



Common Good and Food Systems in the Digital Age

**Conclusions of the Session of the think tank meeting :
Blockchains & Distributed Ledger Technology (DLT) for the
European Green Deal and SDGs**

**An initiative of *European Partners for the Environment and Be the
SDGs***

**hosted by the *European Economic and Social Committee
Observatory on SDGs and the EESC Partnership with Civil Society***



**Tuesday 14th January 2020
Brussels**

Distributed Ledger Technology is being recognized by many as a tool that can support and deliver many of the desired outcomes to the challenges that continue to plague the Food Supply Chain. It is further recognized that the environmental challenges that we face as a society can be addressed by creating more efficient and systematic responses to the problems. Blockchain is a still relative new technology that has had its proof of concept driven by Financial outcomes and speculations, Bitcoin, Initial Coin Offering (ICO), there is a number of reputational concerns that need to be overcome.

Having an organization like European Partners for the Environment champion the use and recognition of the possibilities in the implementation of this technology is key to getting the right level of legitimacy and attention that is required to get the policy makers and those responsible for the next level of funding to understand how this technology can be harness to finally address in an equitable fashion the ills of the food supply chain and assuring we are able to address how to save our planet.

The meeting organized by European Partners for the Environment brought in a number of experts in the field of Blockchain/Distributed Ledger with expertise and knowledge in the realms of food and environment. Having such a gathering was invaluable as it allowed for a more cohesive approach to addressing our concerns to the appropriate bodies.

I look forward to continued association with this Think Thank and looking to get to real and measurable outcomes.

Genevieve Leveille.
Chief Executive Officer
Agriledger

Under the Agenda 2030 and Just Transition Framework, the goal of the pilot on common good and food systems in the digital age is to create new mechanisms for dialogue and governance supported by digital tools in the area of food systems, food security and forest to regenerate our planet, with a view of promoting the vitality of ecosystems and human well-being. This means food systems that supports productive soil, clean water, enhanced biodiversity and at the same time provide quality food for a growing humanity

The *think tank meeting of January 14th* aimed to shape a roadmap and identify possible partners within the food sector and *key stakeholders*.

The think tank follow up process will be developed under the leadership of FAO if so agreed. This in a particular *European context* : the European Green Deal, with the "*Farm to Fork initiative*" (and a partnership with Africa) and the Common Agricultural Policy described by the New York Times, after investigations, as "*a deliberately opaque subsidy system, distorted by corruption and conflict of interest, and which completely undermines the Union's environmental objectives*".

The objective of the roadmap will be to maximize the uptake of digital and inclusive and sustainable finance tools to accelerate the implementation of the SDGs and climate agreement related to food systems and forest building on the following reports :

- FAO Status Report about "*Digital technologies, Agriculture and Rural regions*"
- *Harnessing Digital Technologies to Improve Food System Outcomes*. World Bank, Washington, DC.
- *Children, food and nutrition: Growing well in a changing world*, UNICEF report
- *Harnessing Digitalization in Financing of the Sustainable Development Goals*. UN Task Force on Digital Financing of the Sustainable Development Goals With the financial support to the Task Force provided by the Government of Germany and the Government of Italy.
- *Digital with Purpose - delivering a SMARTer 2030*, GeSI and Deloitte
- The STAP-GEF-document "*Harnessing Blockchain Technology for the Delivery of Global Environmental Benefits*",
- The UNEP-GEO 6 series Africa 2016,
- The CGIAR project Food Systems and Big Data with its "*communities of practice*" as a "*distributed system*",

In December 2019 a **FAO Digital Innovation Dialogue** addressed the opportunities and challenges of using blockchain-based systems in agriculture, focusing the discussion around the following key questions:

- *What challenges in agriculture would benefit from a blockchain-based solution?*

- *What are the pros and cons in agriculture of using a public blockchain vs a private blockchain?*
- *Which processes in agriculture are suffering from a lack of transparency and would benefit from decentralization?*
- *How are the successful use cases addressing broader issues such as regulatory requirements, stakeholders, legal frameworks, interoperability with existing systems, scale, etc.?*
- <http://www.fao.org/e-agriculture/news/invitation-digital-innovation>

This think tank session addressed the need of a roadmap focusing on the common good and food systems in a digital age from several perspectives :

- Support to small farmers
- Policies and subventions as “From. Farm to Fork” and “Common Agricultural Policy. How to use digital tools to monitor projects and funding, secure transparency, fight against inequalities and corruption ?
- Supply chains : palm oil, etc. Which agenda for a cluster of related blockchains ?
- Local communities of farmers, citizens, consumers with an emphasis on the role consumers can play as citizens to contribute to the systemic change. Towards an action plan using digital tools to empower them ?
- Inclusive and Sustainable Finance and food systems. How to use digital tools to redirect finance i.a. blended finance in support to a new food approach ? Towards a European roundtable ?
- International cooperation. Should we have a food systems in the digital age action plan part of each EU international partnership ?

In addition, the think tank session also invited to deepen the conversation on

- deforestation and partnership with tropical forests interested parties
- soil protection
- consumers information
- food safety and traceability
- partnership with Africa
- financing
- new markets (exports-imports)

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- manage supply chains and value distribution
 - deal with the convergence in a single continuum of companies in the field of agricultural biotechnologies, information technology, finance. They have merged and rush to control multiple stages of the food value chain. They have a major impact on, i.a. intellectual property rights, digital agriculture, and Big Data. They act as a barrier to food systems transformation.

Participants also welcomed the perspective of an Inclusive and Sustainable Finance conference 2020 on *Food systems, impact investing in the digital age* in Paris end 2020 with potential follow up in Africa in 2021..

Participants also agreed to propose to rural regions of Europe to join the initiative.

Participants agreed to liaise with G.E.F. to seek funding for the roadmap drafting.



Annex. Background paper.

This backgrounder addresses :

- 1. Food systems**
- 2. The digital potential.**
- 3. The worrying geo-political and digital context**
- 4. From farm to fork**
- 5. Indicators for food systems**
- 6. No one left behind**
- 7. Supply chain cluster**
- 8. International cooperation**

1. Food systems.

"Food systems" is a concept (close) to all SDGs dealing with international supply chains related to land use and agriculture and the cluster will have to address the potential for large scale transformative change; the potential of synergies and addressing the presence of trade-offs, such as synergies which deliver positive outcomes in terms of climate change mitigation and halting the loss of biodiversity and regenerating biodiversity. A trade-off implies either / or and not the two at the same time that it is possible to address the "broadest customer base" globally without creating overconsumption in high income groups / countries or poverty / malnutrition in low income groups / countries. This requires "asymmetrical" solutions able to address different issues simultaneously: e.g. reducing consumer food waste in high-income communities while providing support including finance for people facing malnutrition and poverty. Analytical work on the broader issues relating to food systems will be provided by IUCN, and the pilot presented addresses one single issue relating to food systems and the SDGs.

2. Digital age potential.

Digital technologies have significant potential to improve efficiency, equity, and environmental sustainability in the food system. A range of digital technologies are already leading to: better informed and engaged consumers and producers, smarter farms, and improved public services. Adoption of digital technologies varies significantly across countries, with lower current adoption rates in low-income countries. Increasing adoption will require addressing supply-side factors, such as rural network coverage and availability of digital applications, and demand-side factors, including skills and knowledge, trust,

affordability, and complementary investments. While digital technologies have significant potential they also pose several risks that need to be addressed including: an overconcentration of service provider market power; lack of data privacy; exclusion; and cybersecurity breaches. These risks cut across all segments of the economy, including the food system. In addition, digital technologies should not be viewed as a panacea. Other investments are needed to address the multiple constraints farmers face and to realize the potential benefits of digital technologies.

Citation

*“World Bank Group. 2019. Future of Food : Harnessing Digital Technologies to Improve Food System Outcomes. World Bank, Washington, DC. © World Bank.
<https://openknowledge.worldbank.org/handle/10986>*

Blockchain-based solutions to existing challenges are being piloted in many sectors and this technology is finding innovative uses in a wide range of applications. In agriculture, pilots are already being implemented in supply chains, land registrations and to provide digital identities for farmers.

For sustainable agriculture development, Blockchain technology holds the potential to positively address key challenges such as deforestation, value distribution and traceability, food safety and production as well as child labor. Blockchain promises traceability, transparency, security, immutability, decentralization and disintermediation.

Quantis Food Report *To meet growing expectations, new tools and technologies are beginning to materialize. Their emergence is shifting the status quo; real-time data solutions, such as drones, provide companies with a steady stream of information about what is happening on the ground. This enables them to constantly monitor progress and swiftly— and intelligently — intervene and make improvements where they are needed most.*

Technologies such as blockchain, satellite mapping and RFID (radio-frequency identification) are adding another layer of clarity for companies and their customers and consumers, enabling greater scale and scope of supply chain traceability. Companies can leverage these tools to track products more accurately and efficiently across their life cycle, from raw material extraction to production, purchase and beyond, and verify that they were sourced according to their environmental and social standards.

*This information enables food and beverage companies to take a proactive approach to supply chain issues and better manage risks, but it also helps companies foster stakeholder trust and provide credibility to communications. (See Chapter 5 Storytelling on page 95). **Quantis Food Report.***

Numerous applications *As Geneviève LEVEILLE indicated Today, there are tens of thousands of applications available in the area of agriculture. Most of the applications are oriented to*

specific aspects, but some others are based on platforms (ecosystem), where there are many interconnected applications (Qiang et al., 2012). These applications provide information (SMS or more advanced), deliver transactional services and provide advisory services for decision-making help. However, mobile devices and applications are more popular in those areas with little connectivity and used more by small farmers. According to Qiang et al. (2012), the benefits of these apps in the development of the agricultural sector can be achieved through the following ways:

Provision of better access to information: providing producers immediate access to market information can allow them to attain higher product prices. Also, by accessing accurate information regarding weather and pest and diseases, better risk management is achieved.

Provision of better access to agricultural extension services: accurate advice can be given for good farming practices and support. This could result in crop yield improvements and more accurate assessments of the condition of pastures.

Provision of better connections with the market and distribution networks: with the improvement of links among producers, suppliers and buyers, value chains become more transparent and efficient, less manipulated by intermediaries. In addition, better accounting and traceability helps to increase efficiency and forecasting and to reduce administrative burden and fraud.

Provision of better access to funding opportunities: with access to funding and insurance opportunities and alternative payment methods, farmers can achieve an increase in crop yields production diversification and reduction of economic loss.

3. A worrying geo-political and digital context.

As Geneviève LEVELLE noted, In the coming decades, increased investment in agriculture is going to be crucial for meeting the challenge of adequately feeding the 821 million chronically undernourished people that we count today. In FAOSTAT, investment flows are recorded by Government expenditure in agriculture, development cooperation flows to agriculture, foreign direct investment and credit to agriculture. Although total development flows are increasing in the long run, the share of crops, livestock, fisheries, aquaculture and forestry as a whole is declining. In most regions, except Europe, the share of agriculture in total credit is also declining.

The food supply chain is composed of a wide diversity of products and companies which operate in different markets and sell a variety of food products. The regulatory framework affects the food supply

chain at all levels from the agricultural sector down to the retail sector. The degree of market power held by the firms along the chain varies by product category, depending on the relevant markets in which these firms operate. It has an impact on the contractual relationships between the main players along the chain and can influence the degree of transmission of the increase in agricultural commodity prices to consumer prices.

(i) *The EU existing common agricultural policy and subsidies attached are unsustainable .*

Killer Slime, Dead Birds, an Expunged Map: The Dirty Secrets of European Farm Subsidies. The E.U. has green aspirations. Its signature, \$65 billion policy says otherwise.

<https://www.nytimes.com/interactive/2019/12/25/world/europe/farms-environment.html>

(ii) *We are witnessing the convergence of sectors in a single continuum that reinforces their destructive and violent power, whether it be agricultural biotechnologies, information technology or finance. They have merged and become one.*

This is how **Vandana Shiva** characterize the present situation in her book *1%, to regain power against the omnipotence of the rich* where she illustrates the expanding role of Microsoft, Facebook and Google in sectors as finance and food. Consequently, climate change, big data and digital agriculture must be tackled together, as financialization, patenting and forced digitization of our lives go hand in hand.

Addressing concentration of power in the food chain, the report CONTRIBUTION TO THE ZERO DRAFT OF THE CFS POLICY CONVERGENCE PROCESS ON AGRO-ECOLOGICAL AND OTHER INNOVATIVE APPROACHES rightly raises a number of serious concerns related to corporate concentration, intellectual property rights, digital agriculture, and Big Data. It recognizes increased corporate concentration in the input and retail sectors, and acknowledges that excessive industry influence acts as a barrier to food systems transformation. A report published by IPES-Food in 2017⁵ also expressed concern over the negative impacts of corporate concentration on food systems, highlighting that. Big Data, and the rush to control multiple stages of the food value chain, is driving the latest round of corporate mergers. As a social movement, agroecology has voiced serious concerns on this issue with the aim to reduce corporate concentration. These concerns are not, however, taken up in the HLPE recommendations. While the HLPE report mentions a proposal to establish a global observatory on gene editing, it falls short of actually recommending this. IPES-Food recommends tackling corporate concentration in an integrated and robust fashion, by i) establishing new global governance structures to regulate concentration; ii) taking steps to reform the scope of antitrust rules and ensure their effective usage; iii) developing comprehensive metrics to assess concentration; iv) developing a new knowledge and innovation paradigm that recognizes the need for diversity, accessibility, and local-

applicability of new technologies; and v) adopting a new economic paradigm to underpin sustainable supply chains and sustainable food systems. The first three recommendations are expanded on below:

Establishing new global governance structure. IPES-Food recognises that Mergers and Acquisitions (M&As) are often pursued to ensure control of new technologies. A first step to address concentration at the global level could involve undertaking a collaborative assessment of its impacts on food systems. Various intergovernmental bodies should work together to monitor the impacts of increased concentration at various levels.⁶

(iii) "Digital technologies" operating in the domain of "continuous data flows" in relation to "food systems" and being transformed into a.o. financial data - see the Water Risk Monetizer by Trucost and EcoLab, integrated in the Natural Capital Protocol Toolkit WBCSD - may serve up to now the purpose of the actors using the digital technologies and without adequate nor systematic (not to speak of systemic) guidance by public policy. As far as public policy goes : the Future of EU CAP would require alignment to the Agenda 2030 and to the PB-risk assessment and monitoring and should include compliance-mechanisms and / or "payments for ecosystem services", as in the case of the "carbon value" of "nature-based solutions" (NBS) of land systems in reducing climate risk via "NBS"(with "PES" being key to define and implement the SDGs via "food systems").

4. From farm to fork, sustainable food for a healthy lifestyle

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Europe is committed to ensuring food security, food quality and food safety for EU citizens... from farm to fork! This is possible thanks to European policies supporting sustainable

farming, quality products, rural development, fisheries and fish farming, food safety and traceability, animal health and welfare as well as antimicrobial resistance. These policies also contribute significantly to generating jobs and growth along the food production chain. The agri-food industries represent today 44 million jobs and 6% of the EU's GDP.

- The Farm to Fork strategy for Sustainable food is a key component of the European Green Deal. European food is famous for being **safe**, nutritious and of high quality. It should now also become the global standard for sustainability.
- There are new opportunities for all operators in the food value chain. New technologies and scientific discoveries, combined with increasing public awareness and demand for sustainable food, will benefit all stakeholders.
- European farmers and fishermen are key to managing the transition. The Farm to Fork Strategy will strengthen their efforts to tackle climate change, protect the environment and preserve biodiversity.
- The Strategy will increase the level of ambition to reduce significantly the use and risk of chemical **pesticides**, as well as the use of fertilisers and **antibiotics**. The Commission will identify the measures needed to bring about these reductions based on a stakeholder dialogue. In parallel, the Commission's regulatory framework will need to reflect scientific evidence on the risk posed by chemical such as **endocrine disruptors**.
- The Farm to Fork Strategy will also contribute to achieving a **circular economy**. It will aim to reduce the environmental impact of the food processing and retail sectors by taking action on transport, storage, packaging and **food waste**.
- Lastly, the Farm to Fork Strategy will stimulate sustainable food consumption and promote affordable healthy food for all. The Commission will help consumers choose healthy and sustainable diets and reduce food waste and will explore new ways to give consumers **better information**, on details such as where the food comes from, its nutritional value, and its environmental footprint.

5. **Indicators for food systems.**

We need, as Genevieve LEVEILLE stated, Coopetition with the goal of setting data and practice standards so that there can be a common measure of achievement if not success.

CONTRIBUTION TO THE ZERO DRAFT OF THE CFS POLICY CONVERGENCE PROCESS ON AGRO-ECOLOGICAL AND OTHER INNOVATIVE APPROACHES

- Developing new indicators for sustainable food systems. The report rightly underlines the importance of developing new metrics to assess environmental,

social, and economic impacts across the whole food systems. The benefits of diversified agroecological farming are still systematically undervalued by the criteria typically used to measure agricultural performance. It is therefore essential to adopt and systematically refer to a broader range of indicators, covering long-term ecosystem health; total resource flows; sustainable interactions between agriculture and the wider economy; the sustainability of outputs; food security, nutrition, and health outcomes; livelihood resilience; ecological footprint; and the economic viability of farms with respect to debt, climate shocks, inter alia.³ The FAO should provide guidelines to governments to assess the sustainability of food systems using a holistic lens (expand the scope of recommendations 1.b and 5).

6. Supply chain.

The global blockchain community will be focused on a value chain approach, with participation of fair trade initiative and 'just transition' related parties.

The pilot partner is related to palm oil and demonstrates a blockchain based solution that will provide insights in the origin of palm oil that will support fair trade, fair monetization of labour but also European consumers to make substantiated choices in the consumption of palm oil. This application of the blockchain focuses primarily on human/workers' rights and climate change are related to the SDGs (decent work, climate). Pilot Partner: Responsible Sourcing Ledger www.responsiblesourcingledger.com, the Netherlands (a consortium of Ledger Leopard and Pels Rijcken) The World Bank has selected the Responsible Sourcing Ledger consortium next to one other developer from very many proposals to develop this application further in collaboration with the blockchain lab and the IFC. The World Bank appreciated the potential social impact of the application as it does not only include a blockchain as such but also an artificial intelligence tool to monitor human rights and environmental risks at a specific location as well as the collaboration with legal experts in the field. However, the World Bank does not provide funding for further development. The traceability blockchain and the artificial intelligence tool to check the origin of the palm oil are at TRL 7 at the closing of the submission. The artificial intelligence tool to monitor human rights and environmental compliance is still being developed.

The objective of the blockchain is to provide full traceability in palm oil supply chains and to develop an artificial intelligence tool which monitors human/workers' rights/environmental norms (esp. climate change) compliance before information is fed into the blockchain. With the ever increasing demand for, cultivation of oil palms has expanded more in the past ten years than cultivation of any other crop. With enormous increase of palm oil production the countries producing the palm oil have suffered large consequences with regards to both the environmental and

humanitarian

effects:

- Rainforest loss
- CO2 emissions
- human rights violations in the form of poor working conditions, social injustice and conflicts over land. Furthermore, child labour, human trafficking and worker exploitation are frequent in palm oil production.

Oil palm plantation companies for biodiversity loss, increased poverty, human rights violations and the climate catastrophe in Africa, among others. Blockchain could help companies and governments increase reporting frequency beyond what they make today and toward a scenario in which they could monitor and disclose how they're doing on an ongoing basis. It's something consumers increasingly want to know. This approach could have particular relevance for getting at information deep in the supply chain including, the sorts of metrics that would be really useful for assessing corporate progress against the Sustainable Development Goals.

7. SDG 17 & International cooperation.

Europe and ensure greater well-being for its inhabitants while securing a 'safe operating space'. For this to happen we need an integrated multi-stakeholder value chain strategy addressing the SDGs and Planetary Boundaries including resource efficiency & the circular economy, climate change & the energy transition, bio-economy & sustainable agriculture, lifestyle & behaviour, inclusive and sustainable finance.

This will be key in relation with EU trade agreements having an impact in the clusters fields listed to start the eco-system of blockchains for SDGs and climate in the following frameworks:

- Post-Cotonou
- Euro-Med
- Latin America-EU
- EU-Asia
- Oceans

An example is the contribution of such blockchain eco-system to:

- A post-Cotonou enhanced partnership with a focus on the countries of the Cotonou agreement and the group of AOSIS with view to an integrated EU-policy approach towards the implementation of the UN SDG-2030 Agenda and the Paris Agreement on climate change. The conclusions of the 3rd African Union-European Union Agriculture Ministerial Conference of 21st June 2019 (Rome), the initiatives related to tropical forests, the Addis Ababa Action Agenda on financing for development and the G20 guidelines on inclusive and sustainable finance come in support of the proposed approach.
- An action plan in support to tropical forests and biodiversity, particularly in the context of the Amazon basin and the EU relationships with the 9 Countries of the basin. Indigenous Peoples and communities living in the Amazonia do see their rights being challenged and *the excessive growth of agricultural, extractive, and logging activities in the Amazonia has not only damaged the ecological richness of the region, its rainforest, and its waters, but has also impoverished its social and cultural wealth. It has forced a “piecemeal” and “non-inclusive” urban development upon the Amazon Basin. In response to this situation, there has been an increase in organizational capacities and an improvement in civil society, particularly regarding environmental issues*¹Blockchains focused on these issues and how it relates with EU supply chains (raw materials, agricultural products, forestry products etc.) would be designed to empower local communities and inform globally, including European officials.
- An EU-Mercosur Trade agreement is proposed for ratification. The experience of the Amazon blockchain cluster could be a source of inspiration in the framework of the post-Cotonou agreement relation with the Congo basin and the EU-Asia agreements related to the tropical forests of the Asia Pacific region.

8. No one be left behind.

We will be joined by Julio Morales, author of

"Not even one [bit] left behind: SDGs, digital finance and the challenges for consensus around Universal Basic Income in the multipolar landscape"

Basically, we are discussing the potentialities of linking the blockchain agenda with debates revolving around universal (guaranteed) basic income. The document was submitted to the 2019 International Conference on Sustainable Development (ICSD) (“Good Practice: Models, Partnerships, and Capacity Building for the SDGs”) and the UN Secretary-General announced the Task Force for Digital Financing of the Sustainable Development Goals and a preliminary

¹ Preparatory document from the Synod for the Amazon October 2019.

version presented at the 14th World Association for Political Economy Conference (“Class, State and Nation in the Twenty-Firth Century”).

Annex².

Africa

Food production value, net, (2004-06 mln I\$) 206,866

Food (excl. fish) exports (mln USD) 33,772

Asia

Food production value, net, (2004-06 mln I\$) 1 185 192

Food (excl. fish) exports (mln USD) 183 102

Europe

Food production value, net, (2004-06 mln I\$) 334 280

Food (excl. fish) exports (mln USD) 381 564

World

Food production value, net, (2004-06 mln I\$) 2 323 632

Food (excl. fish) exports (mln USD) 926 686

² [World Food and Agriculture Statistical Pocketbook](#). FAO. 2016 data .