

Asia-Pacific Manifesto for a New Vision of Research and Innovation Systems to Support Forgotten Foods

Since many years in the past the Asia-Pacific countries have been growing and consuming a wide variety of food crops, which had high nutrition value. However, with change in food habits over the past years many have moved away from those traditional foods which have now become almost a forgotten food. Our agri-food system is now characterized by a limited number of (major) staple crops, like rice, maize, wheat, soybean and potatoes, which make up 60 % of the global food energy intake and unsustainable farming practices. Formal agricultural research systems often tend to neglect many local crops and foods, considering vast diversity of over 30,000 edible plant species of which 6,000 have been used as food with 700 cultivated throughout human history. These species have demonstrated multiple environmental, economic and social benefits, in particular to the fragile, marginalized and vulnerable local communities and ecosystems.

Currently, our agri-food system is off course if it is to sustainably nourish a growing population on a hotter planet while sustaining the Earth's capital of biodiversity and natural resources upon which it depends. Its outputs are increasingly delivering calorie-dense foods, responsible for a triple burden of malnutrition (obesity, undernourishment, food insecurity). Its governance is not multi-stakeholder driven. In a vicious circle, current food systems are responsible for 30% of Green House Gases emission, as well as significant land degradation, making the production of current major food crops depending on increasingly impoverished soils and even more vulnerable to climate change, while susceptible to growing pests and diseases. Risks of yield losses and environmental damage will increase and could result into severe economic impacts affecting especially the most vulnerable population.

Greater diversity associated with sustainable management practices is crucial in agricultural and food systems. This is important in order to feed the projected nine billion people in 2050 in tandem with protection of environment and enhanced livelihoods of farmers, ensuring healthy, safe and affordable food, as well as developing food system pathways for the future. For this sustainable scenario, we need to value and use traditional knowledge systems on time-honored agricultural systems, and crop species and varieties. Such approach will also contribute to the 'Right to Food' and the 'Right to Health' embedded in the Universal Declaration of Human Rights (Cordoba Declaration on Promising Crops for the XXI Century, 2012).

The Sustainable Development Goal 1 (SDG 1) stipulates the need to eradicate poverty in all its forms. This necessitates moving from a definition of poverty based only in economic terms (lack of income), to one that includes nutritional poverty (lack of healthy diverse diets and access to adequate food), biodiversity poverty (lack of genetic, crop and system

diversity) and cultural poverty (loss of knowledge of food heritage and traditional agricultural systems) – all of which are interconnected. This broader definition can transform interventions based on a single, linear impact pathway where farmers are seen as the 'beneficiaries' of new technologies and innovations to a more reciprocal impact pathways in which rural communities become protagonists and key actors. These actors can share their rich knowledge and traditions of foods and genetic resources, cultures and practices to support humanity in an uncertain future, making a circular pathway with explicit feedback loops between different knowledge systems.

In case of Forgotten Foods, access to seeds has been limited due to the poor performance of seed multiplication and distribution system, lack of consideration by the formal seed sector, and support by national programmes. Production and consumption of Forgotten foods have declined over the time also due to negative social perceptions, pervasive impact of agricultural and trade policies, lop-sided funding in favour of staple crops, lack of interest from research institutions, limited awareness of their value among consumers, and challenges in establishing markets and end-uses.

Yet, Forgotten Food Crops (FFC) have been used, conserved and improved by local communities for centuries if not millennia, and thus, making them part of their unique cultural heritage. FFC often have high nutritional content and complement the nutrients provided by mainstream crops, which typically have been bred and selected to produce high yields under optimal conditions without consideration of their nutritional values or suitability to cultivate in marginal areas. Many FFC grow on marginal soils that would be too poor to support cultivation of major crops, and require minimal or no pesticide and fertilizers. The use of FFC, to increase species and genetic diversity in farmers' fields, has been shown to help vulnerable groups particularly in rural areas, including women and indigenous people, to escape from poverty and social marginalization.

The valorisation of FFC requires collective actions at global, regional, national and local levels. For each of these actions, farming communities and indigenous peoples need to be recognized as custodians of knowledge, agents of change, and partners for innovative practices and products for sustainable transformation rather than mere beneficiaries. Alongside this, there has to be a conscious effort to promote women-led collectives and enterprises to grow and sell nutritious FFC and Forgotten Foods. This will lead to enhancing the agency of the women and empowering them in growing, selling and consuming these nutritious crops.

A shift from the current « yield-for-immediate-profit » paradigm of agriculture towards a triple bottom lined designed especially for food systems where the solution has to be good for farmer (build resilience and protect natural resources and livelihood), for consumers (nutritious) and for the planet (sustainable). This would lead to multifunction, diversified agri-food systems to achieve zero hunger and provide nutritious, healthy and sustainable

diets which **requires among others a transformation of agricultural innovation systems, valuing more local knowledge and ingenuity as well as genetic and species diversity.**

What would it take to invest in these diverse and resilient FFC to turn them into viable livelihood options? Rather than relying exclusively on major crops with already well established and supported value chains, FFC requires good economic competitiveness that is currently benefitting from direct support of their production and markets.

A targeted questionnaire on the knowledge and status of FFC and the farmers' practices was developed to conduct an online Farmer Perception Survey across Asia-Pacific involving 4,051 farmers and 31 regional and national organizations from 19 countries in Asia-Pacific region. Based on analyses of the survey data, more than 90% of the farmers expressed their willingness to cultivate FFC (traditional/indigenous crops) and have expectations in the form of support from national governments, research institutions, civil society organizations, development partners and consumers, as well as the public, which may improve sustainable production, processing and marketing of forgotten foods (Appendix 1- methodology adopted).

Subsequently, a farmer-centric Virtual Regional Consultation on Forgotten Foods in Asia-Pacific was organized involving 247 concerned stakeholders (Appendix 2 - list of participants) to build a consensus around a new vision of research and innovation systems needed for enhancing bio-cultural diversity, hence, empowering custodian farmers, particularly women and youth, in their practices to conserve, cultivate, use, save, exchange and sell FFC. The 247 participants represented 38 countries of the world and 160 institutions from across South Asia (146), South East Asia (50), East Asia (10), West Asia (9), Pacific (7), Central Asia (1) and beyond Asia (24). It is worth highlighting that the participating farmers were so motivated that they themselves came out with a Declaration (Appendix 3- Farmers' Declaration) in favour of FFC, which further strengthened the basis of the present Regional Manifesto. This also helped in highlighting many of the important areas of transformation of agri-systems that needs attention of the global community. The various constituencies to which such forward looking farmers belonged are given in Annexure – 1A.

Based on the above, a framework of GFAR Regional Manifesto was developed through collective actions of more than 4,000 farmers, 247 stakeholders belonging to 160 institutions of academia, National Agricultural Research and Extension Systems (NARES) and their research and development institutions, including international organizations, the private sector, non-governmental and civil society organizations in the region.

The pillars of a new vision of research and innovation systems to support Forgotten Food Crops based on the above-mentioned survey and webinar, as well as the existing opportunities for moving towards diversified agri-food systems include:

Research and Innovation Networks

- **Novel research networks with long-term committed research funding support,** generating and sharing knowledge on FFCs, using trans-disciplinary and participatory

approaches through integrating community, family farmer organizations, cooperatives and scientific knowledge to provide a credible evidence base around Forgotten Foods and to blend farmers' practices with new research technologies (*e.g.* molecular genetics, nutritional profiling, agronomic interventions, digital technologies and applications).

- **Innovation and translation of research**, conservation of traditional varieties involving farmers, especially women farmers, as they are the custodians of this knowledge, farmers organizations, cooperatives, and translation of research outputs (nutritional content) to stimulate demand from consumers, in turn, support the marketing of the Forgotten Food products.

Transformation of Agricultural Research System

- **Sustainable seed systems**, facilitating conservation, access, availability, use and exchange of high-quality seeds of traditional crops and varieties by farmers; developing seed systems suitable to forgotten food crops and strengthening their seed value chain; region-specific oriental improvement of seed system.
- **Supporting Gene Banks** to ensure good collections of species of Forgotten Food Crops and their wild relatives to make them available for research and innovation by the scientific and farmers' community.
- **Efforts in participatory plant breeding** with family farmers to improve the adaptation of FFC and Forgotten Foods to social, economic and ecological conditions; as well as nutritional value by incorporating farmers' knowledge of local circumstances and improving their contribution to food security; these efforts should also aim at reducing the level of anti-nutrients in the various FFC and Forgotten Food.
- **Research Governance** implies research institutions to include representatives of farmer communities and organizations in the governance structures of research and innovation, as well as equal participation of smallholder farmers and their organizations in research agenda design, implementation, monitoring and evaluation.

Drivers of Change

- **Effective awareness raising and consumer marketing along the rural-urban continuum**, to ensure that the values of FFC are recognized by all in society including researchers and technical agents, farmer champions, farmer organizations, CSOs, celebrity endorsements, as well as urban communities and consumers, for their nutritional, cultural and environmental benefits using various media road shows, linking to various nutritional programmes *e.g.*, public distribution system, anganwadi services for children, pregnant women and lactating/young mothers (especially in India), and mid-day meal schemes/school feeding programmes.
- **Innovative investment and empowerment** of smallholder farmers and farmer organizations to govern, manage and sustain their enterprises and services to their

members through decentralization, establishment of community-based enterprises around Forgotten Food and through partnerships with other food systems actors; as well as grants for seed conservation in community seed banks and seed banks at sub-regional levels, capital/loans for production, processing and marketing.

- **Better access to markets with** support of short supply chains and alternative retail structures, stimulation of demand for Forgotten Foods in a broader context of promoting green and circular economy as a livelihood opportunity for local stakeholders; regulation of markets, trade and particularly prices to enable the local communities to buy Forgotten Food at affordable prices; build the ecosystem of value chains by involving biodiversity groups, small holder farmers and by using local germplasm and traditional varieties; branding of Forgotten Foods to enhance marketability.
- **More advocacy and evidence-based policy changes**, including incentives for Forgotten Foods cultivation and conservation and policies that can help family farms to innovate within a system that recognizes their diversity and the complexity of challenges they face. This involves policies to include FFC and Forgotten Foods in national nutrition missions of the governments.

Capacity Building and Education to Support Change

- **Developing functional capacities** of various stakeholders including smallholder farmers and producer agencies' capacities for enhancing their capacity to innovate and engaging young farmers for FFC
- **Targeted capacity development** to conduct research on FFC, with *ab initio* involvement of farmers in developing the research agenda to ensure a truly demand-driven approach and an authentic engagement into co-innovation processes through multi-stakeholder platforms that foster co-learning between practitioners and researchers and establishing community-based enterprises; creating critical mass of 'file breeders' for future and sustainable participatory breeding; development of new curriculum (primary and secondary education) and short courses at university level.
- **Reforming education programmes through integration of systems' analysis**, functional capacities (including engaging in collaborative activities, mobilizing new partners to create institutional consortia, and influencing the policy environment) blended with technical capacities to equip extension and research agents with skill sets to foster innovations around Forgotten Foods.

Knowledge Platform

- **Better data, evidences, new metrics and indicators** to show the value of FFC and Forgotten Foods in terms of nutrition, resilience to climate change, cultural richness and sustainable livelihoods, including women's agencies to reduce inequalities;

hosting cultural events and festive celebrations with focus on Forgotten Foods and hand-holding of forgotten food champion farmers as 'Research facilitators'.

- **Open Access Multi-lingual Digital Regional Knowledge Portal**, to collect, collate and disseminate authentic information on all important aspects of Forgotten Foods including species/crop identity, natural occurrence, information on access and conservation status, current status of cultivation; value chain, profitability, seed systems status; package of practices; supply chain; markets and trade; food, nutrition, health and ecosystem services in a retrievable format.

Approaches critical to support the transformation process

- **Focus on agroecological approaches that** offer vulnerable and marginalized smallholder farmers a development pathway that builds on their existing knowledge and on the principles of climate and food systems resilience through farmer-driven approaches.
- **Respect of rights of farmers** implemented locally by allowing farmers to use, save, exchange and sell their FFC and Forgotten Food and protect their traditional knowledge and participate in benefit sharing.
- **Co-design and co-create solutions with** women for enhanced production and for creating women-friendly innovations for production, cooking, processing and marketing.
- **Integration of gender transformative approaches** for equity, to transform power dynamics and structures that reinforce social, cultural and all forms of inequality in the cultivation of these crops and foods, which play an important role in shifting consumption patterns and changes in dietary behaviours for better nutritional outcomes.