



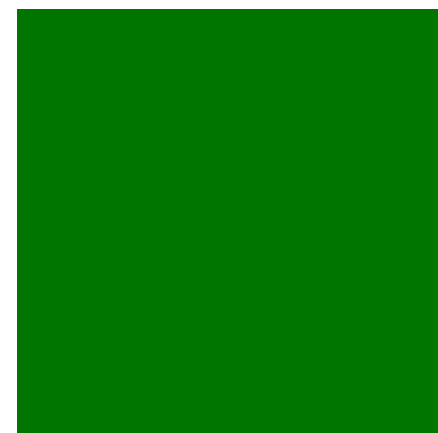
FARM^D

Forum for Agricultural Risk Management in Development

WEBINAR SERIES

Climate Services for Smallholder Farmers

By Dr. Jim Hansen (IRI, Columbia
University and CCAFS, CGIAR)



Washington DC, United States, December 3rd , 2014



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



Climate Services for Smallholder Farmers

**Jim Hansen, Flagship 2 Leader: Climate Information
Services and Climate-Informed Safety Nets**

FARMD Webinar, 3 December 2014

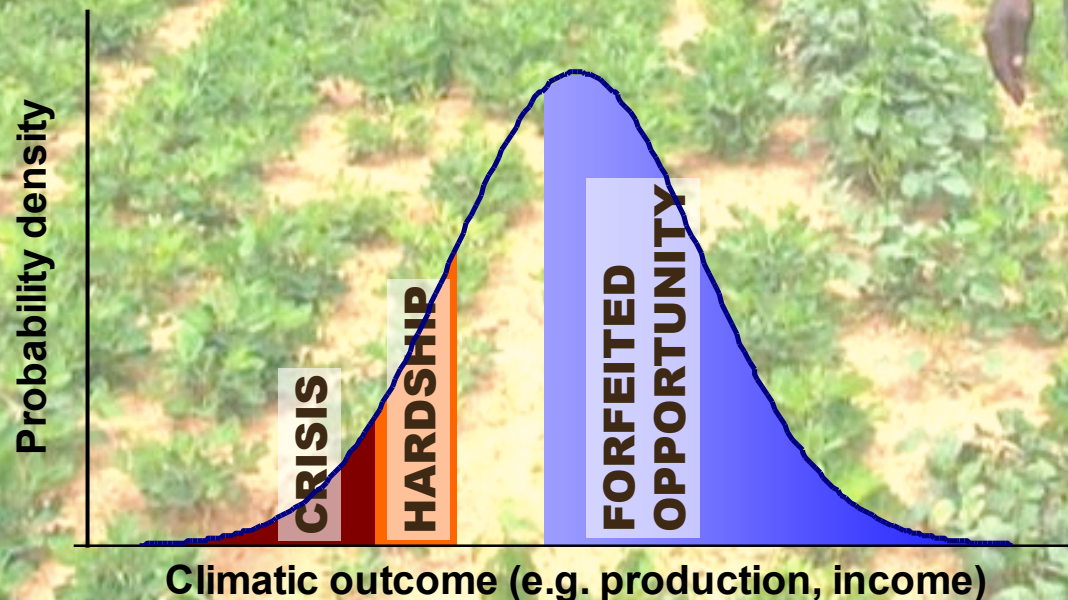


A photograph of a traditional, circular hut with a thick, conical thatched roof made of dried grass or straw. The walls are constructed from woven reeds or bamboo. The hut is elevated on a wooden frame of vertical posts. A large, thick tree trunk leans against the front of the structure. The ground is dry and dusty, and the background shows a clear blue sky.

The *Why* and *What* of Climate Services

The cost of climate variability




- **Climate risk contributes to chronic poverty, vulnerability, food insecurity**
 - **Downside risk: shocks**
 - **Opportunity cost: uncertainty**
 - **Affects farmers, markets, the food system, the “relief trap”**



The cost of climate variability

- **Climate risk contributes to chronic poverty, vulnerability, food insecurity**
 - **Downside risk: shocks**
 - **Opportunity cost: uncertainty**
 - **Affects farmers, markets, the food system, the “relief trap”**
- **Climate variability is increasing**
- **Several opportunities to help agriculture adapt are...**
 - **Dependent on information**
 - **Constrained by information gaps**



	Type of information	Vehicles for delivering information	Farmer decisions affected
WEATHER Days to weeks			
	<ul style="list-style-type: none"> • Observed rainfall and temperature • Daily forecasts up to one week ahead of time • Alerts on pests and diseases • Early warning of extreme weather events 	<ul style="list-style-type: none"> • Mobile phones • Radio • Television 	<ul style="list-style-type: none"> • Timing of planting and harvest • Timing of fertilizer, pesticide, and irrigation application • Protecting lives and property from extreme events

WEATHER

HOURS

DAYS




WEEKS

MONTHS

YEARS

DECADES

CENTURIES

	Type of information	Vehicles for delivering information	Farmer decisions affected
CLIMATE VARIABILITY Months to Years			
	<ul style="list-style-type: none"> • Probabilities for seasonal rainfall and temperature conditions • Seasonal climate variables targeted to particular agricultural risks (dry spells, rainy season start date, etc) • Historical variability of climate variables 	<ul style="list-style-type: none"> • Workshops with experts • Conversations with agricultural extension agents (farm educators) 	<ul style="list-style-type: none"> • Selecting crops and varieties • Livestock stocking rates and feeding strategies • Intensity of input use (fertilizer, pesticides) • Labor or marketing contracts • Intensifying and diversifying crops • Diversifying sources of income

CLIMATE VARIABILITY

HOURS

DAYS





WEEKS

MONTHS

YEARS

DECADES

CENTURIES







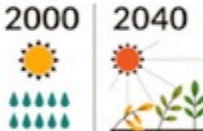


	Type of information	Vehicles for delivering information	Farmer decisions affected
CLIMATE CHANGE Decades or longer	<div><div>2000</div><div></div></div> <div><div>2040</div><div></div></div>		
	<ul style="list-style-type: none">• Projections of future rainfall and temperature• Historical trends in rainfall and temperature• Historical changes in extreme events	<ul style="list-style-type: none">• Workshops with researchers, agricultural extension agents, and meteorological services.	<ul style="list-style-type: none">• Major capital investments (buying or expanding landholding, irrigation systems, farm equipment etc)• Changing farming system or livelihood strategy• Deciding whether or not to farm

- Projections of future rainfall and temperature
- Historical trends in rainfall and temperature
- Historical changes in extreme events



From weather to climate services

- Needs depend on decisions
- With increasing lead time:
 - Decisions more context- and farmer-specific
 - Information more uncertain, more complex
 - Therefore the scope of services needed increases
- Climate services more than an extension of weather services

	Type of information	Vehicles for delivering information	Farmer decisions affected
WEATHER Days to weeks	 <ul style="list-style-type: none"> Observed rainfall and temperature Daily forecasts up to one week ahead of time Alerts on pests and diseases Early warning of extreme weather events 	 <ul style="list-style-type: none"> Mobile phones Radio Television 	 <ul style="list-style-type: none"> Timing of planting and harvest Timing of fertilizer, pesticide, and irrigation application Protecting lives and property from extreme events
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Integrating climate information and agricultural advisory services



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- Making climate information more farmer-relevant
- Making agricultural advisory services more climate-smart



Key challenges to reaching smallholder farmers, at scale



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- *Salience*: tailoring content, scale, format, lead-time to farm decision-making
- *Legitimacy*: giving farmers an effective voice in design and delivery
- *Access*: providing timely access to remote rural communities with marginal infrastructure
- *Equity*: ensuring that women, poor, socially marginalized benefit
- *Integration*: climate services as part of a larger package of support



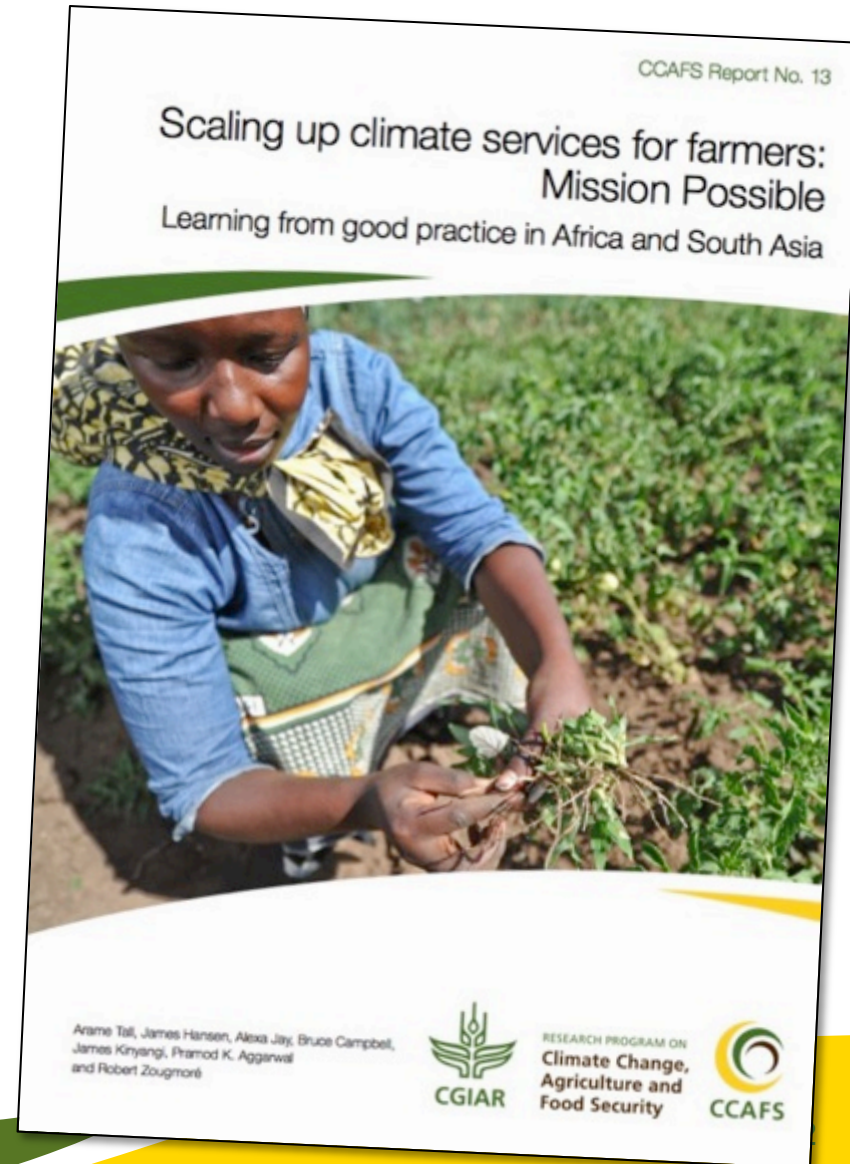
Learning from Good Practice



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- Reviewed 18 case studies
- Mali, India national agromet advisory program evaluations
- How do they address the 5 key challenges?
- Common approaches?
- Generalizable lessons?

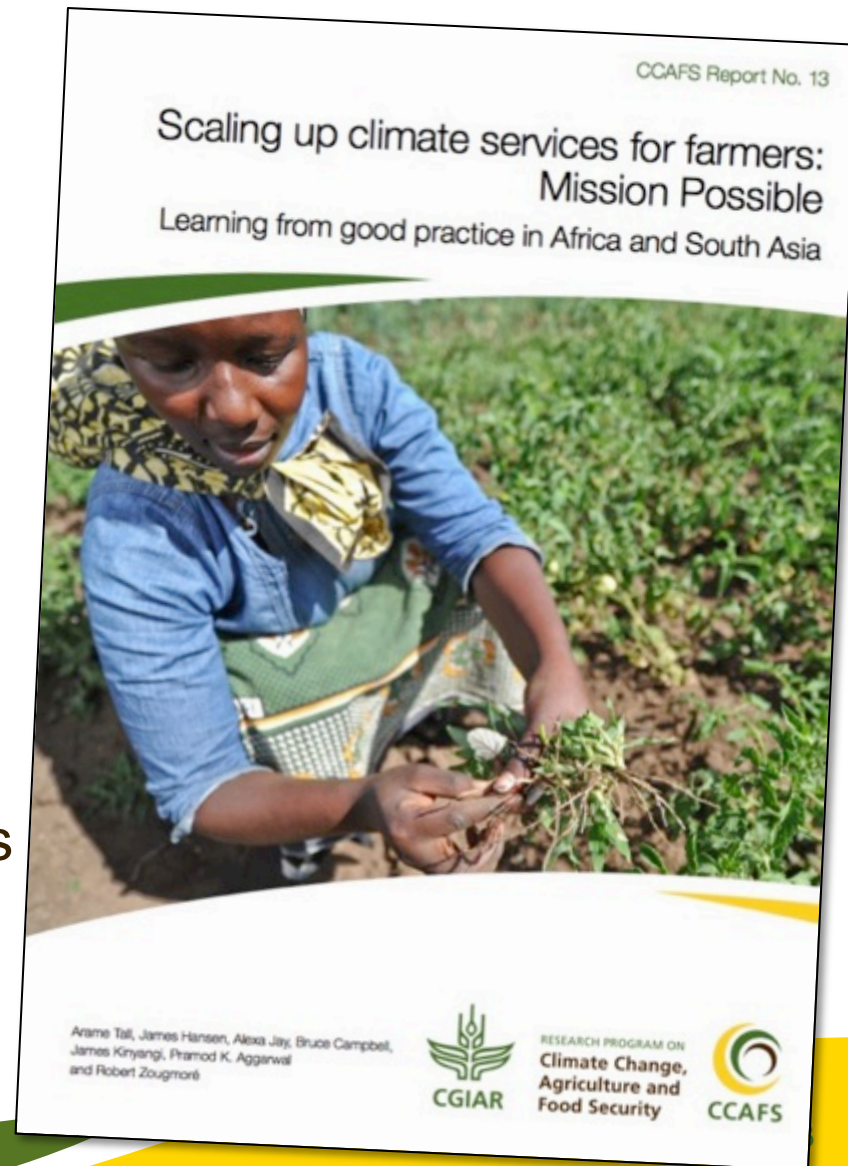



Good practice lessons

1. Enabling institutional frameworks
2. Local scale information
3. Seamless forecast products
4. Giving farmers a voice
5. Local and scientific knowledge
6. Face-to-face communication
7. Scalable communication channels
8. Gender and social equity



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The background of the slide is a photograph of a rural landscape. In the foreground, there is a small, single-story house with a blue corrugated metal roof and light-colored walls. The house is partially obscured by tall, dry grass and some shrubs. In the background, a large, snow-capped mountain rises against a clear sky. The overall scene is peaceful and rural.

What will it take for climate services to work for smallholder farmers – at scale?

- **Hydro-met service capacity to provide farmer-relevant information**
- **Partnerships, processes for co-production of services**
- **Scalable communication channels**
- **Engage and target the vulnerable**
- **Balance scalable services with context-specific needs**

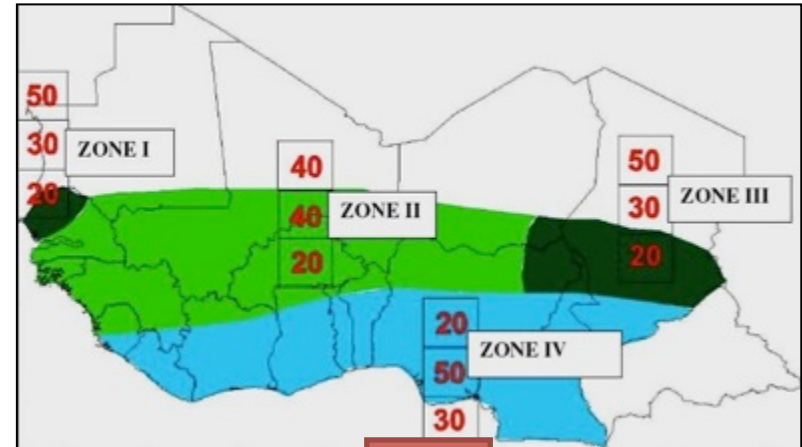
Hydro-met service capacity to provide farmer-relevant information



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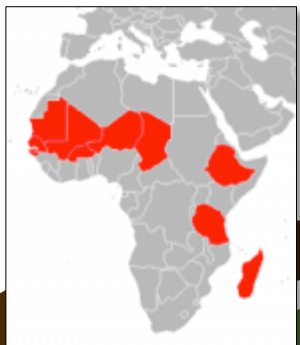
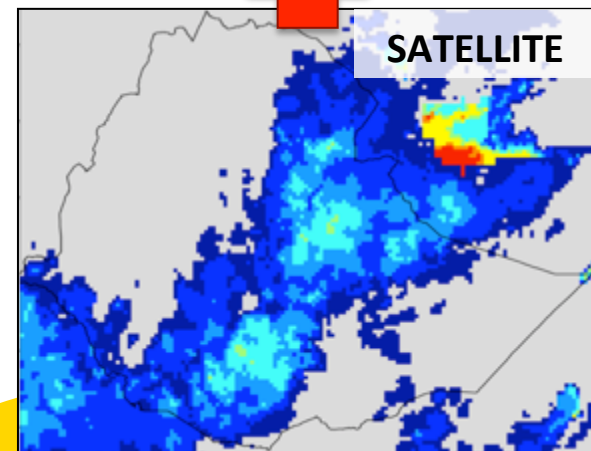
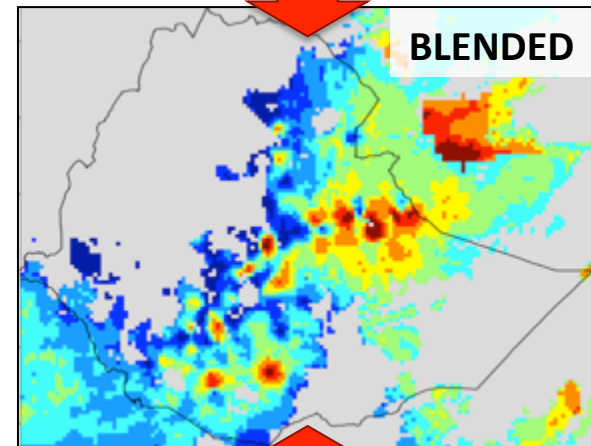
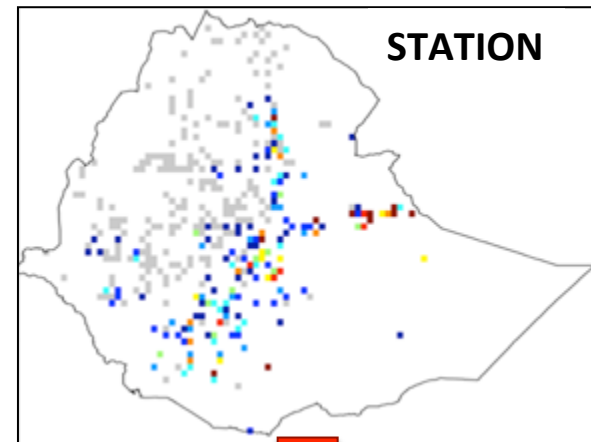
- Salience challenges:
 - Spatial scale
 - Beyond seasonal averages
 - Uncertainty, communicated in context of history
 - Impacts and management
- Challenges that developing country NHMS face:
 - Sparse historic observations
 - Data policy, incentives
 - Human capacity



Hydro-met service capacity to provide farmer-relevant information

ENACTS (Enhancing NAtional ClimaTe Services):

- Started in Ethiopia
- Satellite + station, 10 km grid, 31 year complete record
- Data Library platform to build “maproom” products from data
- Owned, implemented by NHMS





METEO MADAGASCAR
DIRECTION GENERALE DE LA METEOROLOGIE



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Analyses climatiques et applications

Prévision pour ce matin

Antananarivo 17°C

Flanarantsoa 20°C

- Enables NHMS to customize, generate, disseminate locally relevant information without over-taxing limited human resources.

- Implications for climate services for farmers



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ji Inaendelea katika Maeneo Mengi ya Nchi yetu.

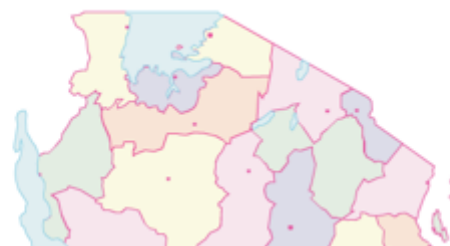
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Welcome!

Click on the region on map to view the weather forecast for 06 October 2013.



Weather Forecast

- ⊗ Northern Coast
- ⊗ Southern Coast
- ⊗ Northeastern Highlands
- ⊗ Lake Victoria Basin
- ⊗ Central Western Region
- ⊗ South Western Highlands
- ⊗ Southern Region

Upcoming Events

There are no Upcoming Events at present.

[More Events»](#)

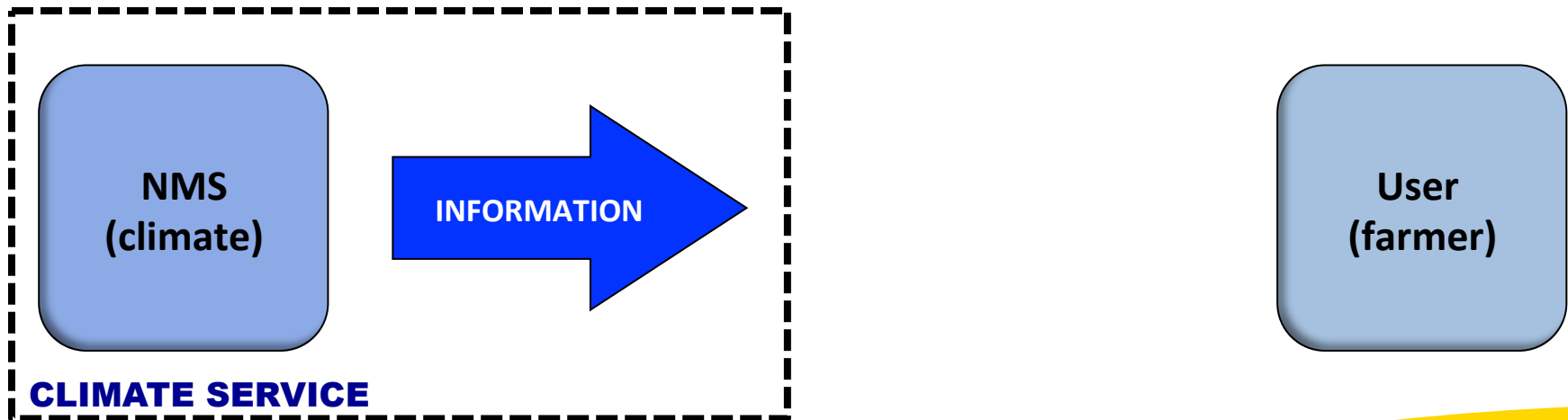
Institutional arrangements, partnerships, processes for co-production



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- Limitations of supply-driven climate services



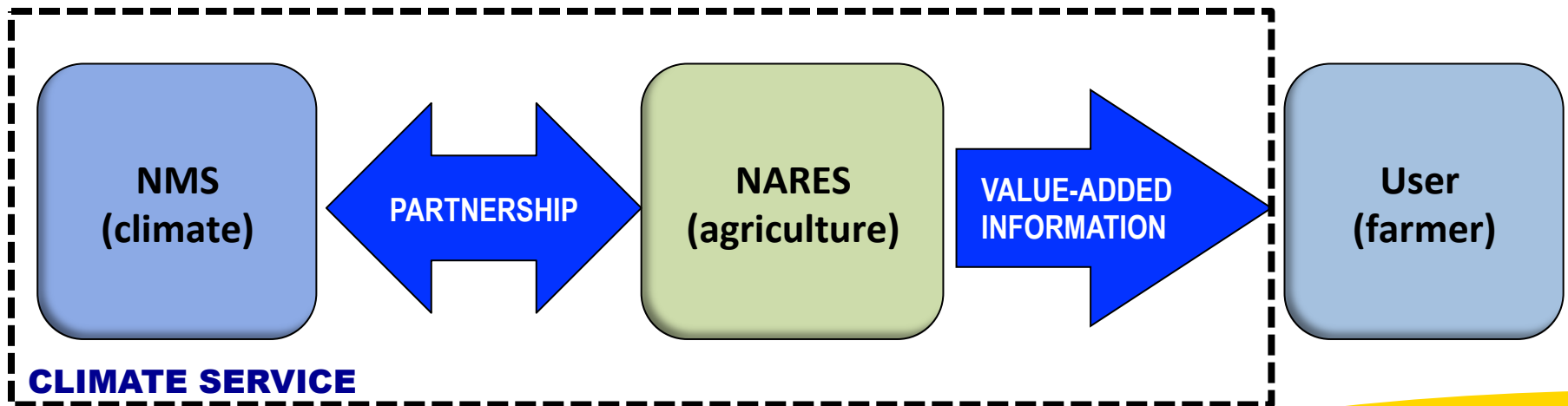
Institutional arrangements, partnerships, processes for co-production



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- Limitations of supply-driven climate services
- Expand the boundary to agricultural research and development
 - Multi-agency climate services governance framework
 - Adopted by GFCS



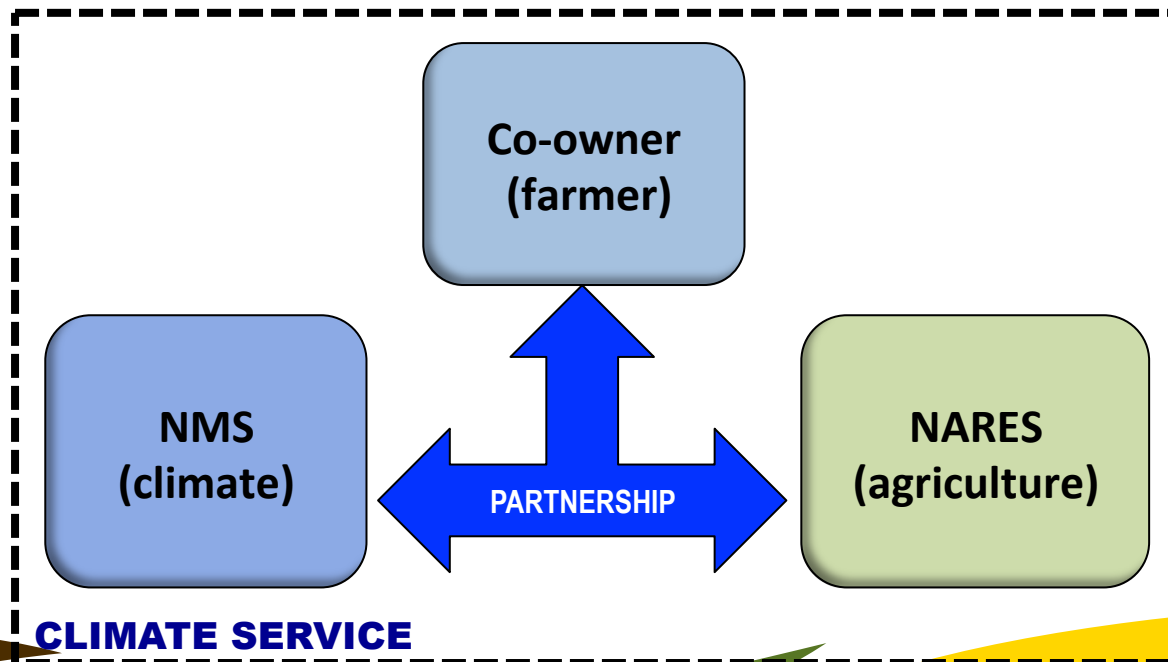
Institutional arrangements, partnerships, processes for co-production



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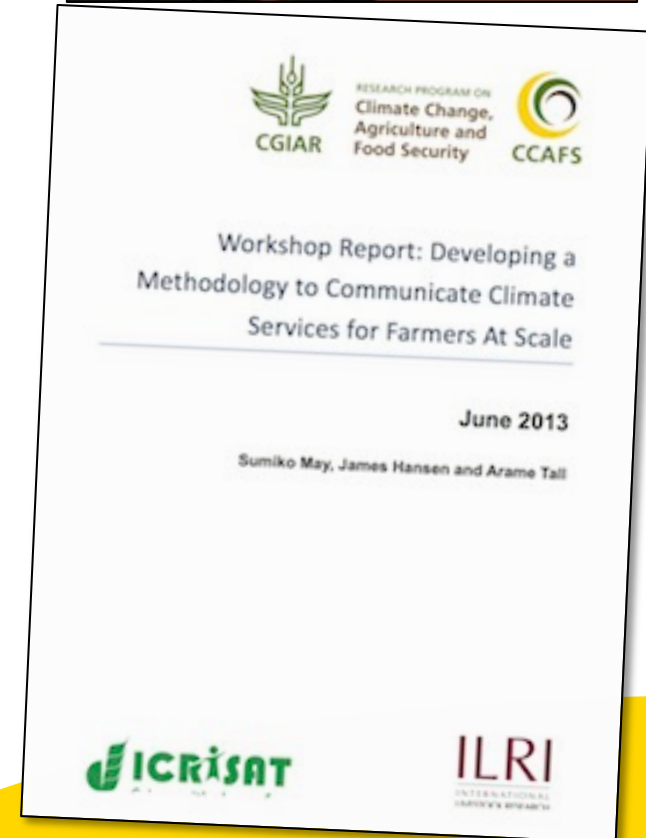


- Limitations of supply-driven climate services
- Expand the boundary to agricultural research and development
- Expand the boundaries to give farmers an effective voice



Exploit scalable communication channels

- Institutional channels
 - Face-to-face interaction for seasonal planning
 - Training for agricultural extension, other intermediaries



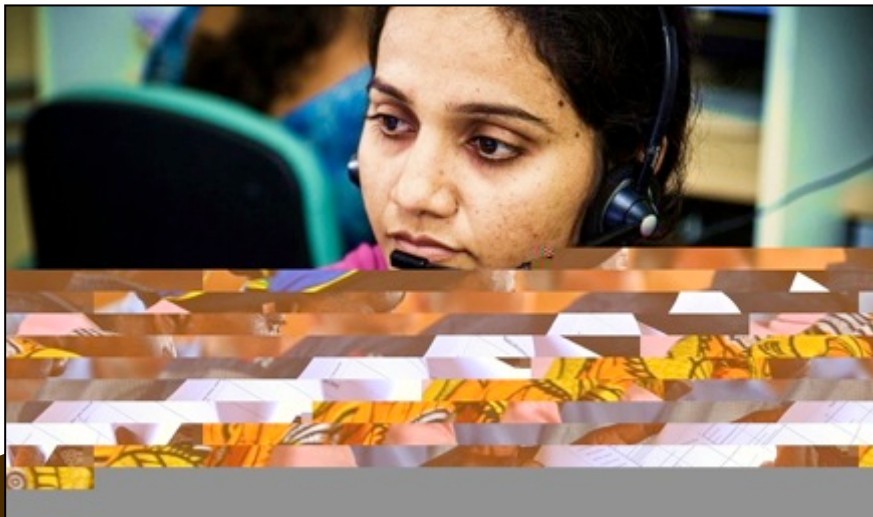
Exploit scalable communication channels



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- Institutional channels
- Media and ICT
 - Rapid dissemination of short-lead information
 - Complement face-to-face communication



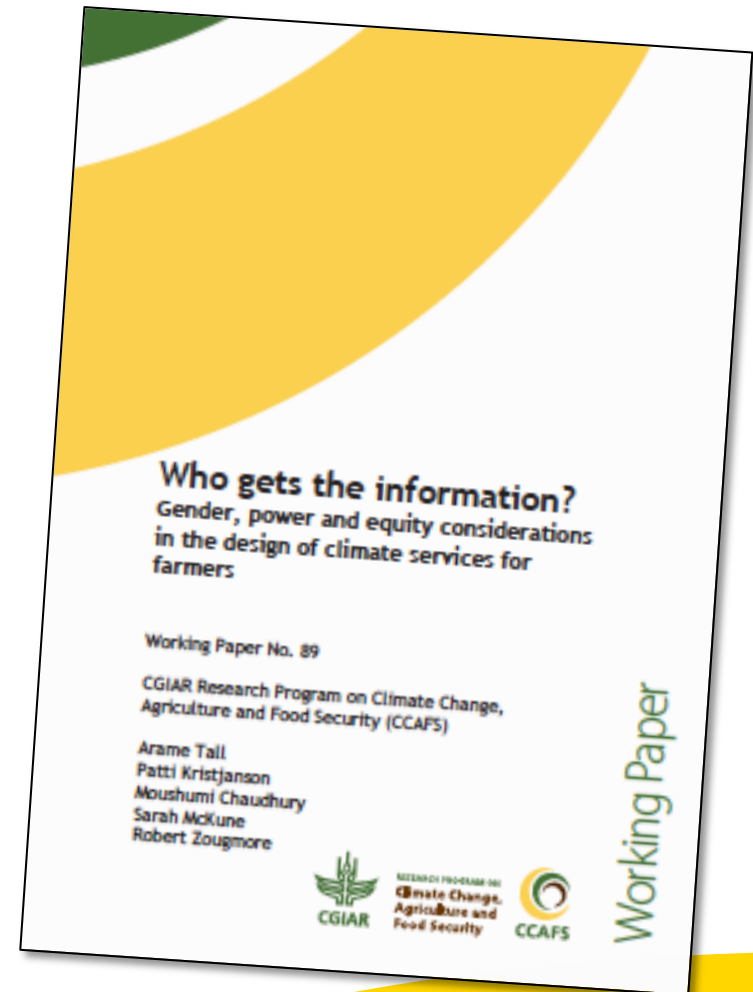
Target and involve the vulnerable and marginalized



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- *One size does not fit all.*
- Gender-responsive:
 - Climate information
 - Communication methods
 - Response strategies
- Engage, assess, target
- Incorporate gender challenges into training for intermediaries



Balancing scalable services with context-specific needs?

- The dilemma
- Ensure farmers, particularly those who are marginalized and vulnerable, have a voice
- Easy wins that are relevant to many
- Iterative assessment and refinement process





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Thank you

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Q&A

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Washington DC, United States, December 3rd , 2014