

Rapporteur Form – Template

ALL TIMES EAT

Session title:	Distributed Renewable Energy-Agriculture Modalities (DREAM) - Rockefeller Foundation
Session number:	20
Type of session:	Livestreamed
Day:	Monday, 6 September 2021
Time:	14:30-16:15 EAT
No. of participants:	51
Session Organizers:	Rockefeller Foundation & AGRF
Moderator:	Mehrdad Ehsani
Rapporteur:	Sharon Mbugua
Relevant outcome:	<ul style="list-style-type: none"> Review of learnings from Ethiopia in clustering agricultural production and piloting the use of renewable energy towards production, post-harvest management and agro-processing. Comparison with India's experience in the use of renewable energy off mini-grids to strengthen the agricultural value chain. Opportunity for countries interested in food systems' ecosystems and existence of platforms to tap into available partnerships.
Objectives:	<p>The gathering momentum of climate change globally and in Africa presents through increased droughts, hurricanes and forest fires. Only 1% of global industrial emissions come from Africa but the continent is still at risk of increasing effects of climate change.</p> <p>In 2020, the cost of renewable energy switched against that of fossil fuels, benefiting the agriculture ecosystem. The session would therefore look at the learnings from Ethiopia in clustering agricultural production and piloting the use of renewable energy towards production, post-harvest management and agro-processing. The session would also</p>

include a comparison with India's experience in the use of renewable energy off mini-grids to strengthen the agricultural value chain.

Speakers:

1. Dr. Yifru Tafesse (DBL); Acting Chief Executive Officer, Ethiopian Agricultural Transformation Agency (ATA)
2. Mr. Satya Choubey; Associate Director, Smart Power India
3. Mr. Omer Bomba Mohammed; Managing Director, Veritas Consulting
4. Mr. Joao Duarte Cunha; Division Manager, Renewable Energy, African Development Bank)

Main highlights:

- Renewable energy off mini-grids presents untapped opportunity to boost pathways to recovery and development of resilient food systems.
- Implementation however requires the awareness and usage by the small holder farmer towards their economic viability while inversely creating a case for commercial investment to make this a reality.

KEY CHALLENGES

- Initial challenges with diesel irrigation in India
- Seasonality in irrigation services
- Projecting irrigation water requirements
- Traditional irrigation practices
- Sustainability of water ground level
- Commercial off-grid opportunities can be crowded out and face start up hesitancy

INNOVATIONS PROPOSED

- Introduction of irrigation as an anchor load irrigation onto mini-grids while expanding their reach
- Use of alternative irrigation loads
- Need to maintain storage of rain fed source and integration with mobile app development
- Need to work on the demand side and introduce new practices
- Adopt water conversation practices and select crops optimally based on water

requirements

- Focus on horticulture because it makes more money so enables willingness to pay the required tariffs

RECOMMENDATIONS/ NEXT STEPS

- ATA will pilot mini-grid/renewable energy production for post-harvest management and agro-processing
- Identify a customer who would provide enough energy for deployment of a mini grid system
- Create enough customer demand that would eventually reduce the expenses of the mini-grid
- Involve the use of data and the mobile app that has been developed to monitor and manage measure of success and knowledge of farmers' activities
- Analyze the level of pumping needed for a crop in a particular village
- Financiers need to structure new funding instruments that can bring scale and be replicated

Session Summary:

(*To go in final report. Max 300 words. Fill in prose)

The session began by the moderator Mr Merdad Ehsani welcoming speakers and participants to the AGRF pre-session; the Distributed Renewable Energy-Agriculture Modalities (DREAM). He noted that it was a timely conversation with renewable energy costs continuing to drop and that the discussion would focus on comparison between learnings between Ethiopia's agricultural clustering agricultural production and India's experience with renewable energy off mini-grid to strengthen the agricultural value chain

Mr Yifru Tafesse then spoke about the fact that while Ethiopia as a market was growing with a 32% agricultural contribution to the GDP, it was still largely underdeveloped with 79% of the population living in rural Ethiopia and less than 50% having regular access to electricity although there is a national plan to provide universal access to power by 2025. He then went on to speak on the ATA as a government agency created 11 years prior and tasked to identify and address key challenges in Ethiopian agriculture. ATA is working in 4 regions with over 3 million farmers and has led to the impact of \$1.7billion since inception. ATA through ACC aspires to improve smallholder farmers through geographical clusters and farmers sign up for the cluster program (FPC) towards becoming commercial actors in the value chain. ATA through ACC was going to pilot the mini-grid project that would help farmers -1.7 million who signed up since 2020 – improve renewable energy production for post-harvest management and agro-processing. Through the Farmer Production Cluster, groups of 30 farmers managed in teams of 1

woman and 3 men, and that the goal was to convert them into fully commercial entities in 4–8 years. The mini-grid would be piloted in horticultural zones such as where 10 food items including bananas, mangoes and tomatoes would be the focus for crop cleaning, oil processing, packaging and cold storage.

Mr Satya Choudey then came up as a speaker and highlighted the integration of farm activity in into the mini-grid system. He explained that agriculture in India employed more than half the population. He described previous farming practices as having high operating costs whereas less than 50% of mini-grids can support 2 million pumps in India. Its use had decreased the reliance on diesel as a processor and that links to the mini-grid provided huge correlations with solar energy. Awareness and uptake has been low because of challenges with the lack of awareness by farmers with some considering solar may be expensive for them. Large customers can provide irrigation as an anchor and enough demand on the mini-grids could bring the costs down. There are key drivers for irrigation being integrated into the mini-grid and these are site selection, an innovative plant design, an operating and monitoring tool and addressing the agriculture value chain.

For site selection, an area with a low water table, large enough areas where 40 to 50 farmers are using the area and done in such a way that there is more impact and less small holder farmers affected so microenterprises can do more as alternative anchors for loads. For the innovative plant design, there is need to look at the irrigation load and household load so that higher management goes into irrigation load and the balance can be stored in battery and help households especially if not during the day.

For the operation and monitoring tool, a mobile app could help farmers better manage irrigation by requesting the service every hour and there would be a headquarter team who would monitor and analyze entire dataset to determine levels of success and better update of irrigation services. Addressing the agro-processing value chain can help increase the demand overall and create wider changes. The key challenges are that irrigation services are not always regular meaning the need for different loads. Also because of rain fed agriculture, farmers need to store the rain. There has been difficulty penetrating because farmers are still using traditional irrigation practices so using monitoring tools helps where one is proactive. One can also go for deep irrigation so that there is sustainability o ground water levels with impact levels being the GDP, benefits to women and children, micro enterprise consumption and the use of the smart power program in households.

Mr Omer spoke next representing Veritas in Ethiopia. He had looked at the ABC model, and chose to focus on ACC ie Agriculture Commercialization Clusters out of 4 government programs examined. Veritas is looking for commercial off-grid opportunities where urban farmers can pay a low tariff rate supported by a large anchor customer who would help bring down costs in the area. They have focused on 10 commodities in horticulture which tend to make more money and the farmers have a willingness to pay more so they have more income potential so need to have the right

infrastructure and consideration of sustainability so there is need to reduce investment in diesel power generation. . In the value chain, small scale processing and production are the most interesting.

As far as load profiles, basic households in areas will use energy in the early morning and at night then adding mills means more daily energy demand. With irrigation included, energy demand differs including the level of pumping for a particular crop e.g Telifa has more mills but grows crops that demand less irrigation energy than another.

Veritas is looking for opportunities to scale up among stakeholders who are farmers, mini-grid developers and irrigation service providers ; to validate from a long list of sites so work doesn't stop' for alignment with governments and foundations like Rockefeller and to manage climate change and the SDG impact through getting rid of diesel for example,

Mr. Joao Duarte Cunha presented next emphasizing that AfDB was one of the largest financier of green energy in the continent and was keen to now explore different business models that are more focused on SDGs. Examples are more solar tech and mobile availability and apps has led to different models like stand alone solar and mini-grids which would then be considered good for rural electrification. The bank also wants to come in with a more energy specific perspective aligned with SDG 7 and Universal Energy Access Strategy for market building and preparing projects for catalytic financing factoring in country specific assistance such as the EEU in Ethiopia and the DRC mini-grid systems. The lessons learned from all the initiatives are: the need for programmatic approaches, that Ethiopia works well as a starting point given AfDB's history with the country and that benefits to Africa would be increased income generation, the need to structure new financing instruments and to move on with the desert to power initiative for which AfDB is well known to draw lesson from it. Desert to power initiative is AfDB's flagship project and the pilot helped to provide lessons for it

A Q & A session followed where questions asked were why the Ethiopian government prioritized energy and agriculture as opposed to other issues; what further insights existed on how developers and other stakeholders consider opportunities ie how different actors were got to work together; how work in India evolved overtime and learnings that could be considered by Ethiopia and other countries;

what the unique role AfDB played in the mini-grid development project; for countries looking to design similar interventions, what could they learn from the Ethiopia government; how collaboration could happen with other forms of off-grid solutions other than solar like wind, etc. if a university is interested in that and whether all countries needed to go the long way with lots of pilots or was there some way to do it faster?

Reponses included that agriculture is a major sector in the country; that stakeholders speak the basic language of economics and that mandates by academic, government and donor organizations matter; that India learned from mistakes and hence the importance of piloting; that financing is a core part of business that AFDB does and can provide; that platforms like ACC have been important as far as bringing farmers together;

that there is need to work with farmers to determine what is best for them and that the risks of not scaling mean the risk of failing at a larger magnitude.

Tweetable quotes with timestamp:

(*For podcast and to go to AGRF Communication for social media. Minimum 3 per session)

-

How has the session contributed to the AGRF outcomes?

The session contributed to AGRF outcomes through putting forth thorough explorations into distributed renewable energy-agriculture initiatives and highlighting renewable energy especially off mini-grid alternatives as an important pathway to the recovery and resilience of agriculture in the continent.

*(For end of AGRF communique/ Press release. List 3 - 5 top outcomes)

-

COMMITMENTS

Commitments were made by the DREAM panelists via the panel moderator inviting other countries interested in picking up learnings from Ethiopia to engage with Dr Tafasse and the speaker team for further learnings.

Session Title:

Session 2

Type of Session: Panel side event (Technical Session)

Day – time: Monday 6th September 2021 14h30 to 16h15.

Convener: AGRF

-

Moderator: Mr Merdad Ehsani; Managing Director, Food Initiative Africa Office, The Rockefeller Foundation

Rapporteurs: Sharon Mbugua and Ian Duncan Odhiambo