

**Renewable energy through the nexus Water Energy Food (WEF), for local communities:
SDG compliance as catalytic of additionality.**

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- 1. The WEF nexus as guidance to inter-linkages in the agenda 2030.**
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Key messages

The positive engagement within the water/energy/food nexus is essential to the challenge of feeding people in a planet, which needs to breathe and regenerate itself to serve the prosperity for a future of peace.

The challenge of balancing demand and supply at the same time for food water and energy is daunting. Feeding a population of 9.8 billion by 2050 will require a 60 percent increase in food production and a substantial reduction of waste along the value chains. Global energy must grow 30 percent by 2040, water withdrawals will grow of 10 percent for irrigation by 2050 with 2 percent more will be consumed by energy on 2040. (FAO, IEA various)

The future of food systems must be looking at increasing productivity by reducing waste as a push in the productive chain and as a pull from consumers.

The usage of solar technologies in value chain application, for complex or innovative agri-processing or simply to reduce post-harvest waste, are fundamental.

The captive market will greatly increase access to energy also improving resilience of households, fostering the case for more consumption of electricity and better business for the service provider installing the captive generation.

This is a virtuous cycle as the provision of water and energy works inside and outside the value chain of food systems i.e. for the resilience of the community as a whole.

De-risking from public money is essential to stimulate investments. That de-risking can only happen in presence of additionality, which is ensured by the SDGs compliance on the whole nexus.

UN agencies, in charge, inter alia, of sustainability like FAO, have an active role in the investment sector, moreover the normative mandate gives a unique perspective of policy dialogue in parallel with de-risking initiatives like the external investment plan of the EU or the private sector window of the World Bank, which represent great opportunities for this.

1. WEF nexus as guidance to inter-linkages in the agenda 2030

The importance of water and energy in sustainable development is evidenced by the fact that they have specific SDGs but they are connected to many others.

Agriculture is the largest user of fresh water resources accounting for 70 percent of total global withdrawn while 30 percent of global energy consumption is on food supply chains.

The energy sector accounts for 10 percent of water withdrawals and 3 percent of global water consumption.

The central question around the future of food systems revolves around production and consumption of food with a small carbon footprint of energy that ensures water sustainability in the food systems.

In the planetary workshop of sustainability, the drivers to sustainable water management, sustainable soil management and sustainable access to energy, bring immediate solutions when we look at them simultaneously in the nexus: less water to food, less soil to food, some waste to biomass-energy to balance

the solar sources for pumping in the day and to create a gravity battery to run energy in a turbine at night.

The nexus is therefore part of the solution to reduce carbon emissions and to increase carbon retention in soil and trees increasing biodiversity in the food cycle.

SDGs compliance can be used at the service of economic sustainability if operations are to be assessed against a set of positive inference on SDGs indicators.

The SDGs indicators replace old principles and criteria: aid effectiveness and coherence with country ownership principles, development impact (new or improved access to electricity and energy services, jobs creation etc.), additionality (meaning the need of the support requested), neutrality (meaning avoidance of market distortion), replicability and scaling-up potential and SDG compliance.

The WEF Nexus can assist in identifying potential trade off in the policy stage but for investments there are no trade offs, in fact one solution can positively benefit multiple SDGs improving economies of scale.

The example of switching cooking energy, from firewood to clean fuels is part of the solution of reducing carbon emissions, increase carbon retention in trees, water retention in soils and increase their organic content.

2. Synergy increase and risk reduction by approaching the three areas simultaneously

WEF nexus has the potential to address key developmental challenges such as growing demands for goods and services due to population growth, rapid urbanization, changing diets, economic growth through sound management of resources within planetary boundaries and through climate change.

The fundamental questions are: how sustainable renewable energy projects can create real value for development and growth both decent and sustainable? Can food systems be the trigger of energy access? Is water an economic asset in the nexus?

We know that a formidable trigger for sustainable development is the provision of renewable energy at affordable cost to get the transformation place closer to the production and to save water in the ecosystem.

I believe in the creation of economic growth of rural communities around the opportunities of energy availability created by the installation of energy generation for agro-processing.

The economies of African nations are growing at unprecedented speed even though, this speed needs more equity in this the approach of decentralized energy installation (off-grid mini grids) is inherently coherent with an equitable effort to reach the poorest but it is also serving the economic theory of seeking the biggest growth where the needs are greatest.

The nexus has intimate capabilities of synergizing with inclusion of the development dynamic. This is also true in a context where the ultra small-scale and the acute needs of energy are catalytic for the promotion of innovation in agriculture and agribusiness.

A further advantage of looking at the nexus is to move the target of the investment from the individual to the community.

Investments that have an important impact and added value in the following areas, can be prioritized through a strong nexus approach: (i) improving health and life of women and girls; (ii) productive uses of energy; (iii) provision of social services to the bottom of the pyramid (health, education, security, etc.); (iv) actions in the energy-water-food nexus for this nexus the validity of a combined effect of ELECTRIFI and AGRIFI is very strong also through hybridization of existing systems; (vii) establishment of local mini-utilities; (viii) innovative solutions in terms of organization, value chain, production and trade of agri-products, financing or delivery of energy services.

The complete perception of the synergies become powerful if the value chain methodologies are adopted. The access to energy can be simple or can become complex and more transformational in the economics of value chain.

Agro-invest becomes technologically possible and sustainable with the source of energy used for social purposes but the opposite is true as well: the energy from the factory can serve the houses. The community can grow around solar panels, pumping water, but can sustainably develop and prosper through energy provided to the value chain.

Positive and accurate value chain analysis cannot be done without the assumption of electricity. Access to water is both part of the value chain in agriculture through irrigation and part of the food system. In fact essential component of the food system.

Beyond social theory, the enormous opportunities offered by the economic synergies around the nexus can overcome substantial factor risks and provide a solid enabling environment for investments.

Small-scale agribusiness endowed by energy is probably the most promising area of job creation in Africa today.

Again to be decent and sustainable SDGs compliance must be assured at all levels.

3. Synergies are good for business. Investments are better through multiple users/beneficiaries.

Renewable energy for enabling agribusiness, is a driver for access to energy for communities through captive operations.

Addressing the lack of clean safe water is essential for life.

Climate change is pushing every day more on irrigation.

Addressing the lack of access to clean, reliable and affordable electricity and energy services is a major development challenge and a key pillar of the Paris agreement.

Cost-efficient access to:

- Water
- Energy
- Food
- Seeds
- Finance
- Health services
- Education

... are central to inclusive and equitable economic growth in all sectors and a precondition for the poorest of the planet to be able to escape poverty. Reaching the goal of global access through sustainable solutions is fundamental for mitigating the worst impacts of climate change, which most affect the poor mostly in rural areas.

A major barrier to investments in small-scale agribusiness as well as access to water services, renewable energy in developing countries is the lack of access to seed, mid-and long-term capital. In immature market conditions, this is aggravated by the reluctance of commercial banks to provide suitable lending that respond to the needs of investors and by the existing capacity limitations in terms of structuring and bringing projects to financial close.

Many private players offering WEF nexus solutions are mostly innovative and even start-ups with

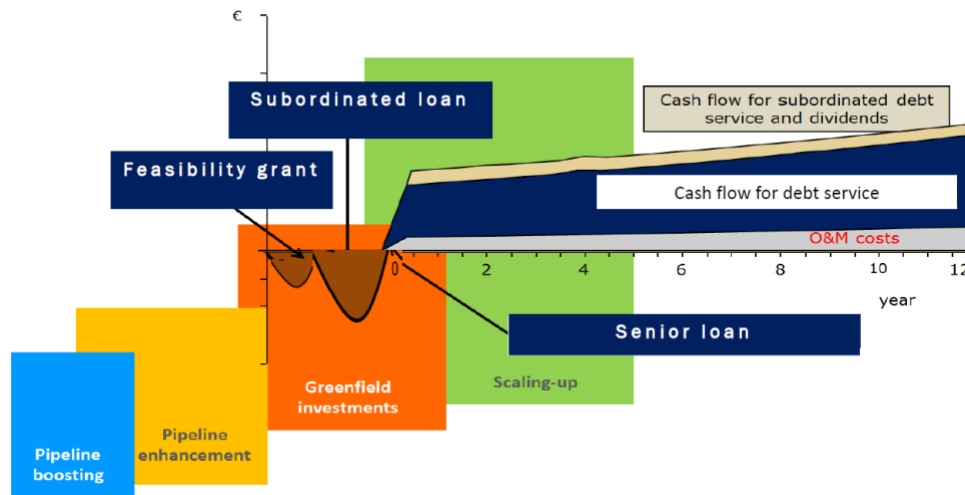
the common problem of access to finance: they need de-risking schemes: support schemes that would bridge the gaps in structuring and financing necessary to stimulate the private sector, to mobilise financiers and to have a catalytic impact on economic growth.

One of the most successful of such schemes is ElectriFI by the European Union.

ELECTRIFI without distorting good market conditions (where present) boosts investments by making support available throughout the entire project cycle, from the project idea to its successful implementation and scaling up.

ElectriFI coupled by AGRIFI for agriculture and agribusiness can constitute a comprehensive and inclusive platform for investment support services, rendering due attention to bankability at very early stages, whilst facilitating access to senior debt at later stages.

For a successful integration of ELECTRIFI and AGRIFI there are four stages (scheme from ELECTRIFI EC, adapted).



Pipeline boosting Building a pool of mature quality project proposals through mobilising actors and partnerships with financiers, industry and established networks. It is foreseen the provision of small grants for feasibility. The agribusiness and value chain can provide a lot of working proposals. FAO can be a strong player.

Pipeline enhancement Supporting projects at very early stage by structuring feasible and bankable project profiles. At this stage, support would be made available in the form of subordinated debt. The combination of economic aspects for agriculture and waste reduction is very powerful to increase economic reliance. FAO's presence in all countries can be beneficial. FAO's experience and knowledge based on SDGs compliance is essential for additionality of pipeline enhancement.

Project implementation and monitoring. At this stage a franchising model comes into play to monitor the SDGs compliance with NGOs and other local actors.

Project scaling up Bridging financial gap and securing senior (development and/or commercial) debt. The presence of an anchor through the captive modeling can be extremely beneficial to assist sustainability in this stage.

The private sector must see good business in SDGs compliance. The involvement of partners from local private sector and Civil Society Organisations is also instrumental to enhancing effectiveness and ownership of the actions deployed.

The G7 Leaders' Summit in Germany explicitly acknowledged ElectriFI in the Declaration of 8 July 2015. AGRIFI was presented at EXPO 2015.

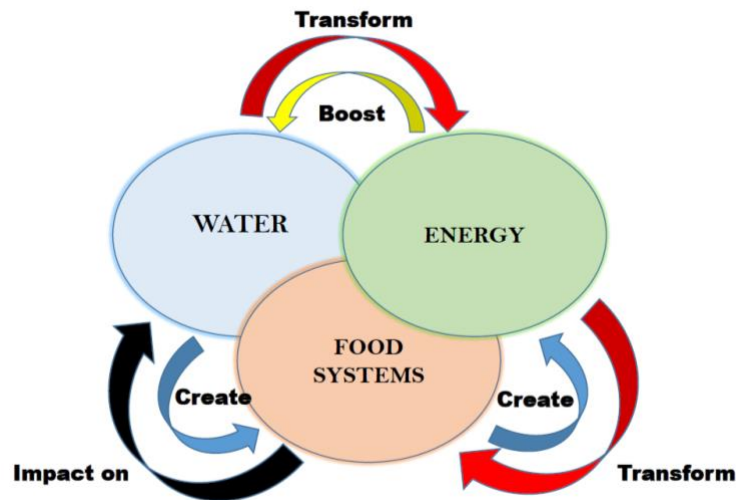
Since then, the financing has been growing. The captive model is very promising in terms of multiple SDGs

compliance and strong impact.

The European Development Finance Institutions together with other major development finance institutions must consider very strongly SDGs compliance as an added-value coming from the nexus approach.

Considering the needs of partner countries in accessing sustainable electricity and energy services and the ever-increasing interest demonstrated by the private sector and development financiers to partner and invest in electrification, ElectrIFI can be combined with the AGRIFI approach to put the nexus water/energy/food at the center stage of development of decentralized captive installations.

4. The key feature of public de-risking is additionality: SDG compliance in the WEF nexus can guarantee it.



I tried to illustrate the powerful advantage in profiling business models around the nexus and considering the nexus as an economic opportunity.

Water as well as access to affordable and sustainable energy and to food and nutrition security are essential for a community as they represent the asset base for prosperity.

However, the food systems require inputs as water and means of production like energy.

Water needs energy and can create energy. Food systems must have limited waste and the waste of processing can be a balancing factor of the energy needed in the community.

The value chain analysis shows the advantages of energy availability for "industrial" uses. In turn the presence of a community business hub in agro processing requires labor, water and energy both of which can be provided to the community members for smallholders use.

They become more resilient and better players in the food systems. (cold chains can be within and outside the value chains).

The investments further de-risked in a combined manner through ELECTRIFI and AGRIFI can therefore become more economic sustainable.

ELECTRIFI and AGRIFI can run only in presence of true additionality, which cannot be justified without error on the basis of financial parameters.

It can only be guaranteed through SDGs compliance by designing a powerful monitoring, through civil society organizations as partners, to ensure ultimate creation of decent and sustainable jobs providing prosperity to people in a peaceful planet.