

17. CIRCULAR ECONOMY OF BAMBOO PRODUCTION IN ITALY

ACTION AREA	FOOD SYSTEMS RESILIENCE
SOLUTION CLUSTER	INTEGRATED APPROACHES TO RESILIENT FOOD SYSTEMS
THEMATIC AREA	WATER-ENERGY-FOOD NEXUS
SUBMITTED BY	WORLD FARMERS' ORGANISATION

WHAT ARE THE KEY THEMES THAT NEED TO BE CONSIDERED TO ADDRESS FOOD INSECURITY AND ENHANCE FOOD SYSTEMS RESILIENCY?

Inclusiveness: Food systems differ based on geography. Therefore, there cannot be a one-size-fits-for all approach because circumstances and production realities differ from continent to continent and region to region. The approach should be based on common ground and inclusiveness, where no one will be left behind. All farmers, including women and young farmers deserve to be empowered and provided with the same resources in terms of i.e. access to land, inputs, finance, education, to maximize their contribution towards more resilient food systems, as well as to prepare the future farmers' leadership.

Transparency: Transparency of information is required at all levels from global to grassroots, as well as in feeding the international discussion with the farm level experiences and best practices that are ready for scaling up and replication in other countries. The flow of information must be timely and effective to allow all actors to make proper decisions and take robust actions for the benefit of the world farmers and the whole population. The digitalization has to be improved as an instrument of knowledge and transparency of the chain and at the same time the property of data has to be considered a priority for farmers. Transparent and trustful relationships between farmers and consumers (the first and final stage of the food value chain, where open traceability is available) must be promoted. The farmers' share of value added in the whole approach must be not only valorised but also restored.

Farmers driven: Farmers are at the centre of food systems. Therefore, any policy-making process that has an impact on the farming sector at local, national, and international levels should involve them, through their organized structures. Representatives of farmers' organisations and cooperatives must therefore also be partners in the discussion and decisions on sustainable food systems and the 2030 Agenda for sustainable development. This approach applies to decision-making processes and its implementation, monitoring and evaluation actions

Reference:

WFO-Policy-Paper-on-Sustainable-Food-Systems_approved-by-the-WFO-2020-GA_EN.pdf (wfo-oma.org)

WHAT DO YOU THINK CONSTITUTES SOCIAL RESILIENCE, ENVIRONMENTAL RESILIENCE AND ECONOMIC RESILIENCE IN FOOD SYSTEMS? WHAT ARE THE CROSS-CUTTING SOLUTIONS BETWEEN ECONOMIC, SOCIAL AND ENVIRONMENTAL RESILIENCE?

Ensuring social, environmental and economic resilience in food systems means recognizing the multidimensional nature of the farming activity replacing the old vision of agriculture as a simple "provider of raw material". Farmers ensure food security providing quality food; they are at the forefront of combating climate change; they preserve and promote biodiversity; they are committed to nurture

farmer-driven research and innovation. This translates into social resilience, environmental resilience and economic resilience in food systems.

Therefore, if we aim to align and lay the foundations for the necessary shift towards Sustainable Food Systems, this role has to be emphasised and mostly valorised, putting farmers at the centre of the transition towards sustainability. Within the World Farmers' Organisation, awareness of the centrality of agriculture and the responsibility this entails for sustainable food systems is clear and has been formalised with the adoption, in June 2020, of a policy document marking The Farmers' Route to Sustainable Food Systems" https://www.wfo-oma.org/wp-content/uploads/2020/07/WFO-Policy-Paper-on-Sustainable-Food-Systems_approved-by-the-WFO-2020-GA_EN.pdf

A route based on three guiding principles: inclusiveness, transparency and the centrality of farmers in every strategic process.

WFO proposes to focus future commitments on the following cross-cutting actions, with the central role of farmers in each of these actions:

- Involving the whole value chain
- Fighting climate change
- Structuring disaster risk management
- Attaining global nutrition security
- Enhancing Research and Innovation
- Protecting biodiversity
- Deploying investments and incentives
- Valuing the livestock sector's role
- Achieving food security
- Boosting the role of farmers' organisations and cooperatives
- Promoting inclusiveness: youth and women are key to succeed.

WHAT SOLUTIONS CAN WE PROPOSE TO ADDRESS FOOD INSECURITY AND PREVENT FUTURE SOURCES OF CONFLICT, MANAGE TENSIONS AND OTHER STRESSES IN FOOD SYSTEMS ?

One example comes from farmers in Italy:

The farming sector is particularly vulnerable to climate change that has caused extensive damage to agriculture. In Italy, damages caused by the climate change in the last decade amount to 14 billion euros (around 15.4 billion US \$) and are due to the alternation of extreme events, from prolonged periods of drought to violent waves of bad weather that have devastated crops, structures and infrastructures. Italy holds the European leadership in terms of number of companies operating in the organic sector, and even this primacy is being put at risk by climate change that affects the typical Made in Italy products and the crops, particularly due to the arrival of alien species that are killing fruit and vegetables. Torre delle Carciole farm started the cultivation of *Phyllostachis Pubescens Edulis* bamboo in 2014, in order to have a short rotation timber production for the sale of fine wood to the processing industry. The waste and unsold part is valued as a raw material for the production of electrical and thermal energy with a positive environmental impact. The bamboo in its final uses has a neutral or positive CO2 impact.

"CO2 positive energy from Bamboo" is a project based on the speed of growth of bamboo and its thermodynamic characteristics. It is ecological and protects the environment. No treatments nor fertilizers are needed, bamboo derivatives have a positive CO2 footprint, absorb 35% more of H2O, avoid soil erosion, desertification and purify water. The goal is to have an autonomous cycle from planting to processing and use of the finished product with guaranteed basic profitability.

From a general perspective, farmers from all over the world will have to feed an increasing population in forthcoming years, putting in place sustainable production models that are suitable for achieving global adaptation to meet the climate change challenge. Research & innovation can play a key role in helping farmers to improve their sustainability models, so there is a need for incentives & reward mechanisms in this sense.

With particular regard to “CO2 positive energy from Bamboo” project, the main challenges to implement were:

- Minimizing water resources consumption by using innovation. More in detail, to reduce the water footprint it was necessary to invest in innovation with an ad hoc piping system for irrigation and fertigation (drip irrigation systems);
- Investing in chippers with adequate output to obtain a size suitable for Syngas plants;
- Learning to know at an engineering level the operation and maintenance of the syngas to guarantee their operation at least 7,000 hours per year.

WHAT IS THE POTENTIAL ACTION THAT COULD BE TAKEN?

Promote at all levels (global, national, regional and local) diversification of production on farms to ensure farms are resilient to external shocks that could hamper revenue on the farm, with environmental benefits.

WHO ARE THE MAIN ACTORS THAT WOULD PUT THIS ACTION INTO PLACE?

Policymakers (government), Farmers, Scientists, Indigenous groups

WITHIN WHICH CATEGORY DOES THIS INTERVENTION MOST EASILY FALL?

Sustainable agriculture (including forestry)

IS THIS IDEA APPLICABLE TO A PARTICULAR GEOGRAPHY OR TYPE OF SETTING (E.G., SEMI-ARID AREAS, HIGHER- OR LOWER-INCOME COUNTRIES)?

The set of practices described in section 3 were first implemented in Italy with the potential to be replicated and scaled in other Countries.

WHERE IS THIS IDEA COMING FROM?

The best practice was first shared in the context of the initiative “The Climakers”, the Farmers Driven Climate Change Agenda conceived by the World Farmers’ Organisation and carried out with different partners, with the aim to be assessed by science against climate smartness criteria and be scaled up and replicated in other Countries.

Reference: <https://www.theclimakers.org/wp/wp-content/uploads/2019/12/The-Climakers-Stories- from-the-Field-Volume-1.pdf>

ANY OTHER COMMENTS, INCLUDING EVIDENCE OR ARGUMENTS IN SUPPORT OR AGAINST.

The best practice was assessed against Climate smartness criteria by CCAFS, with the following results: “A key element of this project is that since its inception is designed to diversify production within the farm, use by-products for the generation of energy and reduction of greenhouse gas emissions, and implement several practices that allow the bamboo production process to be highly efficient in the use of water and fertilizers.

Its approach is definitely within the framework of CSA contributing to adaptation, mitigation and productivity pillars”.

Reference: <https://www.theclimakers.org/wp/wp-content/uploads/2019/12/The-Climakers-Stories-from-the-Field- Volume-1.pdf>