Webinar series	Farming meets solar power in Africa: food and energy security for sustainable African communities towards a post-COVID-19 society

THE MEETING OF AGRICULTURE AND ENERGY IN AFRICA

Increasing the value of the agricultural sector through agrivoltaics in Mali

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The content of the presentation

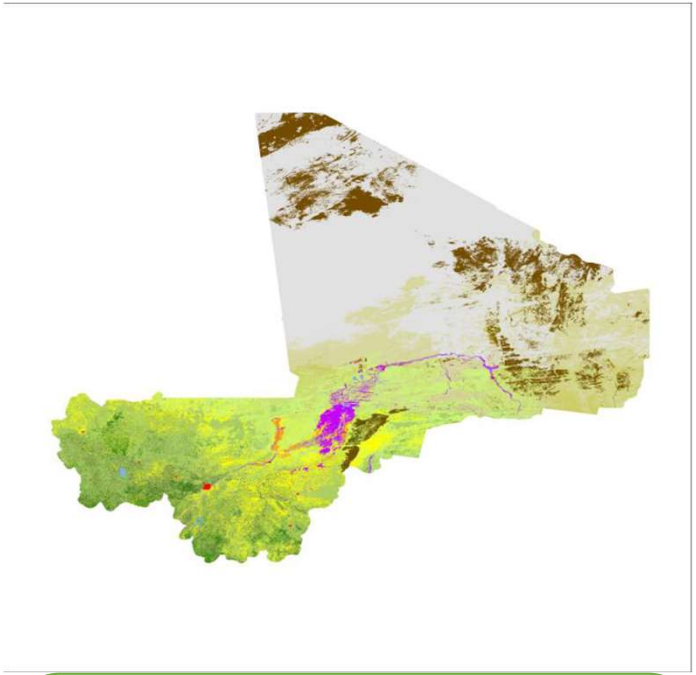
1. The situation in Mali (climate, agriculture, energy)
2. Energy issues and productive use of energy
3. The country's agricultural potential
4. The country's food security challenges
5. The role of Agrivoltaics and its diffusion in Mali
6. The SHEP approach in experimentation and other local initiatives
7. Conclusion

The situation in Mali

ENERGY,

The country's energy balance is dominated by the use of biomass, the main source of energy, which accounted for 72% in 2016, followed by oil. Mali has a high renewable energy potential of 10.50 GWh in hydropower and an average insolation of 5 to 7 kWh/m2/day in solar energy.

CLIMATE,



The climate is characterised by a long dry season
and a rainy season lasting on average from 1 to 5 months depending on the region.

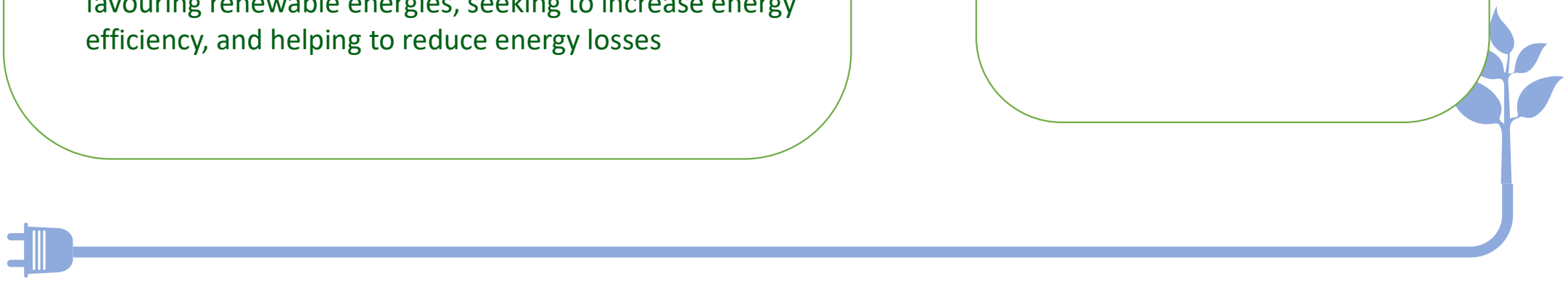
AGRICULTURE

According to the World Bank, the agricultural sector is vital and employs about 80% of the working population. It contributes 33% of the country's GDP and provides 20% of export earnings.

Energy issues and the productive use of energy

- The national energy policy currently being developed will bring innovation and ambition to increase the access to renewable energy
- The national demand for electricity in Mali is constantly increasing (+10% per year on average), for an installed capacity of around 720 MW as of December 31, 2018
- A significant potential demand for electricity in urban and rural areas
- Several programmes and projects exist for rural electrification (SHER, PERSHY, PHARE..)
- The new energy challenges in Mali are therefore multiple: favouring renewable energies, seeking to increase energy efficiency, and helping to reduce energy losses

- The promotion of the productive use of energy in rural areas is a necessity for the sustainability of rural electrification systems
- Increased income through job and business creation with the promotion of the productive use of energy



The country's agricultural potential

- Agriculture occupies more than 80% of the Malian population. There are more than 65 million hectares of which 2.2 million are usable for agriculture and livestock with 2,600 km of waterways suitable for fishing.
- Mali has land with high agricultural potential.

The main challenge is:

- Improve agricultural productivity and competitiveness with the ambition to diversify, intensify and modernise agricultural production systems
- However, the country is facing climate change and a socio-economic environment that poses a threat to agriculture
- Promoting the productivity and competitiveness of sustainable agriculture in the maize, rice, sorghum, millet and cowpea sectors
- Promoting Sustainable Agricultural Productivity in Mali

The challenge of food security in the country

The vision of Mali's food and nutrition security policy: "By 2030, the entire Malian population has, at all times and in all places, equitable access to a quality, balanced, sufficient and healthy diet that meets its energy needs and food and nutritional preferences."

The issues are

- High vulnerability to climatic hazards (droughts, floods, low water levels) and major risks (health, pests, bush fires).
- Low performance of farms: production systems are not very intensive (low use of fertilizers and improved seeds, low level of mechanization and motorization, low use of agricultural research results)

• Low level of modernisation, extensive techniques and little linkage to markets.

Mali also has significant needs for lighting and refrigeration, particularly in rural areas, for uses such as equipment for the conservation of food products and lighting for maternity hospitals. Despite a considerable solar potential in the Sahel, this energy, which is renewable at its best, is very little used.

Agrivoltaics and its dissemination in Mali

Definition: APV offers a system that combines energy generation from solar photovoltaic technology and agricultural production under the solar panels.

- Technology to boost energy and agricultural production in Mali

- Several crops in Mali can benefit from agrivoltaic technology, including fruit production

- With the new agrivoltaic technology there will be capacity building in energy production, farmers will be trained in modern crop technologies

- The country has a natural advantage in the field of solar energy and the availability of arable land

Agrivoltaics and its dissemination in Mali

TECHNICAL,

Acquired

- Availability of cultivation space
- Synergy with ongoing projects and programmes in the agricultural sector and solar installations

The challenges:

- Lack of local expertise on the subject
- Importation of solar photovoltaic equipment
- High acquisition cost of materials
- Financing mechanism for agrivoltaic units

JOBS,

- Reintegration and conversion of young people to green jobs
- Business creation in the field of agrivoltaics
- Development of small businesses around market gardening and electricity production
- Development of the value chain for vegetable products
- Development of local skills in the field of agrivoltaics

FOOD SAFETY

- Contribution to the achievement of the objectives of the Food Security Policy
- Increased agricultural productivity
- Diversification and availability of market garden produce
- Development of storage units for perishable goods

The SHEP approach in experimentation and other local initiatives

The SHEP (Smallholder Horticulture Empowerment Project) approach: A technique for increasing the income of farmers. Through market-oriented production.
JICA is promoting the SHEP approach throughout Africa

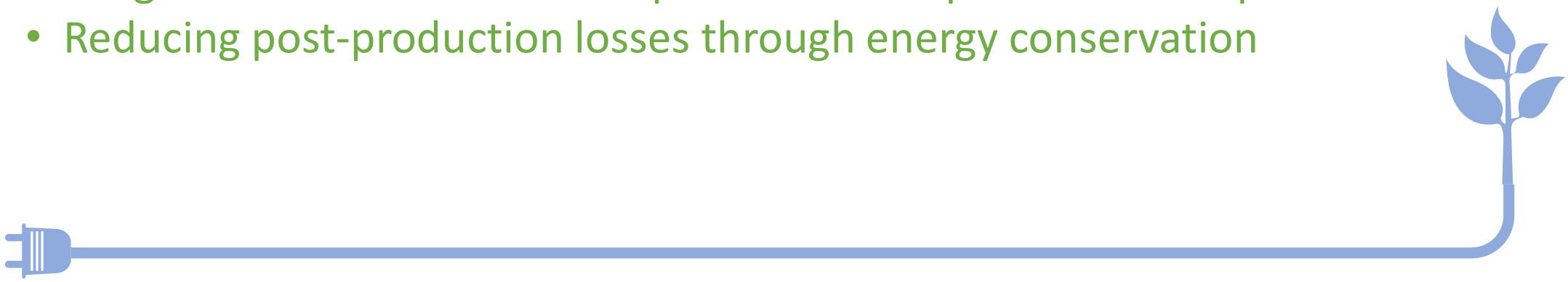
ACCESS SA is implementing a pilot project on agrivoltaics in the Bougouni region, in the locality of Ouré. It is a project that combines access to electricity, electric mobility, and organic market gardening thanks to the technology of agrivoltaics.

United Nations University for Environment and Human Security (UNU-EHS) in consortium with 12 local and international partners are developing a pilot project in agrivoltaics in Mali, with the IPR-IFRA of Katibougou.

Conclusion

Agrivoltaics could enable Mali to find a solution to certain challenges through:

- Promoting the productive use of energy in rural and urban areas
- Contribution to food security through diversification and increase of quality vegetable products on the market
- The satisfaction of the energetic need while bringing an income to the population thanks to the market gardening practice
- Business and job creation for young people
- Long-term increase in the competitiveness of products for export
- Reducing post-production losses through energy conservation



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