

# SUSTAINABLE ENERGY AND FOOD SYSTEMS TRANSFORMATION



**Practical  
ACTION**

 **VIENNA ENERGY  
FORUM 2021**

# DEFINITIONS

## SUSTAINABLE ENERGY:

- Renewable energy for electricity and thermal needs
- Energy efficiency including circular approaches

## FOOD SYSTEMS:

All processes and infrastructure involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items.

# OUR FOOD SYSTEMS ARE TRANSFORMING

## FOOD SYSTEMS CHANGE BEING SEEN

**Productivity** has increased hugely since the 1960s through expansion in cultivated area and intensive methods

**Consumption patterns** are shifting to a greater focus on meat, vegetables, dairy, processed foods

**Longer supply chains** are the norm

**Urbanisation** is becoming a driving force of change

**Food waste** is rising especially as economies develop.

## ASSOCIATED ISSUES (POSITIVE & NEGATIVE)

### POSITIVE

Food systems development has created **job opportunities in processing, retail etc**

**Dietary diversity** has increased in many areas

In response to negative impacts, a **regenerative agriculture movement** is developing

### NEGATIVE

Agri practices have had negative impacts on **soil, water & biodiversity**

Progress has **not been equitable** - SSA and parts of Asia left behind

**Increasing emissions** from long supply chains, inefficient processing etc

**Consolidation of food systems** and corporate takeover

The world is characterized by **extremes of obesity and malnutrition**

**THE WORLD NEEDS  
SUSTAINABLE FOOD  
SYSTEMS IF IT IS TO  
FEED 9 BILLION  
PEOPLE BY 2050  
AND MEET THE  
SDGs BY 2030**

**Sustainable food systems include:**

- **Production practises** that maintain soil, water, biodiversity and deliver adequate nutrition and food security
- **Improved and resilient livelihoods** for small scale farmers
- **Decent job opportunities** across the system (inc young people and women)
- **Mainstreamed circular economy** principles (reduced waste, improved resource efficiency)
- **Land use, transport and technological practices** that are energy efficient and support climate change adaptation and mitigation.

# ROLE OF ENERGY IN SUPPORTING DEVELOPMENT OF SUSTAINABLE FOOD SYSTEMS

## SUSTAINABLE ENERGY IN FOOD SYSTEMS

- **Production:** solar irrigation, greenhouse heating, poultry incubation
- **Storage & handling:** cold-chains, energy efficiency
- **Processing:** Small scale adding value to farmers, large scale creating jobs, energy efficiency critical
- **Bioenergy:** Crop residues and food waste used for electricity and thermal energy needs

## WHAT CONSTRAINS SUSTAINABLE ENERGY DEVELOPMENT

- **Unsupportive policy environment**, especially where renewable energy policy frameworks are immature
- **Technical capacity constraints** – limited local capacity to develop, adapt and maintain energy technology increases costs and slows adoption
- **Financial barriers** – for end users (e.g. farmers) and for investors
- **Lack of awareness** of the potential of sustainable energy worsened by a history of poor practise

# COUNTRY CATEGORISATION

## Aims:

- Help identify countries where support from UNIDO could be used most effectively to help develop sustainable energy for enabling food systems transformation
- Identify common needs among countries with similar challenges and opportunities
- Deliver a set of recommendations to help them take action

# INDICATORS

## ECONOMIC OUTLOOK

- Food systems transform as the economy grows and incomes increase
- Dataset: Economic Outlook Database (International Monetary Fund World)

## STATE OF FOOD SYSTEMS INFRASTRUCTURE

- Basic infrastructure is required to allow food systems to function
- Dataset: Global Food Security Index (Economist Intelligence Unit)

## ENERGY ENABLING ENVIRONMENT

- Electricity access (on or off-grid) is crucial to food system transformation
- Dataset: SDG7 tracking data, IRENA country data, ESMAP RISE (World Bank)

## CLEAN ENERGY INVESTMENT FLOWS

- Countries need the right enabling conditions to attract clean energy investment
- Dataset: Climatescope (Bloomberg NEF)

# COUNTRY CATEGORISATION

## CATEGORY 1 – PRIORITY COUNTRIES

- Good enabling conditions in place for sustainable energy-focussed interventions in food systems to work

## CATEGORY 2 – SECOND PHASE COUNTRIES

- Support needed to improve enabling conditions before sustainable energy interventions are feasible

## CATEGORY 3 – CURRENTLY CONSTRAINED COUNTRIES

- Very limited enabling conditions due to particular circumstances (e.g. fragile states)



# PROCESS OF ENGAGEMENT & SUPPORT

- Ideas to action in 2021: SEforAll (Feb 21) to VEF (Jul 21) to COP26 (Nov 21)
- VEF consultation (Oct 20 – May 21):
  - 1) Opportunities for en/ag nexus action
  - 2) Value chain upgrading
  - 3) Agro-Industry
  - 4) Priorities at the farm level
  - 5) Digitalisation
  - 6) Equity - gender and youth
  - 7) Investment & partnership needs
  - 8) Galvanising political action

(Key cross-cutting factors: COVID-19, job creation)
- Open to others

# VIRTUAL DISCUSSION SESSIONS (2020-21)

All virtual sessions will:

- Focus on the sustainable food systems / energy transition nexus
- Involve representatives from the full range of stakeholder groups
- Each address one specific issue from the set of questions for discussion
- Have a common aim: *agree potential actions to address the issue under consideration*
- Aim to identify pathways towards modern food systems through clean energy use
- Produce a set of recommendations, commitments and actions for the VEF

# TARGET AUDIENCE FOR VIRTUAL DISCUSSIONS

- Key targets are Ministries (Agriculture, Industry, Energy):
  - policy-makers in government are critical
  - responsible for motivating action on the ground
  - interact with the private sector
  - need to take account of civil society
- VEF: opportunity to align key actors and institutions; to bring all relevant stakeholders into these discussions, and gain insights from different perspectives, e.g.:
  - multi-lateral donors/banks & IFIs
  - international players working on the ground
  - relevant academics
- Others to invite for future virtual discussions?  
Your input is welcome!

# YOUR COMMENTS?

**Practical  
ACTION**

VEF consultation (Oct 20 – May 21):

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# SESSION 1: OPPORTUNITIES FOR ENERGY / AGRICULTURE NEXUS INTERVENTIONS

**Main question:** What evidence and dissemination strategies are needed to demonstrate that the integration of sustainable energy in food systems can ensure transformational development outcomes?

## ISSUE 1

What enabling conditions are in place for integration of sustainable energy in food systems in countries? What disenabling conditions exist?

## ISSUE 2

What country data is available to support the planning of sustainable energy in agriculture?

## ISSUE 3

How can positive outcomes from the integration of sustainable energy into agriculture be best demonstrated and disseminated, both in your country and with other countries?

## INTENDED OUTCOME

Group of key countries identified as priorities to engage in the global initiative