



Food and Agriculture Organization
of the United Nations

Climate Smart Agriculture: Policy Challenges and Opportunities for Asia Pacific

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What's going on in Marrakech?

- Agriculture sectors prepare Action Days at COP 22 in Morocco.
 - SBSTA Opening by Thailand on behalf of ASEAN Climate Resilience Network
 - Initiative for Adaptation of African Agriculture (AAA)



Action events



Forest



Oceans



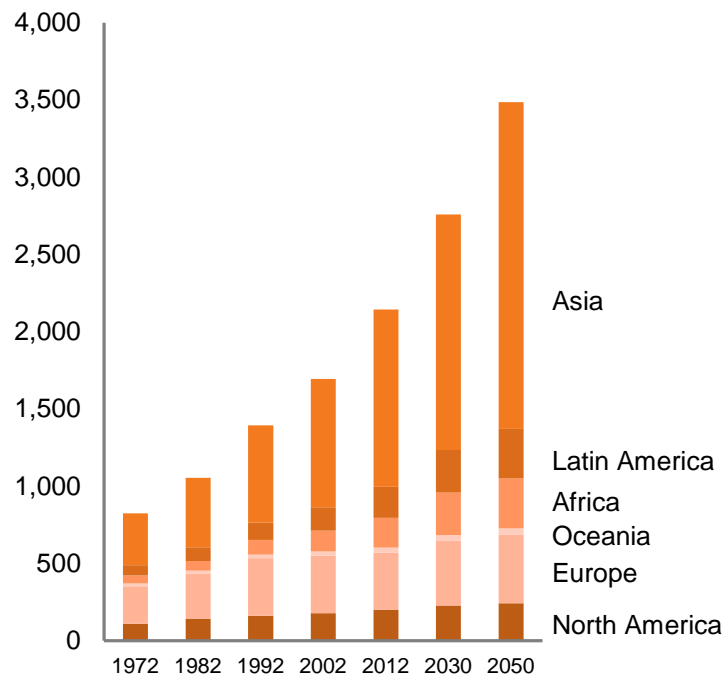
Agriculture & Food Security

Climate Change and Food Security

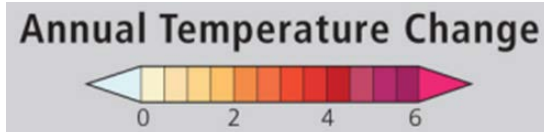
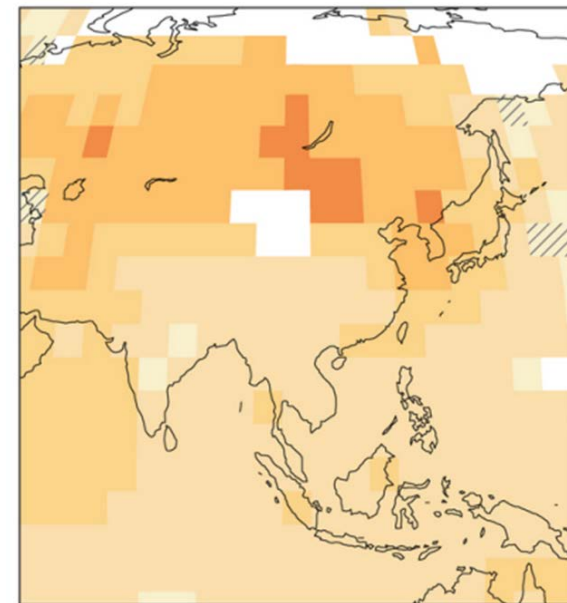
Food production needs to grow..

..in the face of a changing climate..

Food Production by Region 1972-2050
(Constant 2004-06 US\$)

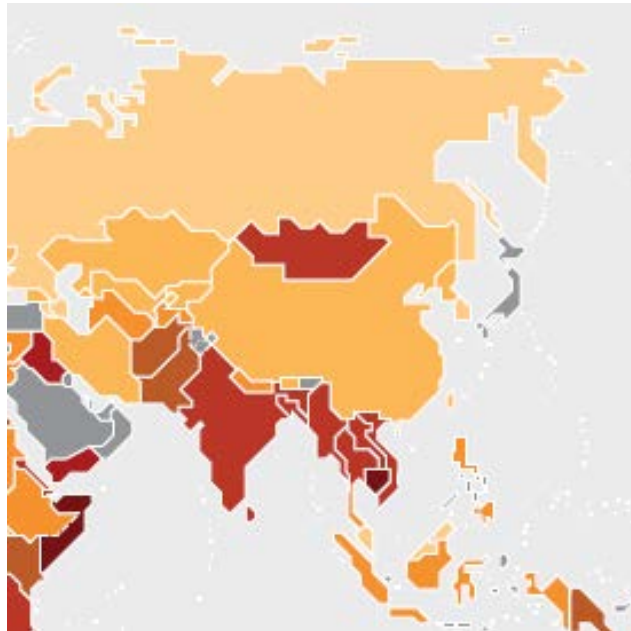


Temperature trend, Asia, 1901-2012
(annual trend change in degrees Celsius over period)

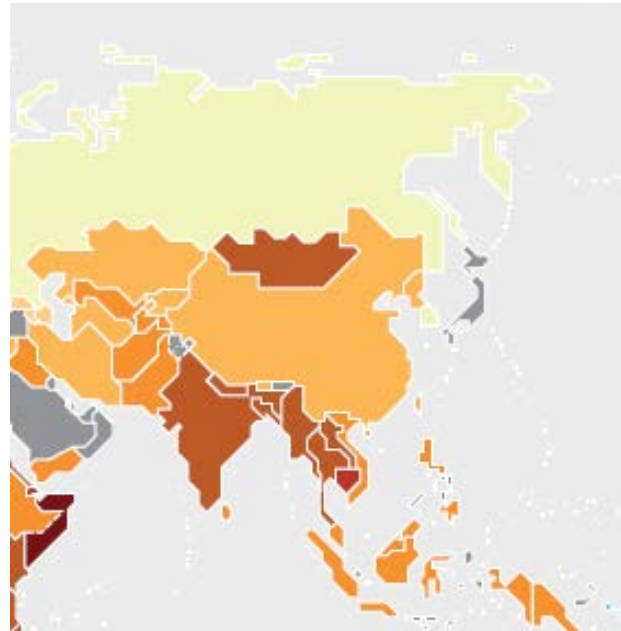


Food Insecurity and Climate Change Vulnerability

Worst case



Best case



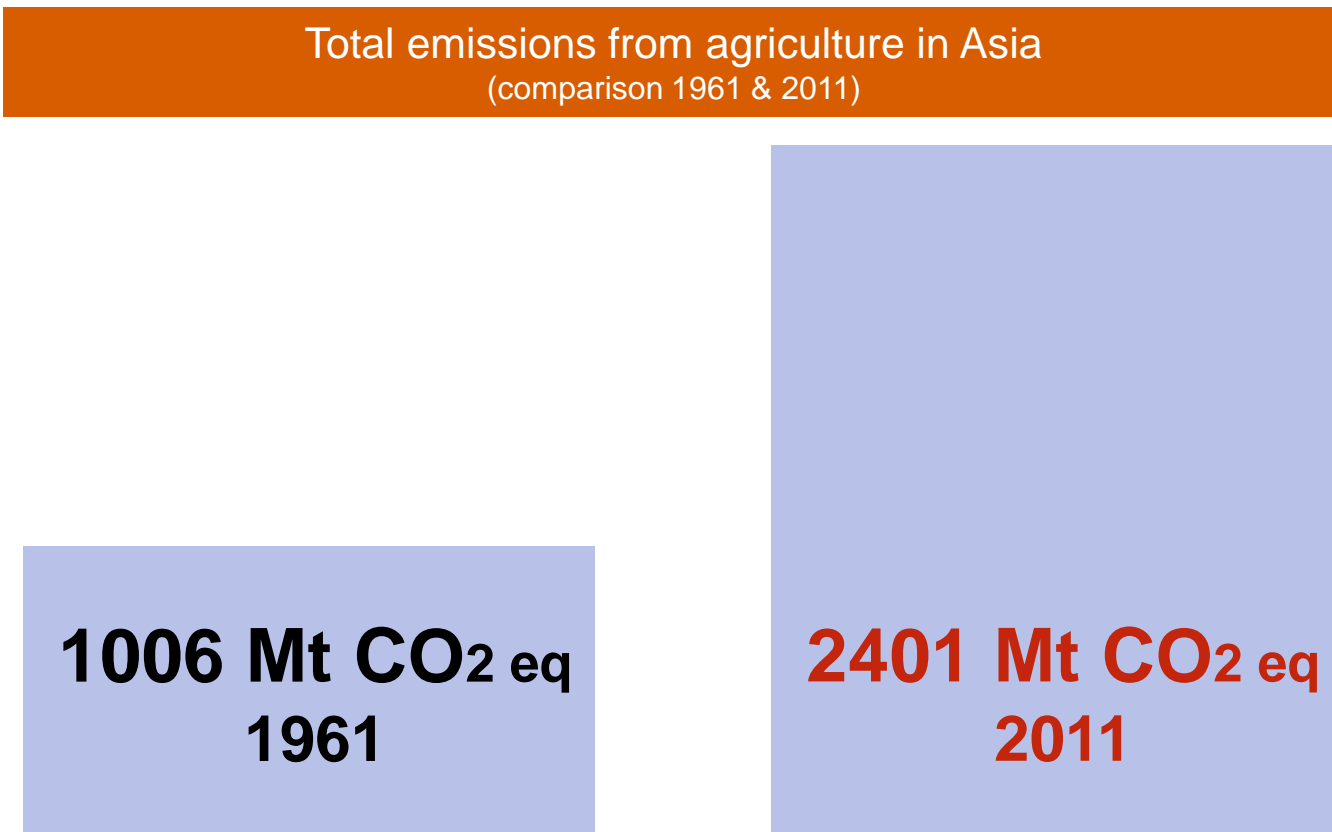
Even best case scenario shows high level of vulnerability to food insecurity

FAO, 2016



Yet agriculture sectors have a responsibility in climate change mitigation.

- GHG emissions from agriculture is on the rise in Asia.



FAO, 2015



Transition to resilient production system and livelihood for poverty reduction and eradicating hunger

- Climate change is projected to have predominantly **negative impacts on food and agricultural production** in developing countries, and smallholders are among the hardest hit.
- Eradicating rural poverty will depend on **building resilience** of smallholders to climate change in agricultural systems.
- Smallholder agricultural systems can adapt to climate change by **adopting climate-smart practices**, diversifying on-farm agricultural production and diversifying into off-farm income and employment.





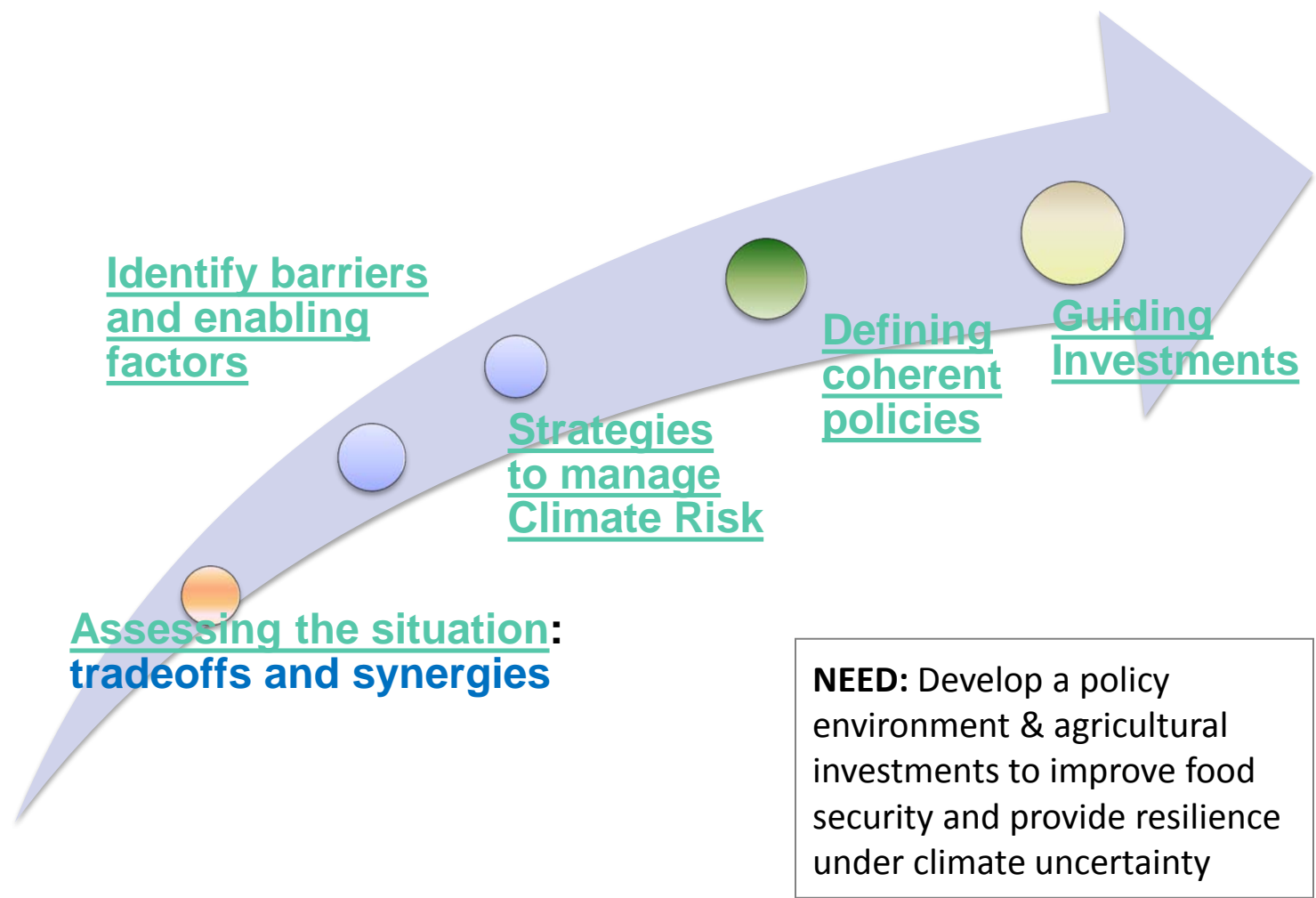
Climate Smart Agriculture

An **approach** to help guide actions to **transform** and re-orient **agricultural systems** to effectively and sustainably **support food security** under **climate change**.

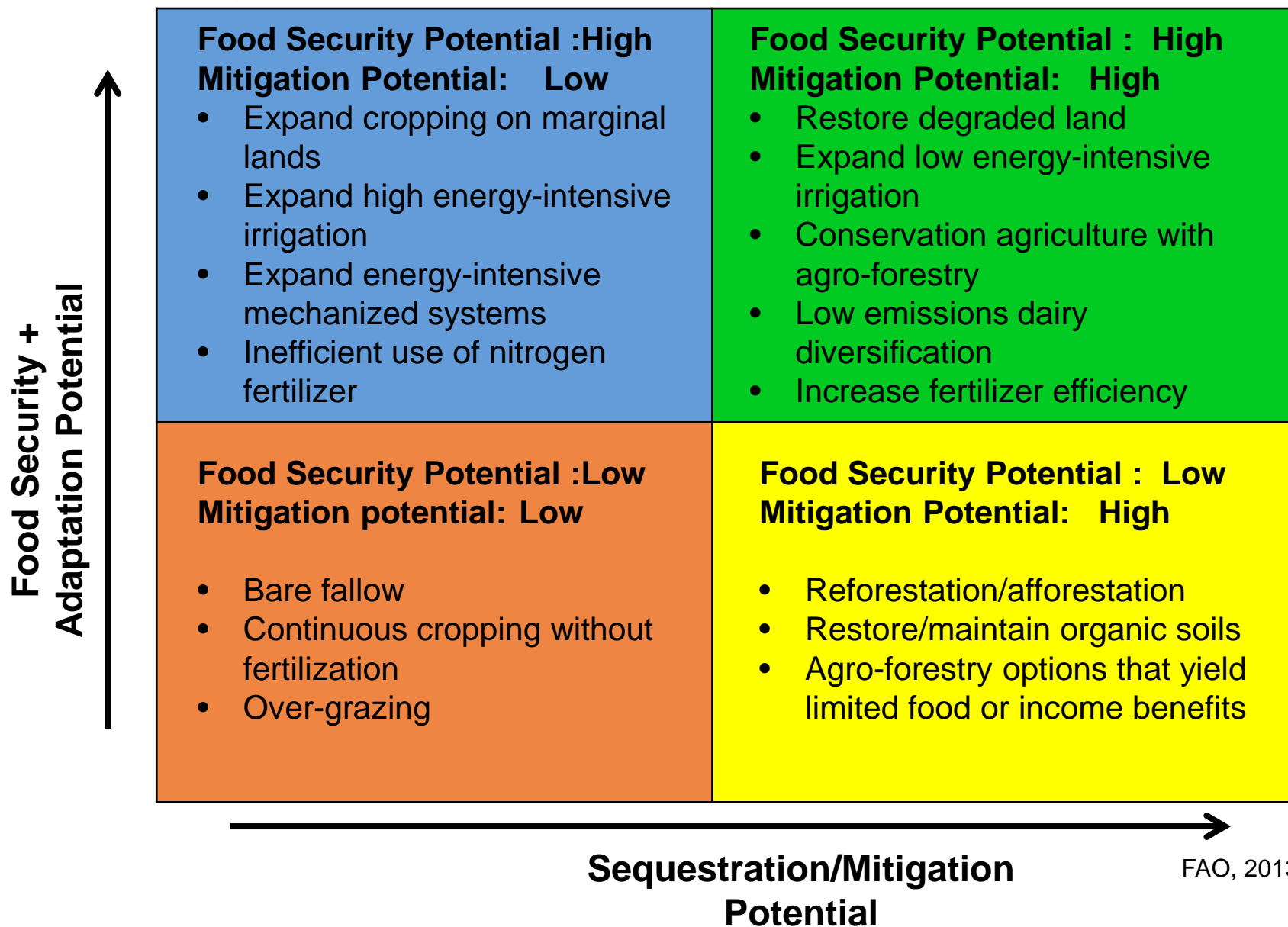
- **Three objectives:**
 - Sustainably increasing agricultural productivity;
 - Increasing adaptive capacity and resilience to shocks at multiple levels, from farm to national; and
 - Reducing greenhouse gas emissions and increasing carbon sequestration where possible.



FAO Framework on CSA



Policymakers must recognize the need to manage trade-offs.



Trade-offs: Opportunity costs of restoration of degraded grazing lands investment, Qinghai province, China

- Small yak herders have the smallest returns per unit investment, and has the longest wait for positive returns.

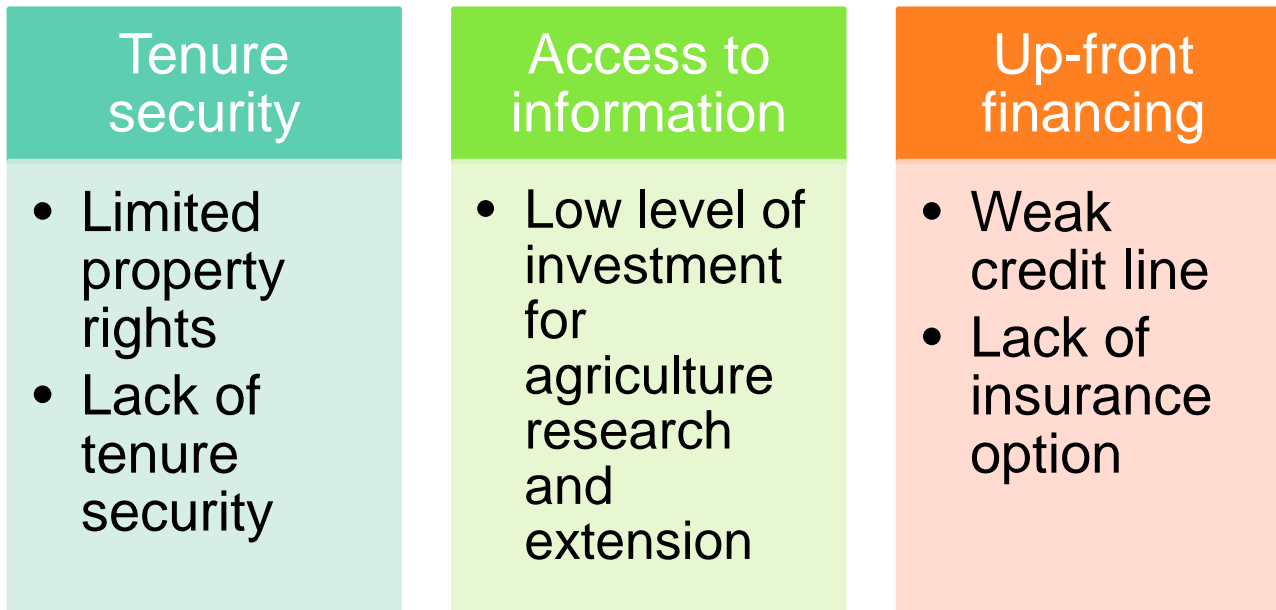
| Herd size | Baseline net income | Net present value per ha. over 20 years | No. of years to positive cash flow | No. of years to positive incremental net income compared to baseline net income |
|-----------|---------------------|---|------------------------------------|---|
| | USD/ha/year | USD/ha | No. years | No. years |
| Small | 14 | 118 | 5 | 10 |
| Medium | 25 | 191 | 1 | 4 |
| Large | 25 | 215 | 1 | 1 |

FAO, 2016

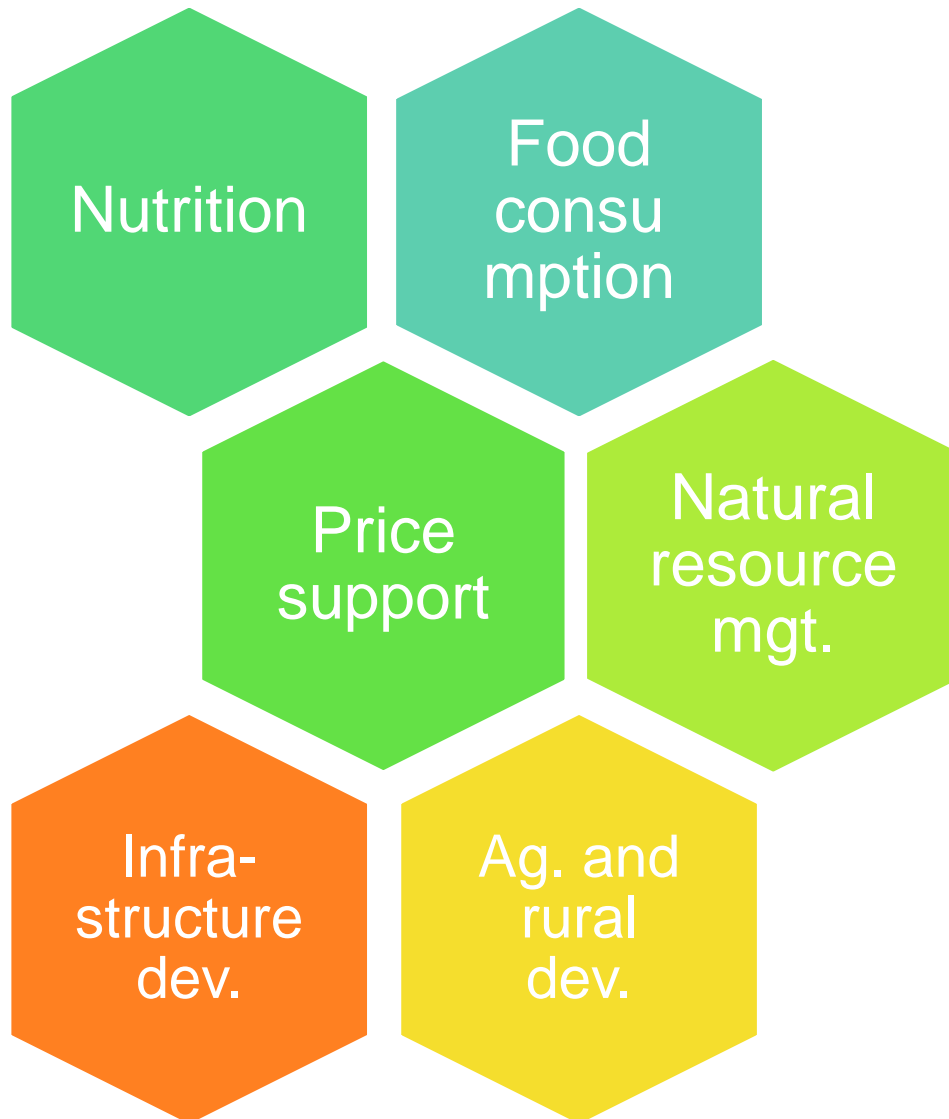


Policy support to scale-up CSA adoption(1)

- Building enabling environment/incentives to support adoption of CSA practices and strategies
 - Fostering the adoption of smallholders to be informed by understanding of the existing financial, institutional and policy barriers.



Policy support to scale-up CSA adoption(2)



Realigning policies begin with:

- Understanding of key drivers and impacts on livelihoods and environment;
- Understanding the needs and capacities of various stakeholders

Promising CSA technologies and practices are available



DRR & Resilience

- Disaster risk assessment and planning
- Vulnerability mapping
- Climate Farmer Field Schools



Crop Production & Protection

- Integrated plant pest management
- Conservation agriculture
- Stress tolerant crops (genetic management)
- Crop diversification
- ICT integration
- Improved handling & storage



Livestock

- Pasture management
- Improved feed management
- Livestock health



Water

- Irrigation modernization
- Water accounting and audit
- Water harvesting/saving technologies
- Reduced water technologies



Forestry

- Assisted Natural Regeneration (ANR)
- Sustainable forest management
- Leasehold forestry & livestock system (Silvopasture)
- Mangrove restoration



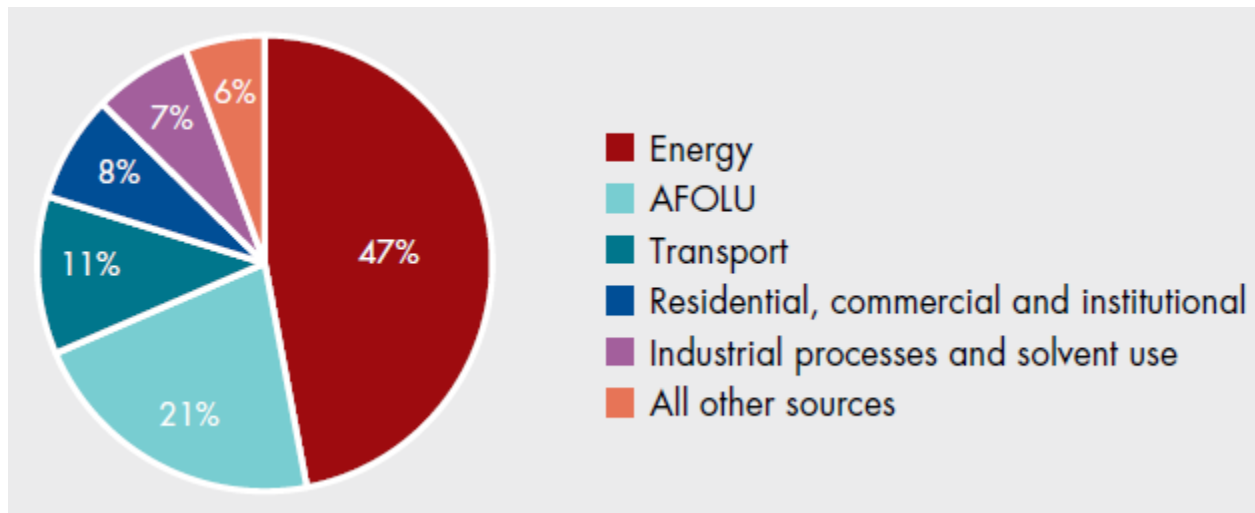
Fisheries

- Coastal management
- Aquaculture infrastructure investments
- Weather-based insurance

Agriculture sectors contribute to global emissions.

- Agriculture, Forestry, and Other Land Use (AFOLU) contributes to 21% of global emissions.
- Among all sub-sectors, enteric fermentation and rice cultivation have highest potential for GHG reduction in Asia.

Shares of greenhouse gas emissions from economic sectors in 2010

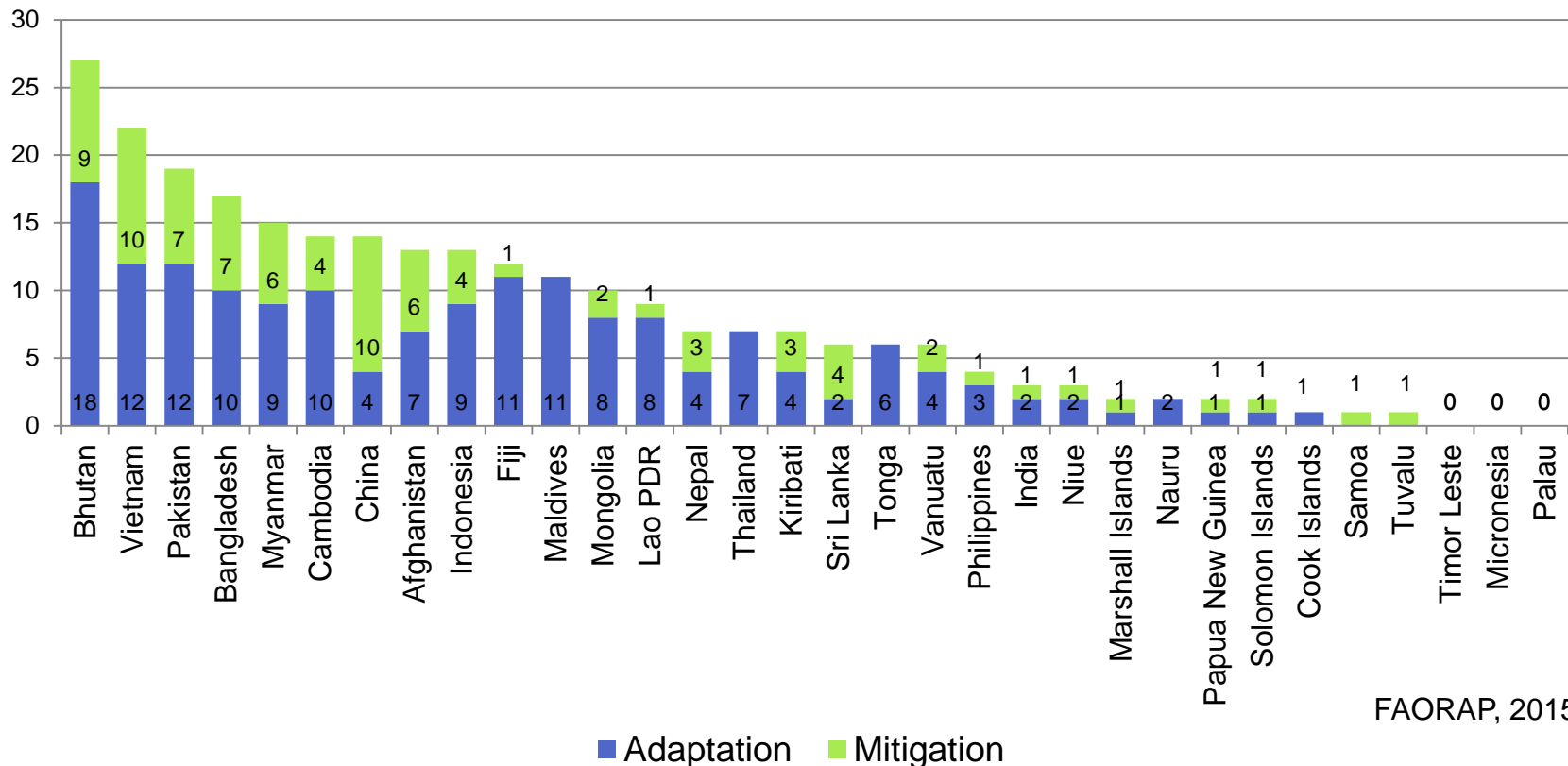


FAO, 2016

Increased role of agriculture in the Paris Agreement

- Under the Paris Agreement countries in Asia-Pacific have signaled Agriculture (crops, livestock, forestry, fisheries and aquaculture) as a key concern.

Number of INDC actions for agriculture and land-use sectors in Asia-Pacific (by country)



FAORAP, 2015



Regional and international cooperation is underway.

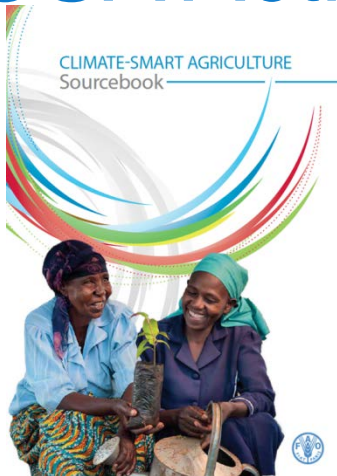
- ASEAN Guideline for Promoting CSA Practices
- APEC Program on Food Security and Climate Change



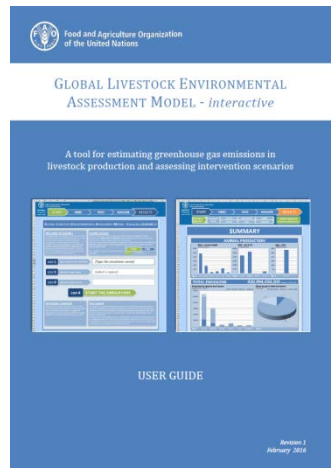
**Asia-Pacific
Economic Cooperation**



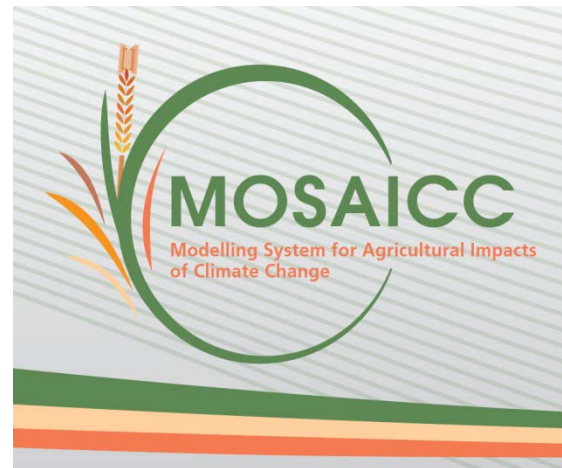
FAO Tools and Methodologies to Inform CSA Actions



CLIMATE-SMART AGRICULTURE



GLEAM



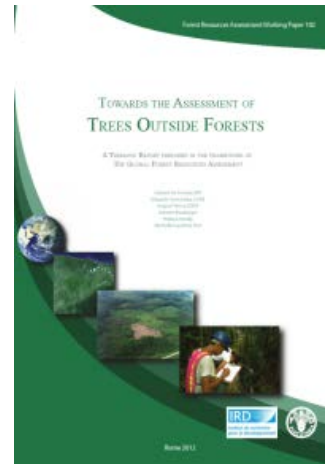
MOSAICC



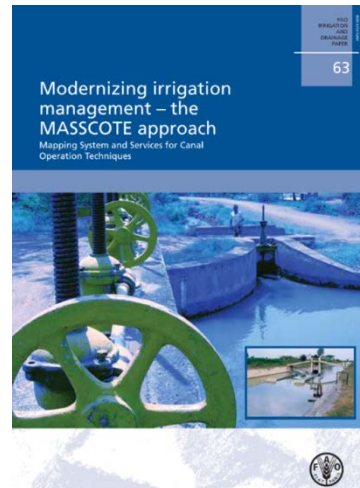
ExACT



SHARP



AGROFORESTRY



IRRIGATION MODERNIZATION



MECHANIZATION



Elevating role of agriculture in the international forums

- FAO provides capacity building, advocacy, and technical support to member countries

ASEAN Member States to present a united voice at COP22 on shared vision to adapt agriculture to climate change



08/11/2016 Bangkok, Thailand ASEAN Ministers of Agriculture and Forestry (AMAF) have adopted a common regional position on agriculture sector issues and will be promoting it at the forthcoming 22nd Conference of Parties (COP22) to the United Nations Framework Convention on Climate Change (UNFCCC) that begins this week in Morocco.

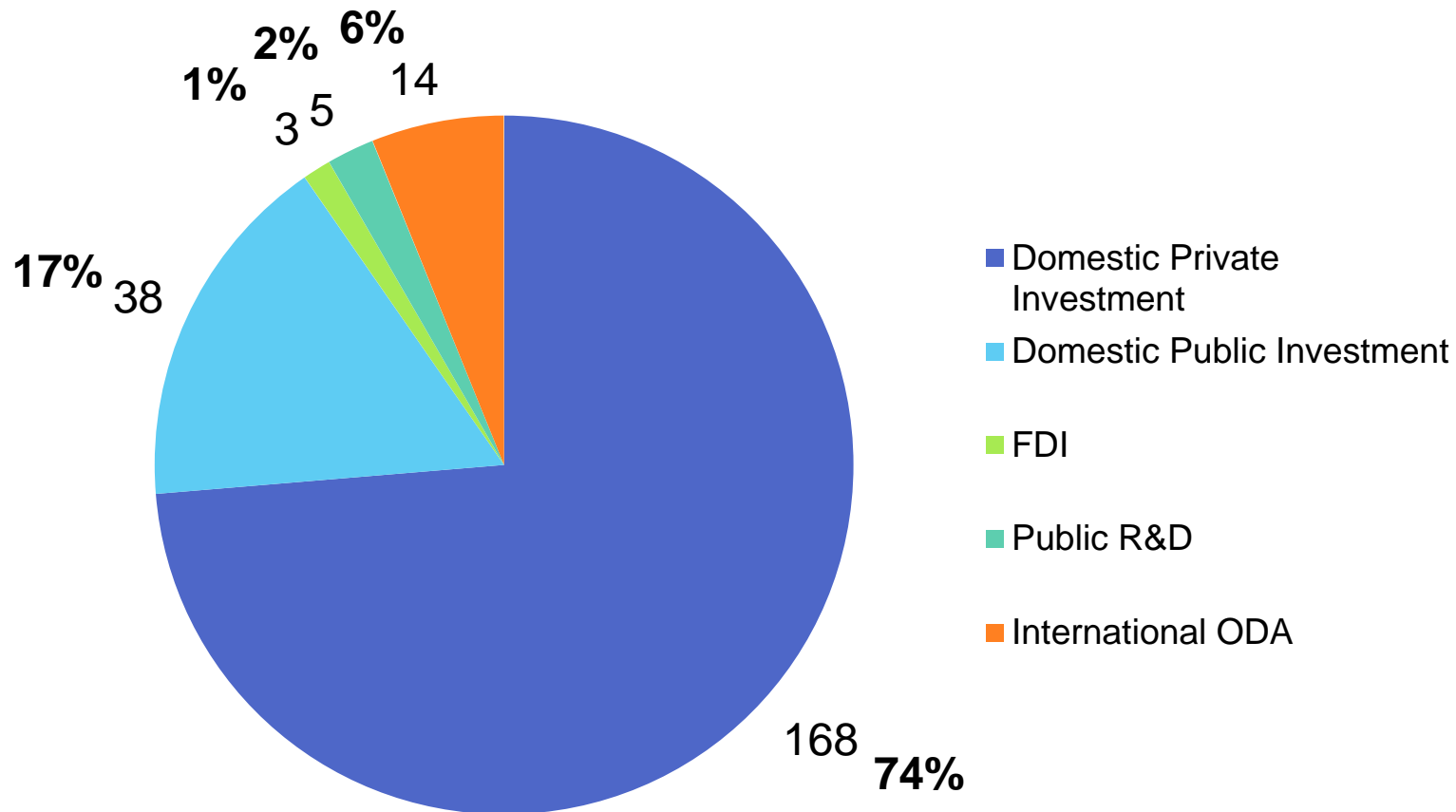
The ASEAN Common Position on Issues Related to Agriculture for COP22 and Associated Bodies and Working Groups (ASEAN Common Position) was concluded during a meeting in late October of the ASEAN Climate Resilience Network (ASEAN-CRN), and supported by the Food and Agriculture Organization of the United Nations (FAO) Regional Office for Asia and the Pacific.

FAO, 2016



Financing for CSA: leveraging domestic investment, and linking it to international climate finance

Estimated Annual Investment in Agriculture by Source (US\$ billion)

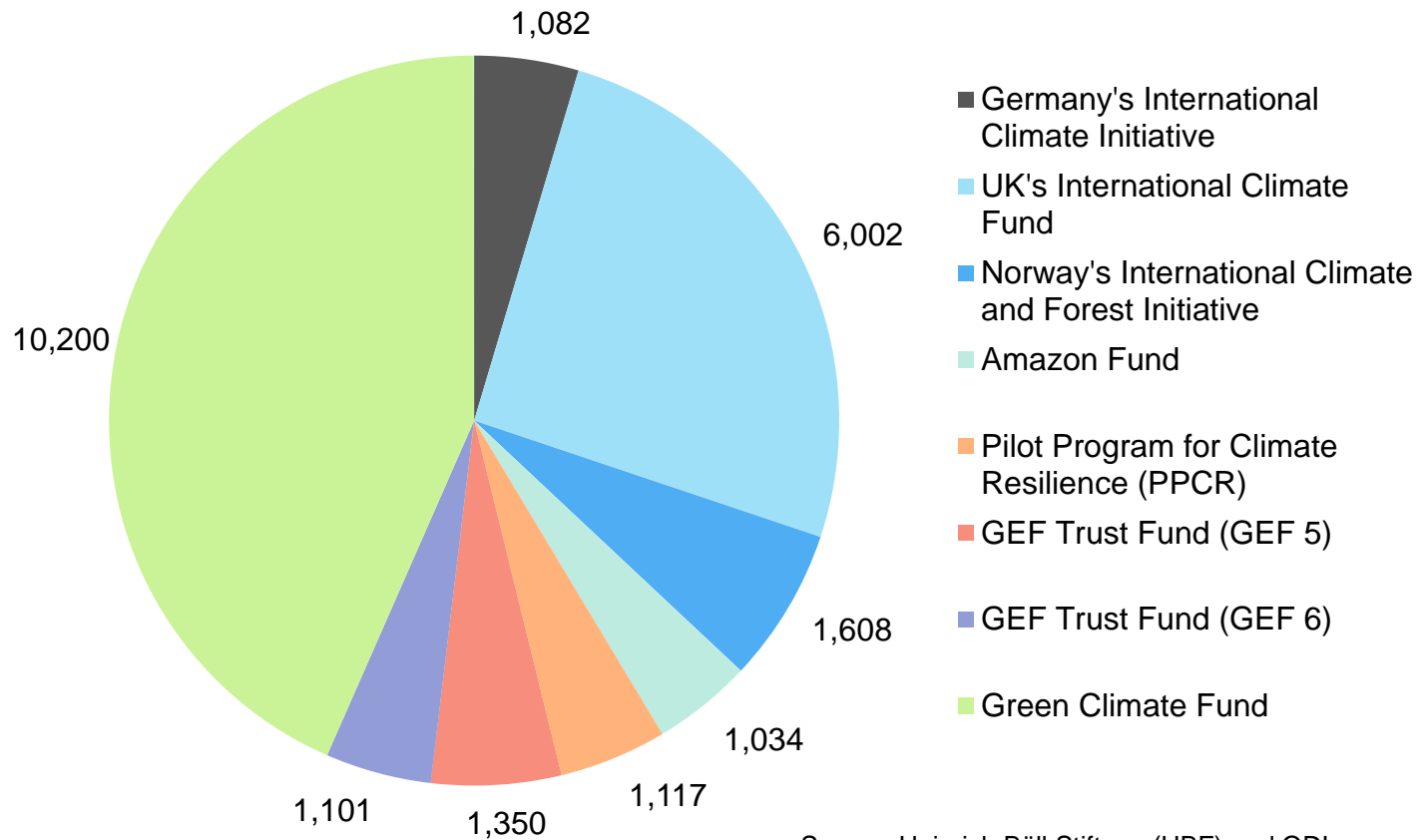


Source: Falconer et al, 2015 based on data from FAO, 2012 & OECD, 2014



Enhancing access to climate finance for member countries

International climate financing sources over \$US1 billion
US\$ million



Source: Heinrich Böll Stiftung (HBF) and ODI



Policy Takeaways

- CSA can help tackle the unrepresented **challenge to eradicate hunger and poverty, and to stabilize the global climate.**
- Economically viable and sustainable farming practices are available, but **barriers to adoption** must be overcome.
- Transition to **smallholders' adaptation to climate change risks** is critical for poverty reduction and food security.
- NDC implementation of priority actions can only be effective if **part of broader transformative policies** on agriculture, rural development, food security and nutrition.
- Policies on climate, agriculture, food and nutrition should be **realigned and integrated.**
- **Agriculture and climate finance need to be linked** and leveraged to induce transformative changes in agriculture.



Questions and comments

- How can the key financial, institutional, and policy barriers to adoption of CSA practices and technologies be overcome?
 - What are the key barriers to CSA in your country and how they can be effectively addressed?
- How can policies on climate, agriculture, food and nutrition be better aligned and integrated?
 - What, from your personal experience and organizational perspective, are priority policies that need to change and how?
- How can agricultural and climate finance be better linked and leveraged to induce transformative change in agriculture?
 - What are priorities and best-bet modalities for agriculture and climate financing to facilitate this urgently needed transformation?





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Thank You

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