



QUNO

Quaker United Nations Office

Small-Scale Farmer Innovation systems

Report on the First Expert Consultation
26-27 May 2015 Chateau de Bossey, Switzerland

Introduction

On May 26-27, 2015, QUNO convened a small expert consultation in Geneva to discuss the emergent concept of small-scale farmer (SSF) innovation systems. The consultation brought together 19 participants from all over the world with experience in SSF innovation on the ground. Participants contributed to the consultation in their personal capacity in agreement that their comments and opinions would not be attributed to individuals, in accordance with 'Chatham House Rules'.¹

After working for many years to preserve policy space for SSF innovation in multilateral intellectual property (IP) instruments, QUNO made the strategic decision to take step back from IP. The work is now being approached by seeking a better understanding of SSF innovation and what form the components of an enabling environment might take, and asking how this relates to more formal systems that purport to provide incentives for innovation, including the role of intellectual property rights (IPR). QUNO convened its first consultation to share and compare experience from around the world on SSF innovation, generate ideas, stimulate and reinvigorate alliances among groups.

The participants were presented with a preliminary literature review and asked to add their knowledge and experience to supplement anything that was missing. In addition, QUNO presented the working hypotheses that underpin our work and approach for comment and refinement.

This report summarizes the five main topic areas addressed during the two days of rich discussion, following a sequence that broadly reflects the flow of conversation:

1. SSF innovation in practice: what does it look like, who is involved, and the dual nature of private gain and public goods that may be generated through SSF innovation.
2. Drivers of SSF innovation, how these drivers may differ from those of 'formal' sector agricultural innovation systems and what that means for creating an enabling environment for the former and partnerships between the two;

¹ see <http://www.chathamhouse.org/about/chatham-house-rule#sthash.22PyRZqh.dpuf>

3. Building bridges and facilitating equal relationships among various actors engaged in agricultural innovation;
4. How conventional policies put in place to foster innovation in agriculture may impede SSF innovation, and what alternative policies may contribute to a more supportive, enabling environment for SSF; and
5. Opportunities for shifting the discourse within international fora to include SSFs' innovative capacity and recognize its value to the international community, including any critical points of leverage.

The consultation agenda is included in Annex I.

Additional crosscutting themes that came up throughout the two days included:

- The importance of farmers' informed participation in policy processes;
- The need to communicate strategically with bodies engaged in overlapping areas of interest, given the multi-faceted and often intangible value of SSF innovation;
- The tension between the push to scale-up innovation to achieve broader impact or spillover effects from investment and the highly-localized nature of SSF innovation;
- The general orientation of institutions and organizations engaged in agricultural development towards innovation that is quantifiable;
- The 'projectization' of research and development investment;
- The increased involvement of the private sector in agricultural research and the diminishment of the public sector both in terms of resources and its embrace of market-based solutions; and
- The need to reposition the public sector to better reflect the public interest including food security, poverty eradication and the support of SSFs as innovators providing direct and indirect benefits locally and globally.

The final section of this report documents research gaps identified throughout the consultation and QUNO's next steps.

1. SSF innovation in practice

a) Who innovates?

The meeting recognized that SSFs live close to the land and have an important role in understanding ecosystem complexity. Women play particularly important roles in on-farm experimentation, conservation and with nutrition. Indigenous and local communities' dynamic knowledge systems are particularly valuable for facilitating innovation. While not all farmers may be innovators within their communities, many have the capacity and potential to become innovators with confidence building nurturance and space for their voices to be heard. It was noted that many SSFs will rapidly integrate innovation from colleagues and fellow farmers into their own agricultural practices.

b) 'Formal' and 'informal' innovation systems

Participants debated the value of viewing SSF innovation systems as distinct from more 'formal' agricultural innovation systems.² A consensus was reached that there is less a strict dichotomy than a continuum between 'informal' and 'formal' innovation systems, but that there is still value in focusing attention on the less formalized end of the spectrum, as alternative conceptions of innovation need to be represented in policy discussions on innovation in agriculture. Importantly, focusing on SSF innovation does not exclude collaborative research efforts. Participants emphasized the synergistic relationship between 'formal' and 'informal' innovation systems and the importance of institutionalizing SSF innovation within the public sector in particular. 'Collective innovation' between public sector scientists and SSF innovators involves the cross-fertilization of knowledge, synthesis and validation of research results.

Participants agreed that, while acknowledging the dangers of oversimplification, more 'formalized' institutions and organizations engaged in agricultural innovation,

² 'Formal' innovation systems are comprised of national agricultural research institutes, private companies and other institutions and organizations with the mandate of improving agriculture through the advancement of science and development of technology. These actors are generally orientated towards scale and efficiency, have greater access to resources and a more dominant presence within policy fora regarding innovation in agriculture.

including both public sector and private industry research and development efforts, tend to be more market-orientated and commodity-based. Outputs of innovation processes are generally protected using IPR, with their value framed in terms of economic benefits: either to individual farmers (in the case of the public sector), or to the corporation (in the case of private industry). This perspective discounts outputs that are more intangible and difficult to quantify but benefit communities and societies at large.

c) How innovation is defined

SSFs continually innovate by experimenting on-farm and adapting to changing conditions. The meeting discussed the many different forms this can take. It may involve technical and/or institutional change and extends well beyond the enhancement of genetic diversity, encompassing farm income diversification strategies, new management practices, as well as new ways of organizing and sharing information.

One example of institutional innovation was cited where farmers actively involved in on-farm conservation are pushing to become a legal entity so that they may be eligible to share in the benefits arising from the use of plant genetic resources housed in the International Treaty's Multilateral System. An example of technical innovation was cited where women farmers, in developing novel food processing and preservation techniques, are contributing to local food security and nutrition.

Innovation as a *process* happens through networks. It is informal, social and cumulative in nature as individuals and communities build off one another and strategically adapt new tools and techniques to suit their particular circumstances.

The group agreed that the definition of innovation is significantly broader than what is conventionally considered, i.e. the development of particular technologies that can be scaled-up and widely disseminated to farmers. Outcomes are often not as easy to quantify or commoditize as they are with newly developed varieties.

Many participants emphasized that it is important to consider the power dynamics at play in defining what is considered innovation, and upon what criteria decisions are made to support certain kinds of innovation. Innovation where it is easier to capture economic benefit, for example where it contributes to market growth, is more often supported than innovation where economic value is harder to assign, such as in the case of a mixture of landraces beneficial over generations, or a

variety or species with no known monetary value. It is the latter where the public sector becomes critical, because it is in the public interest to support this kind of innovation and there is unlikely to be a market-based incentive for private investment. SSF innovation also often builds upon and reinforces cultural and spiritual values associated with the land, which are also not reflected in market values.

d) Public goods value of innovation

Farmers themselves are not only private actors supporting local food security and rural livelihoods but also key players in the provision of public goods in the areas of health, nutrition and agroecosystem resilience.

A few participants highlighted that SSFs' innovations do not necessarily, or in all cases, lead to improvements in local food security conditions or ensure environmentally sustainable outcomes. An example was cited of farmers combining four to five types of pesticides in a novel approach to increase the range of crops' resistances that negatively affected soil and water quality in the area. The criteria that SSFs use for deciding what is considered good innovation may be expanded through interaction with other knowledge systems. Supporting SSF innovation should be understood as one important avenue for pursuing positive social, economic and ecological outcomes, but insufficient by itself. Additional measures need to be in place to incentivize farmers' contributions to providing public goods and actions taken that serve the public interest.

e) Scalability of SSF innovation

Participants debated whether and how SSF innovation can be scaled-up and out to other farming communities. It was recognized that 'technology packages', or combinations of specific outputs from either SSF or more formalized innovation processes, generally have a short half-life and may not be appropriate outside of the locality in which they were developed. On the other hand, new and better ways of doing things developed in one area may in some cases benefit others in similar climates or socio-political contexts.

It is ambiguous whether policies geared towards scaling-up or exporting SSF innovations benefit both the SSF innovators themselves and SSFs in other areas.

Site and region specificities were mentioned as a challenge in themselves in terms of scaling up local innovations. While a lack of consensus was reached on this point, it was highlighted that *principles* rather than *practices* can be exported widely without the risk of disseminating innovation that does not suit the specific needs and contexts of other communities. Borrowing principles from the fields of agroecology and natural resource management most relevant to SSF innovation will be useful to further inform this discussion.

f) Context: the shrinking and focus-shifting public sector

The shrinking public sector was brought up repeatedly throughout the consultation, and was flagged as a core issue at the outset. The public sector was identified as part of a strategy for increasing recognition of farmer knowledge, expertise and capacity and further fostering that capacity. However, the public sector is itself under pressure to take on a role more traditionally associated with that of the private sector – generating revenue for operating funds, reducing risk for private sector investment, promoting commercialization and market-driven investment in research and extension services. The shrinking public sector and influx of public-private partnerships and ‘philanthro-capitalists’ has led to a shift in focus away from the public interest and those most in need to market-based solutions for those with the ability to pay.

Correlated with this shrinkage is the ‘projectization’ of public investment in agricultural development, wherein short-term funding is allocated to specific projects and small islands of success are achieved, rather than institutionalized and sustained support for farmer-led research. This has also had a chilling effect on more basic, upstream agricultural research. Donor-driven projects, whether public sector or philanthropic, tend to have a short timeline and need to demonstrate quantifiable impacts very quickly. Donor recipients must prioritize the development-specific outputs that can be scaled-up and out (‘spillover effects’) rather than processes for building capacity to innovate. Participants discussed how this is generally not conducive to supporting SSF innovation, which is understood to include conservation and development of agrobiodiversity and local knowledge systems over the long-term, and requires social capital and capacities that take time to foster.

A vibrant public sector (to match the now robust private sector engagement and investment) has an important role to play in supporting SSF innovation.

2. Drivers and motivations to innovate

Participants discussed the reasons why SSFs innovate, highlighting that drivers are context-specific and can affect individuals and communities differently. Farmers are both proactive and reactive, responding to both negative pressures and positive opportunities. A few participants highlighted farmers' curiosity and propensity for experimentation, something frequently underestimated due to the assumption that farmers only make changes in response to external pressures. SSFs generally innovate in order to address needs at the individual and community level, rather than for the explicit purpose of scaling-up innovations to higher levels.

Participants identified five main motivations for farmers to innovate: (1) environmental pressures and climate change, (2) the need for livelihood improvement and food security at the household and community levels, (3) new market opportunities, (4) cultural and spiritual values ascribed to sustainable use and management of the land, and (5) personal attributes such as pride and curiosity, social recognition and the desire to avoid relationships of dependency. The first two motivations are push factors (for survival), the third is a pull factor (for opportunity) and the last two are neither, which raises interesting questions regarding how on-farm innovation may be *nurtured* as opposed to *incentivized*.

There may be significant overlap between what drives farmers, public sector researchers and scientists and private industry stakeholders to innovate. Nevertheless, consensus was reached that SSFs have a uniquely broad set of motivations for pursuing new ways of doing things on-farm.

Private industry actors are driven to innovate by access to new markets, consumer demand, new technologies and IPR (pull factors). Public sector actors may have broader social and ecological goals driving innovation such as poverty alleviation and ecosystem resilience (push factors), although public investment in agricultural innovation has been in decline over the past several decades. There is a risk that the interests of industry stakeholders dominate and 'capture' development goals within the context of public-private partnerships. 'Philanthro-capitalists' may be driven by altruistic motives but also tend to be market and output orientated, focused on achieving quantifiable impact.

The drivers of innovation naturally influence the outcomes of innovation processes. Participants underscored how differences in motivations between those of farmers and ‘formal’ sector actors (including actors from the public sector, private industry and public-private partnerships) present challenges for bridging innovation systems.

3. Building bridges and fostering genuine collaboration

Participants discussed how bridges can be built between farmers and public and private institutions and organizations. The conversation centered on how formal and informal innovation systems may be bridged while recognizing a power imbalance between them.

a) What hinders bridge building?

The biggest hindrance is that innovation discourse within both international institutions and national innovation strategies does not adequately recognize the innovative capacity of SSFs. The predominant logic is that agricultural innovation happens off-farm and in the hands of ‘professional’ breeders and scientists. SSFs’ capacities to innovate are often underestimated. The focus of innovation strategies remains on raising farmers’ capacities to receive and implement new technologies, rather than fostering the capacity to innovate on their own behalf to overcome specific local challenges. Collaborative efforts between innovation systems have typically involved bringing farmers’ innovations into a more formalized innovation system for the ends of scaling up commercially viable ‘successes’.

At the same time, ‘professional’ breeders and scientists often lack the capacity to work directly with farmers and co-create knowledge in equal partnership. It was highlighted during the consultation that those who are considered *experts* often have a harder time making paradigm shifts than farmers or others who work directly with farmers. The consequence is that even when farmers are included in innovation platforms convened by ‘formalized’ institutions and organizations, their

knowledge and innovative capacity is undervalued and unequal power dynamics are perpetuated. Innovation policy does not generally recognize SSF innovation, and by extension, does not take the broader range of drivers and motivations influencing SSF innovation into account.

The top down approach also leads to a lack of information on the SSF side, which can hamper meaningful SSF participation. The meeting discussed how SSFs frequently lack access to information about the various initiatives to improve agricultural production in their country. Information on seed and fertilizer may be available through projects funded by donors, but SSFs are not offered a range of choices or even information about the possible negative effects of the choice being presented.

Another challenge is that the outcomes of on-farm experimentation are often more difficult to quantify and assign economic value to, which is a cornerstone of conventional agricultural development efforts. Some of the benefits of SSF innovation are intangible, such as contributions to cultural heritage, while others may not have a commercial value today but are important for the future, such as genetic diversity. SSF innovations often do not meet the conditions for IP protection: SSF innovation is often a collective rather than an individual effort and assigning individual property rights may be incompatible with local customary laws. Different worldviews concerning the value of land and natural resources must be bridged.

As an illustrative example, in the case of plant variety protection, a variety must be distinct, uniform and stable to qualify for protection. Even if a farmer's variety could meet the criteria, the value would be assigned to the particular variety rather than the full breadth of diversity from which it was developed. The value in farmers' varieties, which are often mixtures, is their diversity and their adaptability over time rather than their uniformity and stability – qualities less easily quantified and commercialized. It was noted that some IP tools such as collective marks or geographical indications might be better suited to serve collective interests of SSFs.

b) Fostering genuine collaboration and 'co-production' of knowledge

The consensus was that scientists and researchers need to actively support farmer-led research and experimentation, strengthening informal systems rather

than formalizing them. Farmers and researchers need to be kept on an equal footing when integrating knowledge systems.

New institutional frameworks that facilitate power sharing and trust building are essential. Capacity must be built among scientists and researchers from the 'formal' sector to work within a more collaborative research framework towards the genuine co-production of knowledge. They must be open to new epistemologies outside of their training and be prepared for genuine interaction and exchange.

Governance of, or control over, collaborations or innovation platforms must be at least equally in the hands of SSFs. The meeting agreed that prerequisites for this include SSFs' capacity for self-organization, capacity to resolve tensions within both partnerships and their own communities, confidence, and awareness of the interests and relative positions of other actors. Mutual respect, trust, communication and recognition of others' perspectives, worldviews and values were identified as tenets of equal partnerships. In particular, a lack of trust on the part of farmer-innovators towards other individuals and organizations hinders collaboration. To this end, the imperative that academic researchers receive innovators' consent to publish information on novel products and practices was emphasized.

Intermediaries are needed to facilitate bridge building and the co-production of knowledge. Such a measure can help to ensure that collaborations are equitable and translate knowledge and ideas among parties. It was suggested by one participant that 50% of attention and resources in research and development initiatives needs to be dedicated to communication and translation of research processes and results, both literally (different languages) and figuratively (adapted to different contexts). The remaining 50% should be dedicated to the research and development effort itself. This emphasis on communication was echoed throughout the consultation.

A revitalization of public sector research is also needed to bridge innovation systems. Public sector researchers working in participatory plant breeding already recognize the value of local knowledge systems. It was highlighted by several participants that public sector agricultural research undertaken by international agricultural research centres (CGIAR centres) and national agricultural research systems (NARS), if substantially reassessed and restructured, could be complementary to SSF innovation.

Participants emphasized the need for SSFs to be engaged and have their voices heard within local, national, international and institutional policy making processes. The meeting noted that donor-led interventions (e.g. the G8 Alliance for Food Security and Nutrition and the Alliance for a Green Revolution in Africa (AGRA)) encouraging the adoption of hybrid-seed, fertilizers, credit provision and the commercialization of agricultural production in general are happening without the consultation of the supposed beneficiaries: small-scale farmers themselves.

4. Agricultural innovation policy and SSF innovation

a) Where innovation policy meets SSF innovation

The question of scale arose in relation to how policies affect SSF innovation. Some participants suggested that SSFs' experimentation and innovation, which meets immediate local needs and is not scaled-up and out to other communities, does not often come into direct contact with national and international level policies pertaining to IP, market access or other incentives for encouraging investment in agricultural research and development. That is, farmers' activities at the smallest scale often continue both unimpeded and unsupported by existing policies for fostering innovation in agriculture. On the other hand, farmers' innovations that get scaled-up are more likely to face challenges relating to the uniformity demanded by international markets and transaction costs associated with meeting industry standards.

However, it was recognized that any national policies that put negative pressure on informal seed systems, agrobiodiversity at all levels, diverse farm management practices or local knowledge systems may impede SSF innovation, irrespective of scale. The unintended consequences and trade-offs arising from policies focused on encouraging agricultural innovation (as conventionally defined) have not been the focus of policy debates. The meeting agreed that there is a need for greater understanding and awareness of these consequences and trade-offs.

National policies formulated in accordance with multilateral treaties or other institutional obligations are rarely crafted in consultation with farming communities, and these may in some cases negatively affect farmers' freedom and capacity to innovate both now and in the future. There are multiple stakeholders involved, often with contrasting interests.

Participants also emphasized the importance of grassroots movements in protecting the interests of farmers, and of public research institutions in supporting farmers' movements. SSFs must have the space to participate in policy making through consultation, as well as the capacity to mobilize through social movements and political action to create new space. Farmers' mobilization and active participation in policy discussions at all levels is essential.

b) Policies that may impede SSF innovation

It was agreed that farmers' lack of land tenure and/or other territorial rights (or lack of clarity on these rights) can greatly affect their ability to respond to both challenges and opportunities.

National seed policies and other regulations that require standardization and certification of seed varieties or other products may impede SSF innovation. National registries require plant varieties to be homogenous, which farmers' varieties are not. Labeling requirements may in some cases restrict the distribution of new products by placing too much of a burden on farmers in the form of transaction costs. Participants gave examples of how certification and procedural costs have constrained innovation pathways. One example was cited of a farmer innovator who missed an opportunity to launch her soap business because of the long timeframe required for certification.

The relationship between intellectual property rights (IPR) and SSF innovation is far from straightforward. It was suggested that national plant variety protection (PVP) legislation developed in accordance with UPOV (the primary multilateral institution for establishing a PVP system) does not presently appear to affect poor and marginalized SSFs' breeding efforts. Participants did however discuss how UPOV might be impeding SSF innovation indirectly. UPOV is focused on a particular model of agricultural innovation – one where scientists breed new varieties and farmers adopt them – ignoring the dynamics of farmer seed networks and on-farm breeding. Farmers conduct extensive on-farm field trials and often integrate 'modern' varieties of seed into their diverse mixtures. One participant

explained that while on-farm breeding and seed exchange may not be impeded directly through the application of PVP to 'formal' sector breeding outputs, this model locks-in and reinforces the particular view that plant breeding is done by professional breeders for the benefit of farmers as passive recipients. This paradigm is then reflected in other policies and research priorities, such as the availability of funding for ex-situ conservation and 'formal' sector research efforts compared with on-farm conservation and farmer-led research. The G8 Alliance also requires a country to adopt UPOV 1991 to be a recipient of funds under the Alliance, thus complicating national multi-stakeholder dialogue on whether or not this is an appropriate legal instrument for the country or if any modification (e.g. exempting certain areas, crops or populations) is desirable.

International trade agreements that push for strengthened national patent systems in addition to the implementation of UPOV 1991 may restrict farmers' seed saving and on-farm breeding. It was suggested that patents might have a more direct negative impact on SSF innovation and exacerbate existing power imbalances between SSF breeders and 'formal' sector breeders.

Participants also discussed the effect of increased market access on SSF innovation. New market opportunities may drive one type of innovation – the development of new commercial products – but do not encourage or support innovation that provides both private gain for the SSF and global public benefit for which they receive no remuneration. On the contrary, farmers are encouraged to participate in export-oriented or cash crop economies in lieu of more diversified farming systems hosting both inter- and intraspecific diversity. This is not the optimum outcome from a global food security perspective. Both agrobiodiversity and diversified farming systems are of vital importance to global food security, yet this value is not reflected in market prices. Innovative SSFs are essentially subsidizing global welfare without incentives or external support.

Participants highlighted that historically, farmers have benefited in the short-term from export-driven policies, such as subsidies for particular crops, until markets become saturated and crash. Farmers have incentives to alter production practices to suit national priorities, and it becomes difficult to diversify production once incentives are in place. Monocultural production practices are vulnerable to price volatility and environmental stresses such as the influx of new pests and diseases. The loss of agrobiodiversity at all levels, along with the erosion of associated local knowledge systems and farming practices, impedes future agricultural innovation both on and off the farm. This diversity can never be recovered.

Lastly, policies that are developed without whole systems in mind pose challenges to SSF innovation. One participant highlighted a case where an effort to subsidize organic fertilizers for the benefit of SSFs incited a mass importation of organic fertilizers from outside the country, which then had a negative impact on prices for supplying farmers. Policies need to be developed not only in consultation with SSFs but with stakeholders from different sectors, and with an appreciation of the interconnectedness of agriculture, environment, health and economic policy spheres.

c) Policies that support SSF innovation

Participants discussed key elements of an enabling environment and types of policies most supportive of SSF innovation. An enabling environment for SSF innovation requires: farmers' active participation in the development of policies at all levels, recognition of farmers' land and resource rights and the institutionalization of farmer-led research within agricultural research and development organizations. Characteristics of supportive policies in general are those that:

- Encourage the active maintenance and development of local crop varieties;
- Recognize the value of local knowledge systems and capacity of farmers to experiment and innovate to adapt to changing conditions;
- Help farmers organize; and
- Provide the technical support and space for farmers' participation in agricultural research endeavors.

Legal recognition of farmers' land and resource rights was flagged as a prerequisite for SSF innovation. Only when rights are recognized and enforced may farmers enter into truly equitable partnerships with formal sector institutions and organizations. It was highlighted by one participant that recognition as a legal entity is also necessary for sharing in the benefits arising from the use of genetic diversity and local knowledge. Another participant highlighted that local protocols and regional laws recognizing farmers' rights can be useful in gaining their acknowledgement at higher levels. Yet another highlighted how the court system in Mexico is recognizing indigenous communities' rights to receive prior informed consent for access to genetic resources. Using a rights-based approach to support

SSF innovation may be a powerful tool for national governments implementing other policies conducive to SSF innovation.

Many participants emphasized the importance of funding farmer-led research initiatives. Farmer-led research supports on-farm experimentation, promotes agrobiodiversity conservation, development and management and social justice and is a major driver of SSF innovation. Providing space and a mechanism for direct access to funding ensures that local people can decide on their own research priorities and set their own agenda. Outside actors may support the establishment of a farmer committee with a funding mechanism, capitalized by different funding sources including national governments and donor organizations interested in supporting SSFs in diverse agroecosystems with different compositions of genetic diversity, species diversity and management practices. This type of support will reinforce existing innovation networks and draw out those who require initial support to participate. There was wide agreement that resources need to be put towards building capacity to innovate and strengthening knowledge systems rather than capturing innovations and knowledge.

Alternative types of IPR regimes may support SSF innovation. Registries for farmers' varieties are in place in India, Thailand and the Philippines that recognize farmers as breeders, unlike UPOV. In India, the registration of farmers' varieties has spurred on-farm conservation initiatives but generally the group was not aware of any in-depth analysis of impact. Alternative seed certification schemes and registries that do not force standardization and uniformity upon informal seed systems may be more supportive of SSF innovation, validate farmers' experimentation and breeding, and help protect against misappropriation of resources and knowledge.

The establishment of agrobiodiversity conservation areas or protected landscapes supports SSF innovation. The designation of special areas may increase recognition of the public good aspect of the resources and environmental and public health services that SSFs provide, and encourage the active and dynamic maintenance of the inputs to innovation processes in the future. Formally recognized areas also increase opportunities for coordination among SSFs and create a space for the creation of tools for benefit sharing, the use of collective trademarks and the establishment of micro-enterprises and ecotourism ventures that generate income. The Potato Park was recognized as one such success, but there need to be more of these.

The formal recognition and celebration of cultural heritage may be another way to support SSF innovation. Support for local food movements, culinary traditions and the establishment of UNESCO intangible heritage sites for local crop diversity link agrobiodiversity conservation with nutrition and culture and have great potential to raise public awareness of the value of SSF innovation, helping to shift the discourse within international fora.

Supporting innovation fairs and awards were recognized as an important strategy for increasing public recognition of SSF innovation. Policy makers are invited to see the kind of innovation being developed on-farm and farmers can share innovations amongst themselves. Fairs have helped to raise awareness that farmers are highly capable of breaking new ground and farmers receive valuable social recognition for their expertise. Awards offer opportunities to commercialize successes and scale them up and out, although it was noted that such awards recognize only certain types of SSF innovation (often in line with government priorities) and give only individual recognition.

Supportive policy measures may include others that incentivize the production of farmers' varieties such as direct subsidies or tax exemptions for production, public procurement of local varieties, or anti-competition laws constraining the market power of larger firms. These alternatives were not discussed in-depth, but are consistent with the broader conversation on creating an enabling environment for SSF innovation – focused on raising recognition of the value of agrobiodiversity and the diversity of small-scale farming systems themselves.

5. Opportunities for mainstreaming SSF innovation

The final topic discussed was how to strategically integrate the concept of SSF innovation into national level policies and into the policy discourse within international fora.

Mainstreaming the concept of SSF innovation into the discussions and decisions of international fora working on innovation policy, intellectual property, trade, food

security and nutrition will require finding strategic points of entry. Participants identified international bodies, conventions and protocols most relevant to SSF innovation (see Annex II). Participants are currently engaged in a wide range of international policy fora, highlighting the benefit of creating a common understanding of SSF innovation systems with which to carry forward into these negotiations.

The connections between SSF innovation and traditional knowledge, food security, nutrition, cultural heritage and climate change adaptation need to be made more explicit in policy discussions. The complementarity between the concept of SSF innovation and the International Treaty on Plant Genetic Resources for Food and Agriculture (the International Treaty) and the Convention on Biological Diversity (CBD) were discussed at length. In particular, there is significant overlap between the concepts of SSF innovation and Farmers' Rights (Article 9 of the International Treaty), and mainstreaming the concept of SSF innovation may aid attempts to domesticate the Treaty. In addition to this, the implementation of the Nagoya Protocol was recognized as an opportunity for national governments to incorporate SSF innovation into their national innovation policies, whilst the WIPO Development Agenda may also represent an under-utilized avenue for mainstreaming the concept of SSF innovation.

Choice of language is important. The term 'innovation' was recognized as a buzzword garnering significant international attention, which could be used strategically to raise awareness of, legitimize and valorize the work of SSFs on-farm. However, participants suggested that the language used to discuss SSF innovation systems should not be radically divorced from existing language used by the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC), the provisions of the CBD on customary use of and traditional practices associated with biodiversity (Article 10.c) and the International Treaty provisions on Farmers' Rights (Article 9). The IGC influenced the language used in the Nagoya Protocol to the CBD, which may represent a critical entry point for this work because it is a timely moment for the concept of SSF innovation systems to be included in national governments' implementation of the Protocol.

It was recognized that Geneva-based organizations governing trade (WTO, which also administers the TRIPS Agreement) and intellectual property (WIPO), as well as the UPOV Convention, hold more weight than the International Treaty and the CBD and Nagoya Protocol. Provisions for protecting Farmers' Rights, Traditional Knowledge and Access and Benefit Sharing have relatively weak enforcement

compared with the TRIPS Agreement and the Agreement on Agriculture (AoA), for example. International agreements without compliance mechanisms have less leverage to encourage their implementation into national law. It will be critical to find entry points to mainstream SSF innovation in the discussions on innovation in agriculture taking place at the WTO and WIPO. With growing membership and its common link to aid, UPOV is also a Geneva-based organization to be monitored.

There is also a need to influence the discourse used within national innovation committees. It was highlighted that in the absence of alternative visions of innovation in agriculture, the OECD and World Bank exercise disproportionate influence over national innovation policy. The language used by these institutions reflects their understanding of agricultural innovation as a system (i.e. beyond a conventional technology transfer perspective.) They promote innovation platforms that bring together cross-sector multi-stakeholder groups to develop innovation strategies. They do not, however, address the unequal power dynamics within groups and the innovative capacity of SSFs is not recognized. How broadly innovation is defined and the type of innovation that gets promoted needs to be questioned.

Moving forward

During the last session of the consultation participants made commitments relating to how their work will integrate SSF innovation systems and contribute towards the mainstreaming of the concept within the institutions with which they are engaged, and made concrete suggestions for QUNO's work programme moving forward. QUNO will be producing a concept note on the work it would like to do in partnership with those engaged in supporting SSF innovation systems, as well as the work QUNO is well positioned to undertake with respect to a) mainstreaming the concept within international fora and b) undertaking further research.

This section documents research gaps identified throughout the consultation.

a) Explore linkages in greater depth

The linkages between SSF innovation, food security and nutrition need to be explored in greater depth. It remains unclear what types of SSF innovation, and under what circumstances, lead to improved food security and nutrition. Relationships may not be linear and are likely to be highly context specific. For example, many farmers in regions where agrobiodiversity is concentrated are food insecure and malnourished, while the active and dynamic maintenance of agrobiodiversity is understood to be an important element in SSF innovation systems. Innovations may in other cases yield commercial gain while having negative environmental consequences that ultimately affect food security down the line.

There is a need for a greater understanding of the public goods value of SSF innovation. SSF innovation can yield environmentally and socially sustainable outcomes and public health benefits but under what circumstances this occurs and in what kind of enabling environment is not clear. Participants supported the hypothesis that SSF innovation contributes to agroecosystem resilience, food security, nutrition and rural livelihood improvement, but more evidence is needed to understand when and why this is true, as well as the types of public sector institutions and policies that are needed for support.

The effects policies for encouraging innovation in agriculture have on SSF innovation systems need to be studied in greater depth. Participants highlighted gaps in knowledge pertaining to the effects of free trade agreements that include traditional knowledge in their provisions, and the effects of UPOV '91 on farmers' on-farm breeding and seed exchange. It remains unclear how, and to what extent, national and international policies affect innovation at the smallest scale. Much SSF innovation proceeds seemingly unaffected by both international agreements and national legislation and policies related to innovation. The impact on SSF innovation of instruments such as trade rules and the policies and approaches of development banks, the CGIAR, the OECD and philanthropic organizations systems needs to be better understood. More evidence from case studies is required to understand these relationships.

Concrete suggestions for further exploring linkages included writing short policy briefs on the relationships SSF innovation has with food security and nutrition, agrobiodiversity and agroecosystem resilience; and conducting a study (and policy brief in conjunction) on the effect of IP on SSF innovation systems.

b) Map international architecture

Strategic entry points for mainstreaming SSF innovation systems into international fora and national innovation strategies need to be identified. These include provisions and processes relating to traditional knowledge, Farmers' Rights, cultural heritage, genetic resources and access and benefit sharing, health and nutrition, and food security.

Concrete suggestions included identifying the various ways in which international bodies, instruments and institutions define 'innovation'; identifying key leverage points for mainstreaming the concept of SSF innovation within international fora; and writing one-page briefs on SSF innovation tailored to specific audiences, highlighting linkages and areas of overlap.

c) Establish ongoing discussions

The crosscutting themes that resurfaced throughout the consultation deserve further attention. These directly relate to and affect SSF innovation but are a part of broader conversations that would benefit from engagement with a wider audience. One example is the shrinking public sector in agricultural research and development. Another is the relative weight of agreements governing agricultural trade and intellectual property rights vis-à-vis those concerning food security and nutrition, Farmers' Rights and biodiversity conservation.

QUNO is interested in facilitating ongoing discussions on key themes and factors influencing the establishment of enabling environments for SSF innovations systems.

d) Further research

Key guiding principles for building bridges between 'informal' and 'formal' knowledge systems, such as equity, respect and communication, may be borrowed from the fields of natural resource management and agroecology. Principles will be useful for informing policy makers on how SSF innovation systems can be supported by formal sector institutions and organizations while shifting the focus away from particular practices or technologies developed *for* or *with* SSF. This will help further the discussion on what is appropriately scaled-up

and out, and help to mainstream SSF innovation within innovation policy discussions. One suggestion was to publish a conceptual piece on the differences between innovation *for*, *with* and *by* SSFs and what it means to be a SSF innovator in different contexts.

It may also be useful to develop a set of criteria with which to assess the impacts of various policy measures on SSF innovation systems. Assessing whether policies support or inadvertently impede SSF innovation based on such criteria as farmers' freedom to experiment, cultural heritage, social capital, access to diversity, right to organize and dissent, equity and innovative capacity will facilitate comparison among policy options and ensure informed decision making.

Concluding Thoughts

The consultation helped QUNO to better understand the experience of SSF innovation systems beyond what has been captured in academic literature. There remain several areas for further research as well as hitherto unexplored opportunities to strategically align the concept of SSF innovation with the objectives of other international bodies in the areas of food security, biodiversity conservation, traditional knowledge, and others. Participants were instrumental in identifying these areas and critical leverage points.

What is clear from the two days of rich conversation is that SSF innovation systems and farmer-led research initiatives are worth supporting because of their contributions to rural and Indigenous communities in terms of food security and livelihood improvement, as well as to the global community in terms of global food security, global health and agroecosystem resilience. Moving forward it will be essential to further explore these linkages, help to foster genuine collaboration between researchers, scientists and farmers, and contribute towards the mainstreaming of the concept of SSF innovation systems at the national and international levels. To this end, QUNO seeks to deepen partnerships with those working in the field and draw on QUNO's comparative advantage working within international fora to collectively foster an enabling environment for SSF innovation.

Annex I: Consultation Agenda

Tuesday May 26, 2015

8:30 - 9:00 *Coffee and Greetings*

9:00-9:30 *Welcome*

- Welcome from QUNO Director Jonathan Woolley
- Introduction of participants

9:30-10:30 *Goals of the workshop*

- Summary of QUNO's work in Food & Sustainability
- Style of work
- Questions to address
- Overall goals for the next two days
- Introduction of background papers
- Comments, questions and discussion

10:30-10:45 *Coffee Break*

10:45-11:15 *Presentation and discussion of hypotheses underpinning work*

- Brief presentation of hypotheses and general discussion

11:15-12:30 *Responses of participants to questions:*

1. What is small-scale farmer innovation?
2. What are the drivers of and motivations for SSF innovation? [pg. 12, question 2]
3. How are these drivers different from those for formal innovation? [pg. 12, question 3]

12:30-1:30 *Lunch*

1:30-3:30 *Responses of participants to questions:*

1. How do the policies and support put in place to support formal agricultural innovation support and/or inadvertently impede SSF innovation (e.g. how do IPR affect SSF innovation)? [pg. 12, question 4]
2. How do policies developed to support formal innovation but used to support SSF affect the foundations of SSF innovation (e.g. market-based incentives and their effect on agrobiodiversity)? [pg. 12, question 5]

3:30-3:45 *Coffee Break*

3:45-5:30 *Participants responses to questions:*

1. How can bridges be built between the formal and informal systems to ensure a genuine two-way dialogue and support for the needs of SSF? [pg. 12, question 6]
2. How can innovation intermediaries facilitate equal partnership and help SSFs navigate the continually changing environment in which innovation occurs (e.g. policies, programs, access to new information, market opportunities)? [pg. 12, question 7]

Wednesday May 27, 2015

9:00-9:30 *Synthesis of day one and identification of key priorities and work for the day*

9:30-10:30 *Participants responses to question:*

1. What international and national policies can support not only the private gains of SSF but the public goods they are responsible for producing? [pg. 12, question 8]

10:30-10:45 *Coffee Break*

10:45-12:30 *Moving forward*

- Discussion on how we help shift the discourse and raise the profile of SSFs' innovative capacity within international fora [pg. 5, question 1]

12:30-1:30 *Lunch*

1:30-3:30 *Moving Forward*

- Discussion on how we contribute to creating an enabling environment for SSF innovation that supports food security, rural livelihoods and resilience [pg. 5, question 2]

3:30-3:45 *Coffee Break*

3:45-5:00 *Next steps for QUNO and this group*

- Discussion of needs and role for QUNO and this group
- Who else should be involved?
- Leverage points and critical moments

5:00-5:30 *Wrap up and closure of meeting*

Annex II: List of international organizations relevant to SSF innovation

Organisation		Subsidiary Instrument, Programme or Body
AATF	<i>African Agriculture and Technology Forum</i>	
CBD	<i>Convention on Biological Diversity</i>	<i>Nagoya Protocol</i>
CFS	<i>Committee on World Food Security</i>	
CGIAR	<i>Consultative Group for International Agricultural Research</i>	
CPGR	<i>FAO Commission on Plant Genetic Resources</i>	
GCDT	<i>Global Crop Diversity Trust</i>	
GEF	<i>Global Environment Facility</i>	<i>GEF-CSO Network</i>
GFAR	<i>Global Forum for Agricultural Research</i>	
GFRAS	<i>Global Forum for Rural Advisory Services</i>	
IFAD	<i>International Fund for Agricultural Development</i>	<i>Forum for Smallholder Farmers</i>
IPBES	<i>Intergovernmental Platform for Biodiversity and Ecosystem Services</i>	
IT	<i>International Treaty on Plant Genetic Resources for Food and Agriculture</i>	
UNCCD	<i>UN Convention to Combat Desertification</i>	
UNCTAD	<i>UN Conference on Trade and Development</i>	
UNDP	<i>UN Development Programme</i>	
UNEP	<i>UN Environment Programme</i>	
UNFCCC	<i>UN Framework Convention on Climate Change</i>	

UNPFII	<i>UN Permanent Forum on Indigenous Issues</i>	
WFP	<i>World Food Programme</i>	<i>Cooperating Partners Innovation Fund</i>
WIPO	<i>World Intellectual Property Organization</i>	<i>Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore (IGC)</i>
WTO	<i>World Trade Organization</i>	<i>Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)</i>
	<i>World Bank</i>	