Summary of the e-consultation on “Ethical, legal and policy aspects of data sharing affecting farmers”

E-consultation held on 4-8 June 2018

The e-consultation on “Ethical, legal and policy aspects of data sharing affecting farmers”, organized by the Global Forum on Agricultural Research and Innovation (GFAR), the Global Open Data for Agriculture and Nutrition initiative (GODAN) and the Technical Center for Agricultural and Rural Cooperation (CTA) was held from 4 to 8 June 2018 on the e-agriculture platform: http://www.fao.org/e-agriculture/forums/e-consultation-ethical-legal-and-policy-aspects-open-data-affecting-farmers.

The discussion was organized around 5 questions, one for each day:

Day 1: Major challenges from a policy legal and ethical perspective, preventing smallholder farmers benefiting from data sharing

Day 2: Desired scenarios for a future where data-driven agriculture is successfully adopted by smallholder farmers

Day 3: Long-term ethical, legal and policy changes needed to move from the current scenario to the desired scenarios

Day 4: Actions to be taken in 2018-2021 to ensure smallholder farmers benefit from agricultural data in the future

Day 5: Summarize the salient points of this discussion and recommend priority aspects for the f2f consultation

The conversation was very rich, with 159 interventions from 36 participants and from different constituencies. We hope this summary will represent all views but we know something may have been left out and we apologize if we don't do justice to all participants.

1. Main themes of the conversation

Across all questions, some key themes seemed to drive the conversation:

1. Consideration of self-regulatory socio-economic aspects

Many participants highlighted that beyond the three dimensions that are the focus of this discussion (ethics, policy and law) and intertwined with them are other dimensions or instruments of "self-regulation" which also affect the way farmers may or may not benefit from data-driven agriculture and might be even stronger drivers for ensuring equity and mutual benefit: socio-economic drivers, negotiations between different players, community practices, business models as well as issues of capacity and awareness on the value of data.

2. Ethics: the good of the farmer and the greater good

Many common views on farmer's rights to data were expressed on ethical grounds. Some of these rights include the right to own, control and monetize their own data; the right to participate in decision-making processes; the right to have access to data when needed to external data and to share it with other farmers; prior informed consent for the use of their data; benefit-sharing arising from the use of their data; the right not to share their data; and community intellectual property rights.

The importance of the farmer in the data value chain, the power imbalances and the weak position of the farmer in the agri-food system and some basic rights of the farmer were recognized from a moral point of view even if on no legal ground.

Even beyond the legal concept of ownership, underlying most of the comments was the idea that farmers have some rights on "their" data and have to benefit from sharing their data and that their data don't have to be misused, even though it might not be regulated by laws or policies.

And beyond the good of the farmer, still on ethical grounds most participants also highlighted the fact that data sharing should benefit all actors and in the end society.

Indeed one question was if we should consider the good of the farmer or the good of society.

Some participants maintained that the final goal is the good of society (food is available in adequate quantities, accessible, affordable, safe, nutritious, healthy, of quality and produced ethically in an economically, socially and environmentally sustainable manner) or more technically the overall efficiency and economy of agri-food systems

Ideally the two things should coincide, but it was also noted that in some cases there may be some tension: farmers are required to make their data in some form a “public good” while others benefit and in the end they risk remaining in a weak position. But it’s also true that also the farmer benefits from better agri-food systems. A “societal agreement” becomes necessary to ensure that data is shared for the benefit of society while not damaging the farmer.

Another ethical question raised by the discussion was whether certain data rights can be considered human rights, but there wasn’t much discussion on this.

Finally, an interesting question was raised regarding if the rights of farmers on their farm data could be potentially extended to an already existing international framework, or if we need a sui generis system to protect farmers’ data rights.

3. Ethics and socio-economic aspects: power imbalances

Farmers are perceived to have little control on flows and use of data, information and knowledge in an agri-food system. The lack of control on flow and use of data and information causes asymmetries of information flows which are supposedly detrimental to the fair participation of farmers in open, free agricultural markets. Many participants are concerned about the selection of people who have a role in deciding what data are shared and with whom and note that we should make sure that farmers have a role at the negotiation table as they are often marginalized; some however doubt whether such a negotiation including farmers will be fair, as not everyone will have the same negotiation power.

A consequence and at the same time a reason of farmers being in a weaker position is that farmers are not involved in policy making.

4. Policy: openness

The advantages of open data are described by many participants, on the grounds that it supports cooperation and diminishes (or discourage) competition between farms, and allow farmers to be more on an equal footing with the large firms, it fosters transparency and accountability in governance; replicability, verifiability and efficiency in research; and democratized access for social and economic development.

But more than one participant noted that open data is not valuable in all situations. Sometimes it is more pragmatic to give open access to some data, but not to all.

'Open data is data that can be freely used, reused (modified) and redistributed (shared) by anyone' and not every type of data in agriculture qualifies to be open. For example, data that point out that farmers are financially poor, do not have to be shared with everyone. However, it was remarked that it may be important to share this information with a bank when farmers ask for a loan, but not with all others (such as the milkman). This opens a discussion about what are data that can be open access, and what data should be shared selectively or not at all.

Other observations that came up: we need to take into account whether organizations are still able to function with a specific degree of openness in the data (too much or too little openness may hinder survival or functionality of an organization); making data open costs money, who should pay?; not everyone possesses the capacity to understand the data (farmers, consumers),

To sum up, there seems to be a shift from the glorification of "open" data to "the pragmatism of sharing" and exchange of data and information. The discussion has also implied that this sharing of data should be transparent and fair to all actors and stakeholders in an agri-food system.

5. Law

A major gap was introduced right at the beginning of the e-consultation: related to farming and agriculture, there are yet no examples of specific national policies or laws that concern the generation, flow, sharing and use of data. There are only non-binding charters and instruments such as through financial support to share data of and with farmers. Contributors to the debate inquired what the right timing would be to shape such laws: when laws are installed too soon, this would leave little space to experiment with possibilities to collaborate in the network around digital technologies. Laws and prohibitions serve to preserve trust in a community, and we first need to explore what communities data-driven agriculture allows to shape and what is needed to help foster trust in those communities.

What plays a role in reflections about rules and law is, for example, the theme of data ownership**.** There is discussion as to whether it makes sense to speak about data in terms of 'ownership'. Some participants think it does and that farmers themselves look at data collected on their farm as 'their' data. This explains also why leaving those data to be interpreted by ICT specialists is such a sensitive matter. Other contributors propose to explore the meanings of the concept in a more creative way: either proposing to think of ownership in terms of labour, implying that stakeholders who do something with data, change something about it and therewith develop ownership rights, or suggesting to look at data in terms of copyright or intellectual property rights.

There are also contributors, however, who do not want to think about data in terms of ownership and tend to think that data should be thought of as a 'common pool resource', rather than as individually owned. Similarly, they say there may be better ways of tackling misuse of personal insights and privacy than closing down data access due to 'ownership': it is better to install regulations and prohibitions

on unwanted activities, than to attempt to restrict the flow of data through assertions of data ownership.

An additional issue in discussions around ownership is the identification of the "owner": some participants asks whether the owner would be the owner of the land that is farmed or the "plot manager" (the farmer doesn't always own the land).

Other themes related to regulation include contracts. For instance, whether the law enforces it or not, different actors or aggregations of actors or communities could negotiate and agree on contracts that contain clauses addressing issues that are perceived as rights, also because of existing regulations on similar data like personal data, like for instance the right to informed consent and the right to data portability.

Regarding contracts, it was also argued in the e-discussion that farmers should not be overburdened with the responsibility to decide how to share data and understand the intricacies of data contracts share data and that the burden of clarifying and proposing the way in which data are controlled, stored and managed should be placed on the third parties using the data.

Finally, regarding legal frameworks, there seems to be agreement in the discussion that data privacy laws are not really relevant in this area: privacy law governs personal data or personal/consumer information and it is unclear to what extent agricultural data would qualify as personal data.

6. Cooperation: structures, communities and trust

Sharing data means giving other people the chance to do something with these data. It is inviting an interaction with these other people. For realizing the value of farm data, a farmer must therefore share this data.

Does this interaction need a basis of trust and if so, what are then the preconditions for trust?

Reflection about whether we want to share data, what data we want to share, and with whom, requires to consider how we want to cooperate. Contributors to this e-consultation seem to start from very different suppositions regarding this cooperation and the actors / communities involved (large or small, localized or global…).

Some contributors imagine communities with digital technologies to build on their traditional ancestors. Digital technologies are sometimes introduced as if they revolutionize farms: data would offer farmers knowledge that they can act on and make the traditional knowledge that farmers used to share in their communities obsolete. But some experts define agricultural communities as communities that share knowledge, and this can be high tech knowledge, but also traditional knowledge.

The imagined size of communities also differs. Some contributors seem to think about cooperation worldwide. Other contributors tend to think about data sharing in a local way, stating that we should start with the communities that farmers themselves build.

Furthermore, contributors sometimes contrast collaboration / cooperation with competition, and some seem to want to remove competition from the socio-economic system. However, some participants agree that there's no harm in letting companies profit from the advantage they may have from the use of data and that there should be a balance between collaboration and competition. Some participants bring forward the idea of combinations of public and private services to give examples of scenarios in which both can interact, serving to realize the public good as well as private ends (profit).

Depending on the boundaries of the communities that we want to consider / create / foster (and whether there are boundaries or if it is simply a 'kingdom of humanity'), we will probably think very differently about what data we are willing to share – and whether we see dangers in the sharing of data. And from here originates the issue of trust.

The theme of trust is mentioned by several contributors to the e-consultation. The preconditions for trust in data sharing are likely very different depending on the relationships we engage in, inviting also different considerations regarding the development of mores, principles, rules and laws that offer prohibitions and function to define what counts as 'misuse' of data.

Equity, fairness, just distribution and inclusiveness is important here, as well as rewarding people for their contribution.

7. Aggregations of farmers

Most of the desired scenarios described in the e-discussion call for aggregation of smallholder farmers. Aggregation strengthens their political and economic capacities and the strength to negotiate for fairness in markets. These aggregations can be in the form of cooperatives and producer organizations. It was also noted that aggregations need not be physical aggregations like conventional cooperatives: these could be, using information technologies, virtual aggregates, pooling data and information that enable collation and consequent collective planning and participation in markets and sharing of farm resources.

Thus, there could be data cooperatives which enable cooperative collation of data and its processing for information, data repositories where the farmers data and other information can be stored and managed, trust centers that would negotiate sharing and exchange as also provide validation of the cooperatives data and information with other external users.

8. Governance options

Participants proposed or foresaw different governance options for the future:

- Governance by farmers' aggregations; or by consortia of farmers and other value-chain actors; "data cooperatives"; importance of negotiation and bargaining power. Also "virtual aggregations".
  Governance that starts with the communities that farmers themselves build.
- Inter-institutional cooperation, including for the joint development of Trust Organizations around farmers' aggregations which can ensure a more equitable and ethical sharing of data for the benefit of all involved and especially the most vulnerable farmers.
- Trust organizations / data cooperatives business models: private or public/private partnerships. "Public-Private and Community Business Partnerships in Data sharing and Exchange Systems"
- Communities of cooperation, whether large or small, localized or global...
- Trust centers / data cooperatives: importance of the "terms of use".
- Development of international guidelines, a protocol or an international treaty on agri-food data flows; or only on farmers' data.
- Fair and equitable national / regional legal frameworks recognizing farmers' rights to data. Informed consent.
- Existing relevant Codes / Principles: EU Code of conduct on agricultural data sharing by contractual agreement, American Farm Bureau's Privacy and Security Principles of Farm Data. (Besides GDPR, EU Dataset data protection…)
- Legal protection for farmers' data.

- Community protocols developed regulating farmers' intellectual property rights.
- Social certification schemes
- Model frameworks
- Data licensing
- Societal agreements
- Business models, consider benefits for all actors; no harm in letting companies profit.
- Subsidizing smallholder farmers' practice of data driven agriculture
- Role of government in negotiating for better services at reasonable and affordable costs and ensure the necessary infrastructure (e.g. repositories for farmers data related services).
- Less private sector business control of data; increased government provision of data or farmers cooperatives sharing data

9. Socio-economic aspects

Many participants highlighted the importance of social aspects like communities, value systems, traditional knowledge, "social agreement". Also the economic aspects were highlighted, like the need to consider legitimate profit, the need for some competition, the difference between free markets and closed markets, the need for business models.

Some participants noted that farm data is part of the broader agri-food value chain data and that we should consider the whole agri-food system.
There seemed to be some consensus on the idea of an open data exchange where farmers, government and industry all profit from each other's data in an open way.

10. Technologies for transparency and trust

A few participants with stronger IT background highlighted the possibilities that technologies offer to support many of the principles on which everybody agreed: common pools of data, transparency, trust. Such technological support should enable aggregation, transparency and validation and could come from cloud based services, blockchain technologies, the Internet of Things.

In particular, ideas on how blockchain technologies could support transparency and clear licensing were seen as interesting by most of the participants.

2. Desired scenarios

On day 2, participants were asked to describe future scenarios that illustrate what success sill look like in 10-20 years.

Contributors agreed that there is no one desired scenario for all contexts, but many depending on the specificities and contexts in which smallholder farmers operate and live.

Taking this into account and trying to combine some of the possible similar scenarios described, here is a list of interesting examples, some more generic and some more precise:

- There will be cooperation / collaboration not competition, trust, free flows and exchange; an ecosystem where different actors share data for mutual benefit.
- The general public will be aware of the rights of smallholder farmers as users and providers of agricultural data and traditional knowledge in the framework of human rights; legal, ethical and socio-economic perspectives.
- Farmers will be empowered over their rights as providers and users of agricultural data participating in decision-making processes at different levels.

- Farmers will be able to collect on-farm data, upload it on a shared platform of aggregation and have access to it when needed. Or slightly more ambitiously: there will be common data platforms, data shared in the cloud, "organized data communities": all farmers' data shared with other farmers but also platforms where all necessary data from outside the farm is shared (weather, financial, market...); farmers organized and registered in a platform that brings in also big service providers.
- The public sector will play an active role in negotiating for better services at reasonable and affordable costs and ensure the necessary infrastructure; e.g. governments will have repositories for farmers data related services.
- Digitized global, regional and local supply chains will serve the needs of farmers and family farming.
- Associations / cooperatives / "virtual aggregations" will allow for larger scale planning of farmland and cropping cycles, more efficient access and use of farm inputs, more precise forecast, better marketing.
- Data, products and processes for data driven agriculture will be context specific, designed to suit the conditions of farmers; weather data will be broadcast in a language understood by farmers, market data will be available via messaging updates and through tradition media; technologies co-developed with farmers; traditional knowledge recognized.
- To enable data protection and transparency: data will be shared with appropriate licenses; through blockchain technology for maximum transparency.
- The private sector will provide technologies and services, using farmers' shared data with no unfair advantage, but still with the comparative advantage that comes with better processing and application of the data.
- Intermediaries will enable smallholder farmers to structure, organize and make use of any data that might be available.
- Farm data will be also shared with insurance providers to provide evidence for claims.
- There will be a consolidated and recognized international platform of multi-stakeholder experts leading the discussion on ethical, legal and policy issues and providing inputs for the international and regional governance of the rights of farmers related to open access and use of agricultural data.

3. Next steps

Participants were asked to indicate what in their opinion the immediate next steps should be to bring forward a collective action on farmers' data rights. Here are some of the suggestions that were given:

- Inventory of policies, legal frameworks, laws in different countries/markets for data driven agriculture and in general the generation, flow, exchange and share of data driven agriculture. Case studies. Analyze gaps.
- Baseline surveys of farmers' needs.
- A "rapid appraisal", which will allow us to assess the situation comparatively for each continent or for countries or regions in particular situations
- Analyze more in depth certain aspects of the consultation topics
- Start from small cases.
- Catalog of scenarios
- Start working on data policies at different levels (government, private sector, farmers' aggregations, mixed consortia…)

- Identification of the key players and their roles; bringing them to the table and agreeing on who does what, collaborate, and avoid duplication
- Design capacity development interventions to empower farmers with knowledge of their rights as users of open data and providers of data and traditional knowledge as well as to increase awareness between different stakeholders on farmers' data rights
- Development of a framework and guidance for agronomists and others to understand and think about digital and all the other great and new technologies like sensors, drones, satellites
- Devise the best ways to foster collaboration to improve the international, national and local governance of farmers' data rights.
- Start a process towards international guidelines or even towards the establishment of an international legal instrument.

4. Follow-up

While several of the observations shared in the e-discussion were straightforward and clearly agreed upon by everybody, especially the challenges (power imbalances, data misuse, capacities…) and some scenarios (data shared on clouds, all actors benefitting, technologies for transparency, farmers involved in policy making…), there were a few issues that either went unanswered or were discussed with no agreed conclusion or revealed some need for better framing and we would like to follow up on those, especially the most general and fundamental.

The output of this e-consultation will feed into a face-to-face expert meeting on 10 and 11 July, in which we will discuss some of these issues that seem to require more discussion.

We see that these issues are all about:

- Better framing the issues (e.g. relationships between ethics, policy and law; importance of other dimensions; defining what is "right"…)
- Clarifying the scope (type of data; uniqueness of farm data; farm data vs. agri-food system data; global and local dimensions…)
- Clear recommendations on future directions in terms of ethics, policy and law

For each main issue, we have listed the related questions that were raised in the e-discussion:

Framing the issues around ethics, policy and law

- What comes first? **Ethics, policy, law?** Dependencies? Is law a consequence / instrument of policy? Or does the socio-economic layer come first?
- What comes first regarding farmers' data rights? Determination of **ownership**/determination of data control? Recognition of **rights**? Awareness? Changes in structures (relationships, networks, aggregations)?
- Can ethics provide solutions? Or ethics frame the problem and the solutions are in policies or in business models or in organizational structures?
- Should **laws** come later? ("the law can be a very blunt and inflexible tool ", "this risks to close off possibilities that smart farming offers")
- Should we start from what we want to see in the future? **Future scenarios**?
- Should we start from **ethics**? What do we see as right? Do we first need **consensus on what is right?**
  Examples: Farmers don't know what use will be made of their data. Should they? Farmers are not compensated for their data. Should they be? Financially? Services? Other actors benefit from farmers' data without compensating them. Should they not? Farmers don't have

affordable access to necessary data: should they? Farmers don't have access to their own data once shared. Should they? (Can data be owned? Why do we say "their" data if there is no ownership? What do we assume? Does data with no added value have value?)
What is right? (What is success?) **What is good for society or what is good for the farmer** or should they coincide? *(Data shared by farmers may help others more than them, they provide a public good at some cost and risk) Balance between public good and profitability. Not only productivity but welfare.*
Who should have the right to access agricultural data to achieve social goals like food security, adaptation to climate change, poverty alleviation, etc.?
Are data rights **human rights**?
What is a fair distribution of benefits of smart farming?

- Are **business models** more effective than policies?
- Where does the **economic dimension** come in? The value of data, when it has value, when it can be owned and sold, value addition, data as property, ownership rights based on labor?

Clarifying the scope

- **How unique is the issue of farmers' data rights**? Are issues around farmers' data different from issues around other types of data?
  Are the rights of farmers on their farm data be potentially extended to an already existing international framework, or do we need to develop a sui generis system to protect farmers' data rights?
  Are these issues the same as for any other business data? Is a farm like any other business?
  Farm data = company data? (Who is the farmer? Land owner, plot manager?)
  Or more similar to land data or traditional knowledge or PGR data?
  Is agricultural data personal data and therefore ruled by private law?
  Could it be possible that the farmers' rights concept be extended to data generated on farm?
- Do we consider ethical, legal and policy issues of all types of **data both used and provided by the farmer**? Issues of access to external data and rights on on-farm produced data?
- Should the vision be broad and consider the fluid nature of data flows and therefore consider **all agri-food system data**? (Do we look at the farmer node or at the whole value chain?)
  Do we consider also data flows between farmers and researchers?
- Data **governance**? What is data governance vs. ethics, policy, law? Do we cover in the vision who should govern agri-food value chain data?
- **Global** perspective or **local** perspective? Do we focus on one of the dimensions, do we look at both separately, do we look at both together?
- Do we include in our vision all the **socio-economic dimensions**? From broad issues like free-market economy, related asymmetries and possible market failures to issues of land ownership, forms of farmers' aggregation, subsidies… Do we have to illustrate the socio-economic impact of our vision?

Future directions:

- What are the recommended approaches to the ethical issues? Do we need consensus on an ethical vision?
- **Recommended governance options** at global, regional, national or local level.
  Policy, legal, societal, organizational, economic…
- International level: is agricultural data / farm data sufficiently meritorious of a **new independent treaty** or can it fall under an existing framework?

Could the rights of farmers on on-farm data be an extension to an already existing international framework? Or do we need a sui generis farmers data rights?

- To what extent should recommendations be local and **context-specific**? What can be generalized?
- What **actors** should provide what? Role of governments? Role of private sector?
- Organizational: is farmers' aggregation a prerequisite?
- Data sharing and data **openness**: do we preach open data, "fair" data, "as open as possible, as closed as necessary"? Does **transparency** require full openness? Open flows / closed flows; public goods / "club goods".
- What are the preconditions for **trust**?
- Is the access to agricultural data determining the policy? Or is it its use?
- Which should be the principles guiding the successful digital agriculture by smallholder farmers?
- Are **competition and duplication** an issue? Centralization or distribution? Coordination or let all the flowers bloom?
- **Business models**?
- What is a fair distribution of benefits of smart farming and how can data sharing or access support it?
- Best ways to build trust? Transparency, mutual benefits.
- If useful, one or more future scenarios to illustrate the vision
- Are there still issues that need to be researched, discussed or surveyed before we can finalize the Vision?

The results of these discussions will be published in a vision paper.

Participants in the meeting will also propose an actionable and investable plan for a collective action on farmers' data rights.

Valeria Pesce, Simone van der Burg, Ajit Maru, Juanita Chaves, Chris Addison

List of participants

Participants in the e-consultation, in alphabetical order by first name:

Forum animators
Ajit Maru - Independent Consultant - India
Leanne Wiseman - Griffith University, Australia - Australia
Manuel Ruiz - Peruvian Society for Environmental Law (SPDA) - Peru
Nicolene Fourie - Council for Scientific and Industrial Research (CSIR) - South Africa
Simone van der Burg - Wageningen University & Research - Netherlands

Contributors
Ahanda Sosthène Nicaise - International consultant FAO - Cameroon
Andy Dearden - United Kingdom
Ben Schaap - GODAN Secretariat, - Wageningen University and Research - Netherlands
Chadwin Reno - Ministry of Agriculture,Livestock and Fisheries - Kenya
Chris Addison - CTA - Netherlands
Federico Sancho - IICA - Costa Rica
Foteini Zampati - GODAN Secretariat - Germany

Francois Van Schalkwyk - Stellenbosch University, - SBC4D - South Africa
Geoffrey Wandera - Youths in Technology and Development Uganda - Uganda
George Madoda - Aid for trade logistics - Tanzania
Gideon Kruseman - CIMMYT - Mexico
Hugo Besemer - Self employed/ Wageningen UR (retired) - Netherlands
Jacques Drolet - IDRG - Germany
Jeremy de Beer - University of Ottawa - Canada
Joseph Macharia - Founder Mkulima Young - Kenya
Joshua magbagbeola - Joseph Ayo Babalola University - Nigeria
Joshua Toews - Open African Innovation Research - Canada
Juanita Chaves - GFAR Secretariat - Colombia
Lee Babcock - LHB Associates - United States of America
Martin Parr - GODAN Secretariat, - CABI - United Kingdom
Michael Brobbey - Global Open Data for Agriculture and Nutrition (GODAN) - United Kingdom
Moses Odeke - ASARECA - Uganda
Peter Johnson - Ayadee - El Salvador
Robert Katende - Eco Ventures International - Uganda
Samuel Abanigbe - Bdellium Consult Ltd - Nigeria
Saripalli suryanarayana - Professional Engineer-Administrator - India
Serah Odende - African Harvesters - Nigeria
Sipiwe Manjengwa – Community Technology Development Organization - Zimbabwe
Thembani Malapela - Food and Agriculture Organization of the United Nations - Italy
Uchenna Ugwu - Open African Innovation Research - Canada
Valeria Pesce - Global Forum on Agricultural Research (GFAR) - Italy
Yash Ramdharee - Mauritius Cane Industry Authority - Mauritius