is the incentive for women to be part of CSVs?**
- Is it necessary for CSVs to be concerned with gender issues?

Questions for discussion and reporting by discussion facilitation *Sophia Huyer*
- Should CSVs be concerned with gender issues?
- Are we doing enough in CSVs to examine gender and youth elements of climate adaptation and mitigation?
    - *Do you know of existing tools for gender main streaming/ integration- Are these tools simple to understand and implement?*
    - *Do CSVs need a different approach from pre-existing gender approaches?*
- How can we enhance the role of gender in household decision making to adopt CSAPs?
    - *What are the regional lessons learned? Can you list at least one?*
    - Are we collecting and analyzing the data to truly understand gender and youth differentiated impacts of CSA options?
    - *How are you addressing gender and youth in technology adoption assessments?*

Key conclusions
- ✓ Consensus on the need to address gender and youth issues in CSVs
- ✓ Emerging approaches in the region on the role of gender and technologies assessment
- ✓ Different tools exist and are used, but **need for a general assessment** on **what has been** done **and what have been the different results** across the regions.
- ✓ **Need for strategies to enhance women's decision making in the hh** (Assessment of technologies and tools introduced and their impact on women's position in the hh, their control and access to resources (been done in Nepal; Women involved in book keeping in India)
- ✓ **Need to address: How can CSVs be a factor that influences youth staying in rural areas** (financial instruments, loans, incentives, use of technologies, training on business opportunities around farming; providing interesting jobs around CSV activities- data recording etc.)

  ii. *Scaling-out approaches: linking with LAPA or sub-regional planning: Experiences from South Asia, primarily India*

The opening presentation by Jeetendra P. Aryal highlighted to following aspects:

- India is very special because it has NAPCC (National Action Plan on CC) and SAPCC (State Action Plan on CC) and good integration between both levels. Missing GAP = Local Adaptation Plans of Action.
- LAPA: Important vehicle to scale CSA (endorsed by the government in Nepal)
- **Need to explore how we can mainstream CSVs into LAPAs**, enable coordination and synergies (both concepts acting at village level)

Questions for discussion
- o What are the most appropriate sub-national policies and plans that can provide incentives for scaling-out CSA? (experiences from Nepal, regional lessons learned)
- o How might local CSA programs be best designed to promote CSA adoption?
- o What is the role of local institutions in providing supporting services to farmers that increases CSA adoption levels and where do the opportunities lie?

Reporting
- The group discussed the need to reach impact at local level planning
- In general, in most of the CSV sites, existence of national level frameworks (NAPAs) but gap at local level
- Climate-smart alliances set up in rural Africa to be used as vehicles to integrate into national planning but, how is this going to be connected to the local plans?
- Nepal: village plans including 50% of the budget on LAPAs
- Incentives to integrate CSA into LAPAs? Where is the information feeding the LAPAs coming from? Can CSV research provide inputs to LAPAs?
- Need to further discuss how to integrate CSA into local planning

iii. Greenhouse Gas Emissions

Clare Stirling presented some of the key challenges to be discussed related to GHG emissions methodological issues in CSVs.
- ▪ What is the most appropriate GHG approaches to use in CSVs?
- ▪ Do we replicate (FP3 detailed and expensive measurements) or do we take less expensive approaches (incl. calibration of models as way to scale out)? What is the trade-off: Gold standards models (DNDC, but apparently several problems been reported) vs data light model? Cool Farm tool?
- ▪ Do we want a robust analysis of emissions or idea of which directions these technologies are going to take GHG?

Questions for discussion and reporting
- o **Are we using the best methods?**
  - There are different groups using different measurements.
  - Methane measurement is easily done, but **carbon sequestration is very difficult**.
  - It is really not easy to tell if the methods being used now are the best ones.
  - **Guidelines of different measurements should be developed.**
  - A group from New Zealand has been doing measurements in cattle productions, paddy rice, and applying different predictive models for different location-specific measurements of emissions.

- o **Are all measurements using SAMPLES best practice methods?**
Not a concrete answer for this Y/N question, just miscellaneous ideas:
- GHG lab has been set up in Nairobi for different measurements.
- Mono-cropping of rice in the Philippines: measure CH_4 emissions in rice.
- Using different mathematical models to predict GHG emissions. The question is, **how do we validate these models?**
- Implementation of **GHG emissions measurements at landscape scale**.

Follow-up

- Protocols on how to use measurements using different methodologies.
- There should be measurement data, e.g. 24 hour measurements.

o **Are we measuring plot emissions, life cycle or full footprints? What should we measure this?**

There are controversial discussions:
- GHG emissions measurement may not be appropriate at CSV scale where piloting is being implemented, but rather at out-scaling stage (Flagship 3) because it is not easy to do.
- We should still try to measure emissions within our capacity at CSV scale, especially in case of modelling work because we need data to calibrate and validate the models.

iv. *Climate information services*

To introduce this session, Mathieu Ouedraogo recalled the usefulness of Climate information services in agriculture and provided practical examples of different types of products relevant to the different phases the crop's cycle.
He also addressed the need to translate this information to ensure accessibility and efficient dissemination to beneficiaries (e.g. local multi-stakeholders platform); channels include: use of ICTs (Ghana); value chains (Burkina, Senegal); rural radio (82 in Senegal)
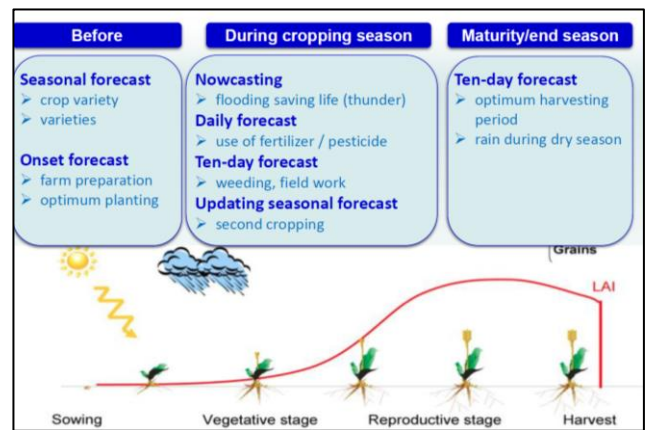
He concluded by highlighting the challenges related to production, dissemination and use of climate information. (See Full [Presentation])

Questions for discussions and reporting (Ana Maria Loboguerrero)

Science
o How to strengthen the capacity of Met services to produce CI for small scale (downscaling)?
o How to assess adoption and impact of CI? (Experimental design and analysis method)
Institutional arrangements
o What partnership can be created for CI production and dissemination?

Reporting
- CCAFS should not substitute the Met Offices in terms of the production of information nor on the downscaling. Much uncertainty involved and there might be other local actors with stronger expertise and capacities than CCAFS.
- CCAFS should focus more on the dissemination piece: bringing climate information to farmers; regional network; climate outlook.
- Do we need to have a forecast at the village level? Some disagreement among the group participants.

v. *Agronomic trials*

In all CSVs, no matter what the region, agronomic trials are being implemented. Distinct approaches, however, are being taken in terms of experimental controlled versus farmer based, protocols for trial

design, data management and analysis. Participants on this discussion table addressed the following questions:

- o   What are the minimal standard practices that need to be implemented across all CSVs?
- o   What common protocols can be adopted across all CSV projects

Key reflections shared by the group facilitator Samuel Partey were that given the important heterogeneity among the CSVs from the different regions (in terms of climatic risks and challenges, agro-ecologies and production systems etc.) it might be difficult to identify standard practices and rather the common elements should be:
-   Sharing a common objective
-   Having a comparable set up of several scenario trials

vi.   *Business models*

The opening presentation by Anne Marie Groot "**Exploring opportunities to scale out CSA in CSV through innovative business models**" share the ongoing work developed under FP1 project *"Recommendation domains, incentives and institutions for equitable local adaptation planning at sub-national level and scaling up climate smart agricultural practices in wheat and maize systems"*; as well as the concrete case study developed for the cooperative in Noorpur Bet (Punjab). Watch the Video, See **ANNEX 4** for the highlights

Questions for table discussions and reporting:

- o   Should CCAFS focus more on cooperatives to out-scale CSA practices and accelerate climate smart businesses?
- o   Establishment/facilitation of innovation platforms: is there a role for CCAFS?
- o   Should we identify a basic set of criteria for assessing climate smartness of business ideas – business cases?
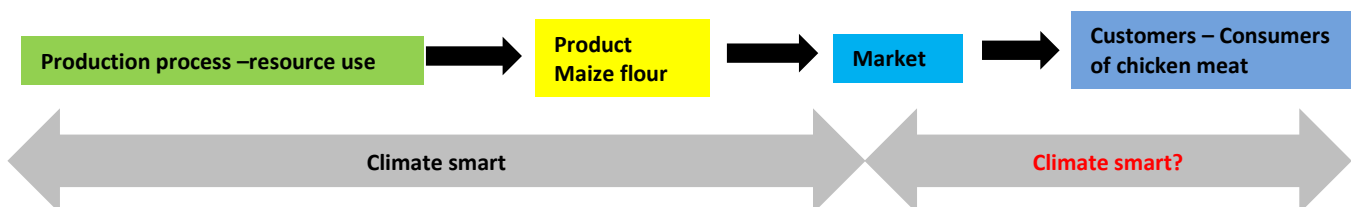
Conflict illustration
In this potential business case, the cooperative is interested in the production of maize or maize floor for chicken industry. The production part can be climate-smart, but what about the second (right) part? If the system encourages consumers to eat more chicken meat, to which extend are we working towards climate-smart development?
What to do with these business ideas?
Which useful criteria to use?

Reporting highlights
Much work is needed around the indicators to assess climate-smartness of a business model. Not clear understanding by the group. Elements from the discussion included:
-   Link climate risk with present market risk
-   Benefits of CSA products > business as usual…
-   Meet criteria of CSA but not drive/steer market forces
-   Lower emissions
-   Sustainability
-   Multi-functionality
-   Reduction of waste
-   Resource use efficiency

- Reduced price of inputs
- Higher skills
- Increased income

The group also reflected on the question of whether CCAFS should be moving into the value chain/ market driven approach or if we should be more focused on the production of technologies.

7. Closing remarks

Change in CSV definition from the beginning to the end of the workshop
Stocktaking exercise

Participatory, Research and Integrated got bigger ... scale appered
(Improvements but still needs more work!)

To be compared with CCAFS definition (as per in pre-proposal):
- **Integration of technologies, practices and services**, examining how token technologies function in a broader ecosystem of approaches
- Built on a **participatory approach** to understand adoption barriers, farmer acceptance
- Wider lens of evaluation: going **beyond productivity** to also incorporate adaptation and mitigation
- **Building of evidence** for scaling out, piggy-backing the opportunities that climate context adds to a traditional technology roll out approach (e.g. using climate finance, bundling with climate services among others)

General closing comments from the plenary
- Significant discussion about CSA but no one is really concrete about it. Some say: Is CSV the right approach? What else should we ask back? If not in this way how do we reach millions of Ha/ farmers? (Reiner)
- This workshop has helped participants to realize how important the participatory research element is in the CSV approach (multi-stakeholders involvement not only farmers)
- Importance of having and showing the evidence on the value addition for promoting and upscaling this model: having good business cases for CSVs (e.g. inspiration from the cooperative model)
- Lots of progress made but wide range of opportunities identified for more coordination on specific topics/areas
- On harmonization: Writing workshops would be very helpful to get to an harmonized methodology (harmonization of what is context specific)

Suggestions for next CSV workshop:
- Additional to field trip, really see the science that is behind
- Organizing it in another region; focus on best practices and failures
- Additional: Setting up webinars on specific topics to make progress via virtual discussions
- Clearly identifying and strengthening the science behind
- Poster sessions
- Consensus opinion that it would be worth doing another CSV workshop at the end of 2016, before Phase II.

vii. *What participants committed to do on their return (ANNEX 5)*

8. Conclusions
- Much progress made but wide range of opportunities identified for more coordination on specific topics/areas
- On harmonization: writing workshops would be very helpful to get to a harmonized methodology (harmonization of what is context-specific)
- Clearly identify and strengthen the science behind
- Poster sessions
- Consensus opinion that it would be worth organizing another CSV workshop at the end of 2016, before Phase II.

Follow up
- Draft 3 pager Synthesis of CSV concept, TOC and objectives. To be shared for comments by mid-October
- Develop research framework and share with participants
- Reflect this collective CSV thinking, direct input for Phase II proposal and contribution to overall CCAFS Theory of Change
- Establishment of CSV practitioners (email list); Interest in group on business development and regional learnings
- Need to bring other flagships into this CSVs discussions and future actions (mitigation and Climate information components have big roles to play) to further catalyze synergies
- Identification of regional and cross-regional synthesis papers: Framework for Agricultural Trials, mainstreaming CSA into planning/LAPAs.