Key Socioeconomic Barriers and Challenges that Limit Agricultural Transformation & Recommendations for the UNFCCC Koronivia Joint Work on Agriculture

> Dr. Allison M. Chatrchyan Cornell University, Ithaca, NY, USA

on behalf of RINGO (Research and Independent NGO Constituency Group)

December 1, 2020 Expert Panel ~ UNFCCC Koronivia Workshop Socioeconomic and Food Security Dimensions of Climate Change in the Agricultural Sector





# Socioeconomic Barriers & Challenges

### • Knowledge:

- Farmers lack information on how climate change will affect their region and cropping/animal/landscape systems. More specific information is needed including tailored adaptation and mitigation strategies, and how to implement Climate-Smart Agriculture (CSA) practices effectively.
- Farmers are most prepared to sustainably intensify production, less prepared to adapt to climate change, and least prepared to mitigate. However, there is most interest in intensification and adaptation, less so in mitigation.
- While information exists globally on CSA practices, it is not reaching farmers. Stronger mechanisms (Extension, Peer Networks) are needed to deliver and increase access to information.
- Extension, advisors, and farmers need accurate weather and climate information (monthly to seasonal forecasts).

#### Enabling Environment/Policies:

- Broad global CSA goals are not being translated into national policies or local programs; national policies are not implemented at local levels. Agriculture is often excluded from forestry, ecosystem, landscape, or water projects.
- There is lack of sufficient focus to address issues of gender inequality, youth, land tenure, and small family farms.
- Financing
  - Lack of funding/incentives is the most significant barrier to farmers adopting mitigation and adaptation practices, at all levels.

GACSA

GLOBAL ALLIANCE FOR CLIMATE-SMART AGRICULTURE



## Recommendations

- Countries/NGOs:
  - Meet with family farmers/women farmers/youth/marginalized groups to listen needs and develop initiatives to address them
  - Fund Applied Research: social science and agricultural/natural science: Develop MOAs developed and developing country agriculture universities
  - Train Extension or Peer Networks on CSA and provide Adequate Funding for their work with farmers
  - Draft & implement national legislation & national CSA plans and local projects, e.g.: covering practices such as soil health or agroforestry (prioritize those with mitigation and adaptation co-benefits)
- Constituted Bodies/Funding Agencies:
  - Build country capacity: Support development of national CSA plans & policies & fund Extension programs
  - Earmark funding and support public/private investments for developing countries for specific CSA and food security projects
  - Provide small grants to NGOs for innovative transformation peer to peer networks
  - Fund development of regional climate and agriculture decision support tools
- UNFCCC/KJWA:
  - Assess linkages between small family farming, ecosystem services, forests, and landscapes
  - Strongly encourage Parties to develop Nationally Specific CSA plans and policies to implement the agriculture mitigation/adaptation goals in their NDCs
  - Identify and strengthen mechanisms to provide greater support and investment for developing countries to implement their CSA
    plans and projects that fulfill their NDC, including mechanisms for agriculture in payments for ecosystem service





GLOBAL ALLIANCE FOR CLIMATE-SMART AGRICULTURE

#### **References:**

- Chatrchyan, A., Berkowitz-Sklar, D. Bouchard, S., Chan, K., Langley, A, Matteoli, F., Mosquera Losada, M. & Song. C. 2020. Scaling-Up Climate-Smart Agriculture (CSA) Globally through GACSA. Results and Recommendations from the Global Alliance for Climate Smart Agriculture Survey of Members. Rome, Italy: Global Alliance for Climate Smart Agriculture, November.
- UNDP Armenia, Yerevan, Armenia: Assessment of Agricultural Sector Vulnerability to Climate Change and Climate Change Adaptation Planning in Armenia (2019-2020).
- Chatrchyan, A., Allred, S., Perry, S., & Brenner, J. (in preparation). Climate change beliefs, concerns, and attitudes toward adaptation and mitigation among New York farmers.
- Kelly, K., Chatrchyan, A. & Khachatryan, A. (in preparation). Agricultural Adaptation to Climate Change in Armenia: Assessing Climate Change Knowledge and Adaptations Among Small-Scale Armenian Farmers.
- Rawe T., Antonelli, M., Chatrchyan, A., Clayton, T., Fanzo, J., Gonsalves, J., Matthews, A., Nierenberg, D., & Zurek, M. (2019). Transforming food systems under climate change: Local to global policy as a catalyst for change. CCAFS Working Paper no. 271. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).
- Lane, D., Murdock, E., Genskow, K., Betz, C., & Chatrchyan, A. (2019). Climate change and dairy in New York and Wisconsin: Risk perceptions, vulnerability, and adaptation among farmers and advisors. Sustainability.
- Lambert, J., Nagothu, U.S., Chatrchyan, A., & DeGaetano, A. (2019). "Agricultural Decision Support Tools: A Comparative Perspective on these Climate Services." In Sustainable Solutions for Food Security: Combating Climate Change by Adaptation. Springer International.
- Torquebiau, E., Rosenzweig C., Chatrchyan, A., Andrieu, N. & Khosla, R. (2018). Identifying Climate-smart agriculture research needs. Questions de recherche pour l'agriculture climato-intelligente. Cahier Agriculture, 27(2). doi.org/10.1051/cagri/2018010.
- Lane, D., Chatrchyan, A., Tobin D., Thorn, K., Allred, S., & Radhakrishna, R. (2018). Climate change and agriculture in New York and Pennsylvania: risk perceptions, vulnerability and adaptation among farmers. Renewable Agriculture and Food Systems.
- Chatrchyan, A., Yin, C., Torquebiau, E., & Nagothu, U.S. (2018). Multi-level policy measures to support sustainable agriculture intensification for smallholders. In Agricultural Development and Sustainable Intensification Technology and Policy Challenges in the Face of Climate Change. Ed. U.S. Nagathu. London: Routledge.
- Nagothu, U.S. & Chatrchyan, A. (2018). Sustainable agriculture intensification: Innovations to strengthen extension services and market linkages. In Agricultural Development
  and Sustainable Intensification Technology and Policy Challenges in the Face of Climate Change. Ed. U.S. Nagathu. London: Routledge.
- Thorn, K., Tobin, D., Radhakrishna, R., Chatrchyan, A., Chan, J., & Allred, S. (2017). Usefulness of Delivery Methods for Climate Change Programming: Perspectives of Extension and Research Faculty. Journal of Extension 55(5).
- Tobin, D., Radhakrishna, R., Chatrchyan, A., & Allred, S. (2017). Addressing Climate Change Impacts on Agriculture and Natural Resources: Barriers and Priorities for Land-Grant Universities in the Northeastern United States. Weather, Climate, and Society 9(3).
- Chatrchyan, A., Erlebacher, R., Chaopricha, N., Chan, J., Tobin, D., & Allred, S. (2017). United States agricultural stakeholder views and decisions on climate change. WIREs Climate Change 8.



