IRENA
International Renewable Energy Agency

Renewables for Climate Action: Empowering Lives and Livelihoods initiative

07 December 2023

Why focus on the nexus of renewables with agri-food and water?

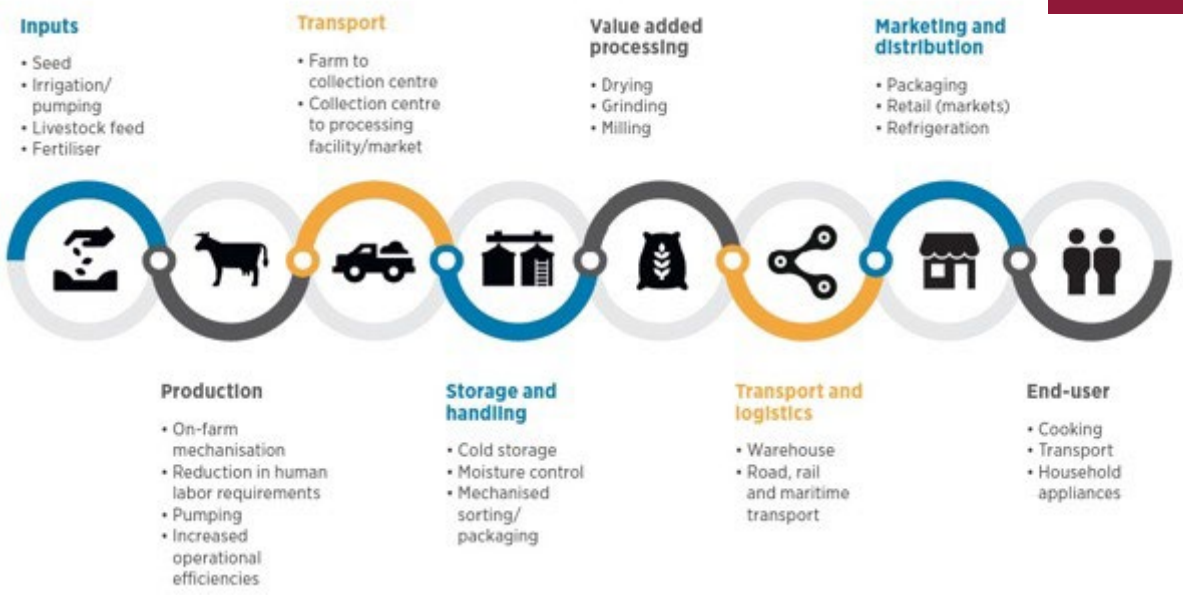
Livelihoods of 2.5bn people dependent on agriculture

30% share of food systems in world's energy consumption

14% of food produced globally is lost between harvest and retail

About 70% of global freshwater withdrawals go into agriculture

- **Irrigation**
- **Pesticide & fertilizer application**
- **Sustaining livestock**
- **Produce cooling**
- **Produce processing**



High wastage and inefficient use of water in the sector from subsidized low fees for water use or free/low tariffs on electricity used for pumping

Stress on ground water reserves: Groundwater is used for over 40% of global irrigation on almost 40% of irrigated land.

Source: IRENA

IRENA's action on renewable energy on agri-food sector

Food and Agriculture Organization of the United Nations

IRENA and FAO joined forces to boost renewables in food and agriculture, January 2021

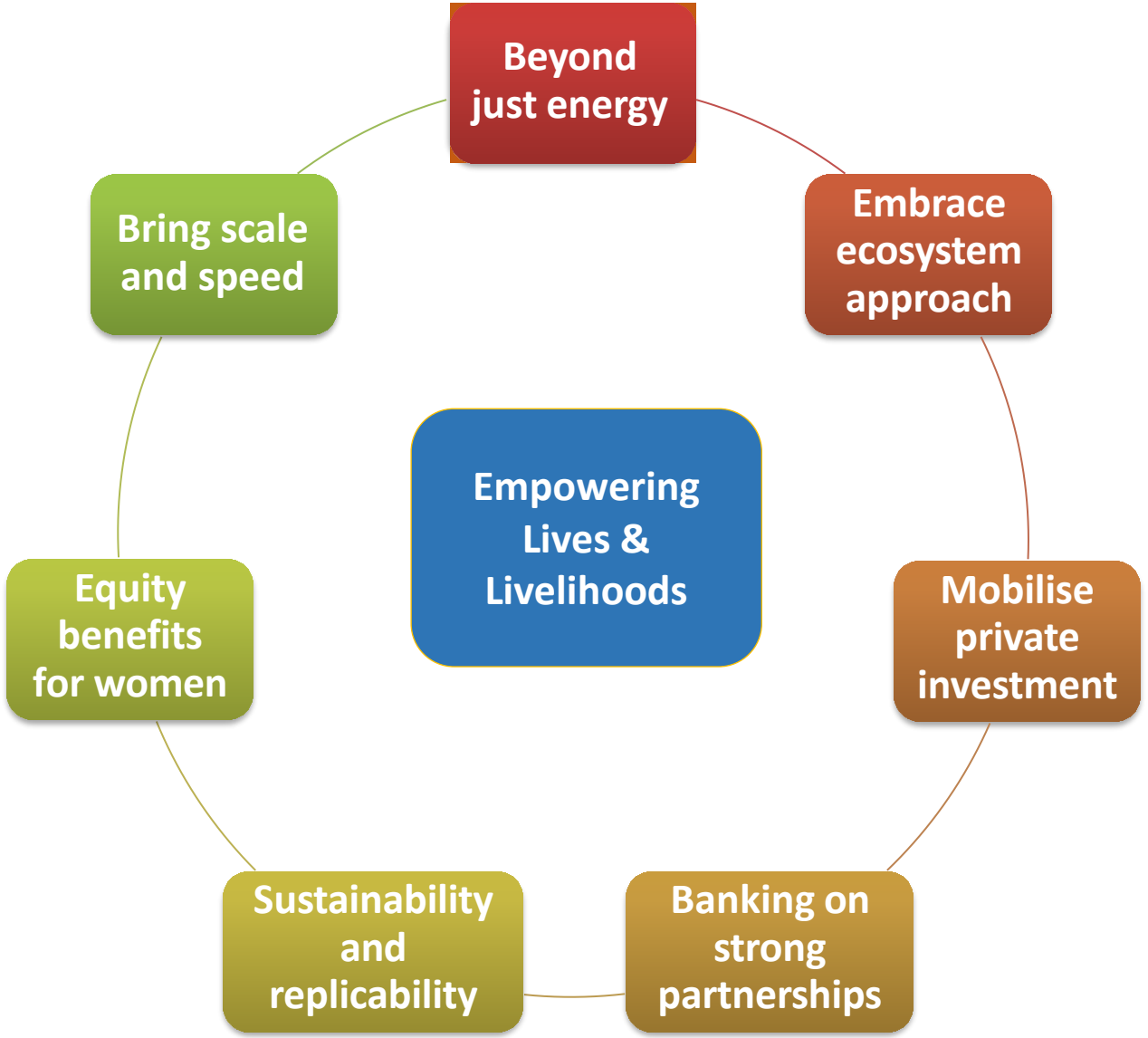
UAE and IRENA Launched Beyond Food Initiative to Provide Access to Energy for Clean Cooking, March 2022

Farming in the hill slopes of Nepal

Empowering Lives & Livelihoods - Renewables for Climate Action

Connect people & improve livelihoods through renewables

Catalyze systemic energy transformation of agri-food value chains



Stimulate climate adaptation, with mitigation benefits

Improve resilience & productivity in agri-food sector

The Initiative: Country Programme for Implementation

Components of Country Programmes

TECHNICAL SOLUTIONS

Sustainable & efficient renewable energy solutions

FINANCIAL SOLUTIONS

Affordable financing solutions for improved services & productivity

ECOSYSTEM BUILDING

- Ecosystem sustainability
- Local innovation & entrepreneurship
- Women & youth empowerment

ADAPTATION METRICS

Development of Adaptation Metrics / stakeholder co-ordination

Looking Beyond Energy - Building Overall Resilience

ADAPTATION METRICS

Potential approaches for improved/resilient livelihoods

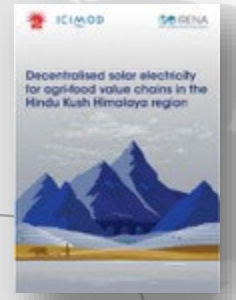
- Increased irrigated land
- Round the year cropping
- Reduced reliance on fossil fuels & its supply chain fluctuations
- Clean energy for processing produce & storage

Challenges in setting METRICS

- In comparison to mitigation, measuring adaptation is a challenge. No concrete standard adaptation metrics that are universally accepted and how it can be tracked for energy.
- Lack of political appetite to identify & address vulnerable sectors
- Data collection – long time frame to see impacts, climate impacts contextual to local conditions, multisectoral nature of adaptation responses

Farm in Nepal – reduced evaporation from polymer covers

Country Programmes Progress to date



Inception

Data collection

Assessment validation

Data collection

Programme development

Data collection

Programme development

Assessment validation

Data collection

Data collection

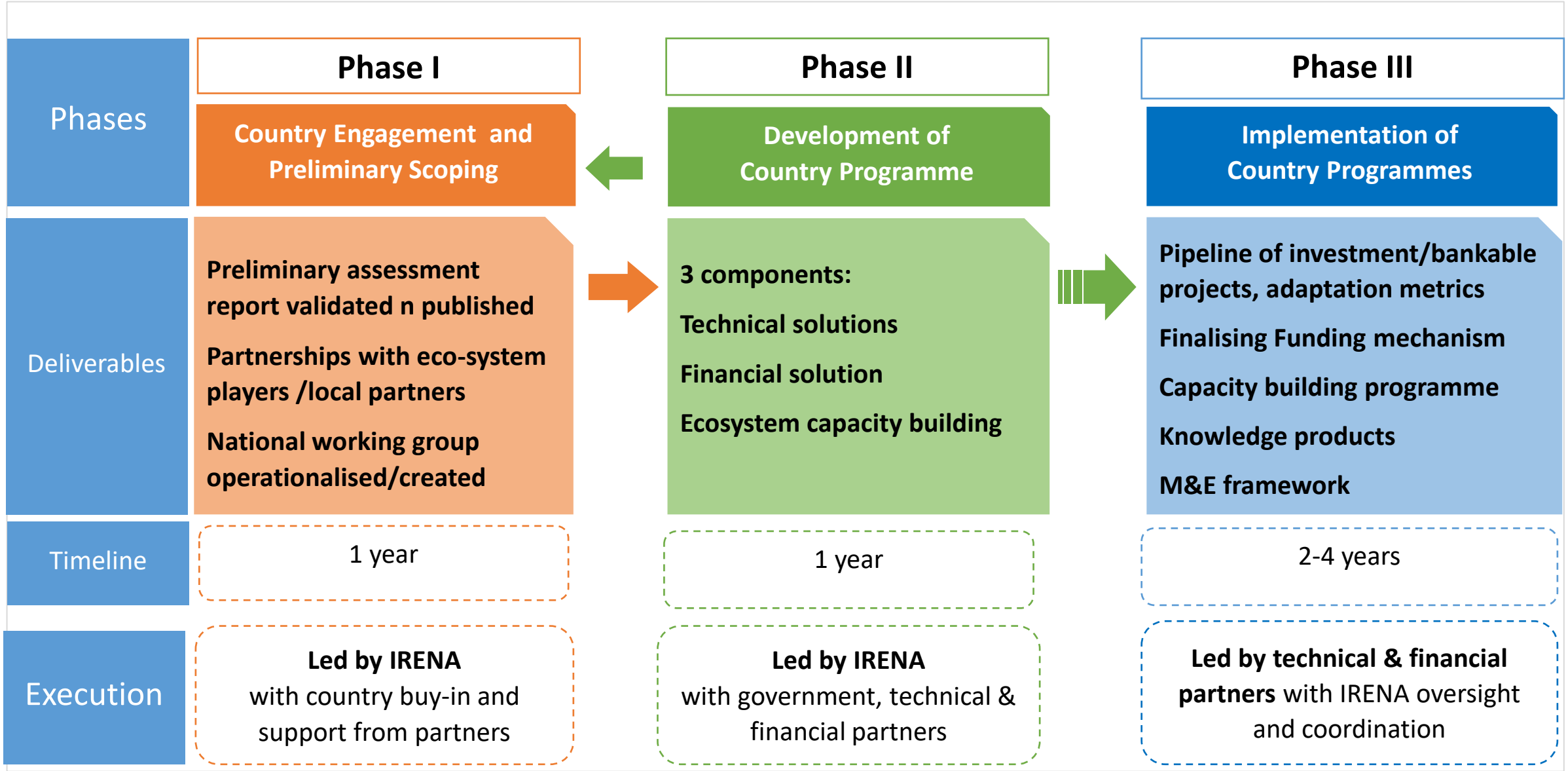
Data collection

Inception

Energizing agriculture through renewables

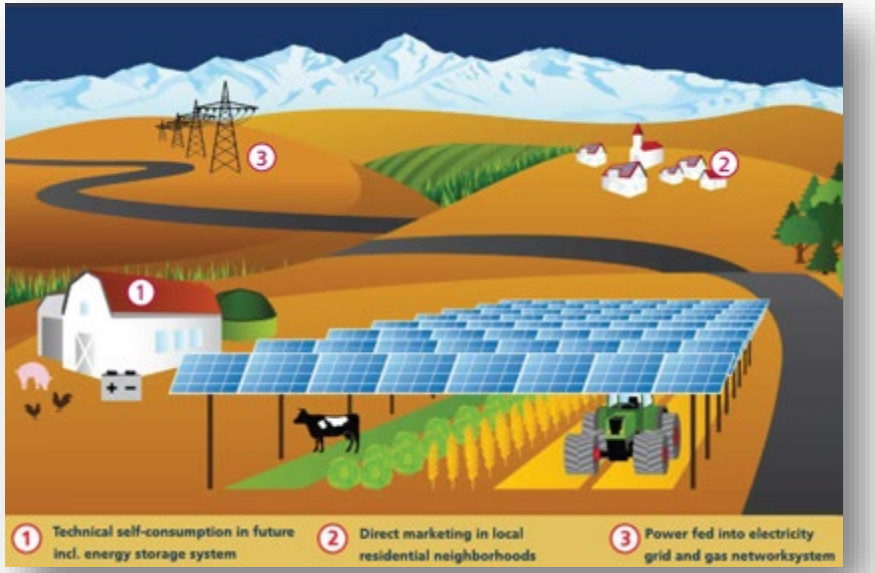
Disclaimer: Names shown on this map do not imply any official endorsement of acceptance by IRENA.

The Initiative - From country assessments to implementation



Progressive ways to destress water use in agriculture – Agrivoltaics

Agrivoltaics (APV) is a combination of solar energy and agriculture in which solar panels are strategically positioned on agricultural lands to capture sunlight for electricity production while allowing farming activities to continue beneath and around them.



Water conserving options

- ✓ Reduced evaporation & options to use drip irrigation

(e.g., shade and reduced evaporation under agrivoltaic systems can lead to up to 40 percent higher yields of tomatoes and cotton – India)

- ✓ Collection and storage of run-off rainwater, helps to conserve groundwater resources
- ✓ Possibility to farm especially in arid regions

Global estimates of 14 GWp of installed APV (as of 2021), with China having the largest share of 12 GWp.

IRENA on the ground working with partners

DRE-based livelihood projects
(India, Feb 2023)

Small Farmer Cooperatives
(Nepal, 2023)

Bangouyah women's cooperative farmland
(Guinea, Mar 2023)

Sitolu mini-grid
(Malawi, Mar 2023)

Join us to drive the initiative; *Powering* Livelihoods to *Empower* Lives!

- *For more details, please send an email to LLCOP28@irena.org*