

# OFFICIAL FEEDBACK FORM

<b>DIALOGUE DATE</b>	Monday, 31 May 2021 10:00 GMT -04:00
<b>DIALOGUE TITLE</b>	Integrating Indigenous Knowledge with Emerging Technologies to Enhance Sustainability and Resilience of Food System
<b>CONVENED BY</b>	CANEUS (Canada-Europe-US-Americas-Asia-Africa Organization on Emerging Technologies for Societal Applications), FILAC (Fund for the Development of Indigenous Peoples of Latin America and the Caribbean) and UNOOSA
<b>DIALOGUE EVENT PAGE</b>	<a href="https://summitdialogues.org/dialogue/20041/">https://summitdialogues.org/dialogue/20041/</a>
<b>DIALOGUE TYPE</b>	Independent
<b>GEOGRAPHICAL FOCUS</b>	No borders

The outcomes from a Food Systems Summit Dialogue will be of use in developing the pathway to sustainable food systems within the locality in which they take place. They will be a valuable contribution to the national pathways and also of interest to the different workstreams preparing for the Summit: the Action Tracks, Scientific Groups and Champions as well as for other Dialogues.

# 1. PARTICIPATION

## TOTAL NUMBER OF PARTICIPANTS

## PARTICIPATION BY AGE RANGE

0 0-18      30 19-30      40 31-50      20 51-65      14 66-80      0 80+

## PARTICIPATION BY GENDER

50 Male      54 Female      Prefer not to say or Other

## NUMBER OF PARTICIPANTS IN EACH SECTOR

15	Agriculture/crops	10	Education	5	Health care
4	Fish and aquaculture	15	Communication	6	Nutrition
4	Livestock	3	Food processing	8	National or local government
10	Agro-forestry	2	Food retail, markets		Utilities
16	Environment and ecology	5	Food industry	2	Industrial
4	Trade and commerce	3	Financial Services		Other

## NUMBER OF PARTICIPANTS FROM EACH STAKEHOLDER GROUP

	Small/medium enterprise/artisan		Workers and trade union
	Large national business		Member of Parliament
5	Multi-national corporation		Local authority
2	Small-scale farmer	12	Government and national institution
2	Medium-scale farmer		Regional economic community
1	Large-scale farmer		United Nations
4	Local Non-Governmental Organization	5	International financial institution
10	International Non-Governmental Organization	2	Private Foundation / Partnership / Alliance
40	Indigenous People	2	Consumer group
19	Science and academia		Other

## 2. PRINCIPLES OF ENGAGEMENT

### HOW DID YOU ORGANIZE THE DIALOGUE SO THAT THE PRINCIPLES WERE INCORPORATED, REINFORCED AND ENHANCED?

Our Dialogue was a unique attempt aimed to Integrate Indigenous Knowledge with emerging technologies to enhance sustainability & resilience of food system by bringing together complimentary competencies of diverse stakeholders considering the Principles of Engagement of the Food Systems Summit. The Dialogue was organized by recognizing the utmost urgency of sustained and meaningful action for global marginalized Indigenous communities to attain the respective 2030 SDG's. We structured the dialogue to compliment and leverage the ongoing efforts of the Scientific Advisory Group of the Summit. Specifically, the wealth of Indigenous Knowledges has not been well-recognized by the practitioners and policy makers of food systems. Therefore, the Dialogue offered an opportunity to safeguard the respect, recognition, and rights of Indigenous Peoples to enhance resilient livelihoods and promote stewardship of natural resources, while respecting their local cultures, contexts, to reconcile with evidence based scientific knowledge. Thus, by recognizing the complexity, it was undertaken using integrated system approach, where we work collectively and leverage all available tools, and supported by 18 experts from 12 countries representing Americas, Asia, Africa, and Europe. By combining enduring knowledge from indigenous peoples with space assets, artificial intelligence, blockchain, citizen science, and other solutions, we can maximize the prospects of delivering smart, more efficient, and sustainable food practices for all. The outcome from the Panel discussions covering all five Action Tracks reflected both the policy issues as well potential workable and replicable solutions, and new development model for improving the food security for Indigenous People, thereby promoting trust and increased motivation for Indigenous youth and girls to participate in developing evidence-based tools for food systems planning and decision-making. Indeed, achieving this outcome the Dialogue committed and delivered wide-ranging benefits to the 2021 Food Systems Summit.

### HOW DID YOUR DIALOGUE REFLECT SPECIFIC ASPECTS OF THE PRINCIPLES?

As indicated in the previous section, the Principles of Engagement were systematically incorporated and enhanced through the overall organization and structure of this Dialogue. Hence, the Dialogue fully reflected the seven Principles of Engagement for the Food Systems Summit, i.e. (i) act with urgency, (ii) commit to the Summit, (iii) be respectful, (iv) recognize complexity, (v) embrace multi-stakeholder inclusivity, (vi) complement the work of others, and (vii) build trust. Food security is a global challenge, and global challenges require global representation. Therefore, our Dialogue being Global strived to be more inclusive and embrace diversity fostering diverse viewpoints and solutions. The issues addressed by this Global Dialogue, focused on challenges and barriers that currently exist related to food systems and how Indigenous Peoples can contribute solutions combined with emerging technologies that can be adapted and replicated. The focus of the discussions at the Dialogue was in combining developments in scientific concepts such as space data, AI, blockchain and identifying solutions to those mandated to deliver the Summit outcome, specifically focusing on Indigenous communities. The Panelists at the Dialogue encouraged analyses, explorations, and solutions that are specific to the local context of Indigenous Peoples. They offered current efforts and case studies of grass-roots communities of Indigenous Peoples covering challenges, barriers and policy issues for Indigenous knowledge and scientific approaches to ensure access to healthy and nutritious food for all and adopt sustainable consumption patterns. The panelists further provide insight into challenges posed by climate change and extreme weather events that may impact the food systems and discussed current efforts, mechanisms, and ideas to integrate Indigenous knowledge for building resilient and sustainable agriculture. Panel moderators representing each of the five Action Tracks shared progress of idea-generation, and recommendations for next steps for Pre-Summit and Summit process.

### DO YOU HAVE ADVICE FOR OTHER DIALOGUE CONVENORS ABOUT APPRECIATING THE PRINCIPLES OF ENGAGEMENT?

Based on the lessons learned with the planning and organization of our Dialogue, we believe that it is important to structure the Dialogue by recognizing complexity of diverse stakeholders and embracing their inclusivity, which is crucial for building trust moving forward. It is equally valuable to complement the work of others covering both the Summit mechanism as well numerous dialogues underway. For example, we structured the scope and discussion by aligning with the five Action tracks and thereby committing to the Summit process. The additional element for the convenors to consider the goals of the Dialogue aligned with the utmost urgency to reach the 2030 Sustainable Development Goals. Therefore, it is important to focus on workable and replicable solutions based on key milestones, success criteria and measurable deliverables between 2021 to 2030 period.

# 3. METHOD

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The outcomes of a Dialogue are influenced by the method that is used.

**DID YOU USE THE SAME METHOD AS RECOMMENDED BY THE CONVENORS REFERENCE MANUAL?**

**Yes**

**No**

# 4. DIALOGUE FOCUS & OUTCOMES

## MAJOR FOCUS

The major focus included (a) comprehensive analysis, (b) addressing all five action tracks, and (c) linkages between the five action tracks with innovation lever of change.

### 1. Comprehensive analysis:

#### Main topics covered:

The Dialogue first highlighted the significance and importance of emerging technologies in the context of indigenous knowledge for food security. For example, Space data, in a sense, game-changers and it is indeed great to see the list of the benefits, as more data and information translate to actionable services, applications, policies, and decisions, this empowers us to create the future we want. However, there are still gaps we need to overcome. What hinders our collective progress is the lack of universal access to space assets and their associated benefits. We cannot leave Indigenous people behind. We must embrace them, and we must ensure their voices are heard. This is where the organizers aim to help bridge the divide.

An integrated system approach, where we work collectively and leverage all available tools, to advance sustainable development has tremendous potential. By combining enduring knowledge from indigenous peoples with space assets, artificial intelligence, blockchain, citizen science, and other solutions, we maximize the prospects of delivering smart, more efficient, and sustainable agricultural practices for all.

Indeed, achieving this outcome can deliver wide-ranging benefits transcending across all five action tracks of the summit. The 2021 Food Systems Summit is an opportunity to merge new technologies and solutions with the knowledge of rural people from across the world.

### 2. Addressing Tracks 1 and 2: Challenges, barriers, and policy Issues for integrating Indigenous knowledge/experiences to ensure access to healthy and nutritious food and adopt sustainable consumption patterns.

Main topics covered: The panelists discussed their current efforts and case studies of grass-roots communities of Indigenous Peoples covering challenges, barriers and policy issues for Indigenous knowledge and scientific approaches to ensure access to healthy and nutritious food for all and adopt sustainable consumption patterns.

### 3. Addressing Tracks 3 and 4: Emerging S&T based solutions applicable for integrating Indigenous knowledge/experiences for food security.

#### Main topics covered:

- Indigenous community-based food security: A learning experience from Cree and Dene First nation Communities
- Indigenous methods of food preparation as a viable means of achieving food security and nutrition in rural poor communities.
- Development and implementation of programs that target food security using Indigenous knowledge and an intercultural perspective.
- No action track can be achieved if the rights to lands and waters for indigenous peoples are not first guaranteed.
- Game changers were proposed using a white paper written by the Global Hub on Indigenous Peoples Food Systems.

### 4. Addressing Track 5: Solutions for Sustainable and Resilient Food System

Strategies and mechanisms for integrating Indigenous knowledge in building sustainable and resilient food system from vulnerabilities, shocks, and stresses.

Main topics covered: The panelists provided insight into challenges posed by climate change and extreme weather events that may impact the food systems and discuss current efforts, mechanisms, and ideas to integrate Indigenous knowledge for building resilient and sustainable agriculture.

## ACTION TRACKS

- ✓ Action Track 1: Ensure access to safe and nutritious food for all
- ✓ Action Track 2: Shift to sustainable consumption patterns
- ✓ Action Track 3: Boost nature-positive production
- ✓ Action Track 4: Advance equitable livelihoods
- ✓ Action Track 5: Build resilience to vulnerabilities, shocks and stress

## KEYWORDS

- ✓ Finance
- ✓ Innovation
- ✓ Human rights
- ✓ Women & Youth Empowerment
- ✓ Policy
- ✓ Data & Evidence
- ✓ Governance
- Trade-offs
- ✓ Environment and Climate

## MAIN FINDINGS

### A. Main Findings from Tracks 1 and 2:

- It is recognized that ancestral knowledge is extensive and despite efforts to systematize it, there are still limitations that must be recognized, and deliberate conditions must be created to have policies and resources to incorporate it into food systems where western knowledge predominates.
- The summit represents an opportunity to build to recognize the problems and how to implement the solutions that we are mostly familiar with.
- Reflecting on the financing of the proposals and how to really get to the political side to make inclusive decisions that promote new policies and legislations.
- According to what was presented, there are many and several initiatives that already focus on knowing and valuing ancestral knowledge, they represent an opportunity to strengthen them and give more strength to the proposal of this dialogue.

### B. Main Findings from Tracks 3 and 4:

#### Discussion results:

Disasters are becoming more frequent with climate change and are a significant risk to food security – a risk that is only increasing due to global changes in climate. UN FAO recorded an increase in dollar-cost crop loss in Small Island Developing States (SIDS) from \$8.8 Bn for the 2000-2007 time to \$14 Bn for 2008-2015 (UN-FAO). Crop loss in Latin America and the Caribbean was estimated at \$22 Bn for 2005-2015 (UN-FAO).

While most of the present diets and farming practices prescribed by yield centric with few monocropping systems are far from the traditional knowledge and wisdom-later rely on the diversity of life, agrobiodiversity, nutrient-rich crops and food sovereignty.

These risks need to be handled by understanding symbiotic relationship of 5 elements, the soil, water, air, flora, and fauna. Indigenous wisdom and rights on lands and waters are essential for future smart food and diet diversity, which is driven by indigenous knowledge in synch with emerging technologies.

The Global Hub on Indigenous Peoples' Food Systems recommends:

1. Guaranteeing the right to self-determination of Indigenous Peoples, rights to their lands and waters through policies and reforms will ensure that Indigenous Peoples could advance to more equitable livelihoods. Supporting networks of Indigenous Peoples will also ensure they have a more active participation at policy level and to be included in the decision-making process.
2. Supporting increased biodiversity and implementing biocentric restoration centers. Resilience is strongly linked to biodiversity, so supporting indigenous communities to keep and restore their biodiversity is crucial not only for food security and nutrition but for life in general. One example of such initiatives is the Potato Park in Peru.
3. In natural systems, the production follows functions. There is an urgent need to leverage technology, diversity, and indigenous knowledge to restore the ecological sound food systems for healthy diets, sustainable living and planetary health. Technology is matured enough to make a difference which requires collective actions for system-level transformation- it must combine resilience, conservation, and restoration with co-benefits.
4. There are two key drivers of technological innovations, the recent advances in earth observation systems and the increased use of mobile phones –90% of the precision decision making data comes from these two technologies. The transformation requires an "Inclusive Agroecosystems" where use of science, technology help to rich the producers-farmers, connect them to consumers through an institutional framework that uses the digital technologies, enormous agricultural research with the ecological framework - diversification of agriculture with indigenous knowledge and wisdom of the right mixer of crops, varieties, multi-purpose trees, livestock, and people to preserve soil health and biodiversity. Scaling such transformational changes in the food systems requires digital augmentation for collective action to interlink various systems-level solutions for inclusive development.
5. 50 years of Earth observation data coupled with local knowledge is a key to understand the impact of global climate change on food systems and indigenous people are the best stewards of climate balance. These efforts can benefit from space technologies, open data, and geo-intelligence linked with frontier technologies such as machine learning, 3-D printing, digital weather stations and the internet of things (IOTs).

### C. Main Findings from Track 5:

#### Discussion results:

This discussion section of the forum focused on Track 5: Building resilience to vulnerabilities, shocks, and stresses, which had the objective of generating inputs and insights on challenges posed by climate change and extreme weather events that may impact the food systems, as well as discussing current efforts, mechanisms, and ideas based on using S&T tools for building resilient agriculture with focus on indigenous community, according to the concept note for this dialogue.

The panelists highlighted the importance of positioning ancestral knowledge and technology under decolonial visions and debates, especially considering our approach to the terms of food security and the difference that exists between food security and food sovereignty. Looking at these concepts integrating the indigenous perceptions and not only from our western perspectives is a challenge that we need to take towards achieving a real participatory dialogue.

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## OUTCOMES FOR EACH DISCUSSION TOPIC

### 1. Outcome from Tracks 1 and 2:

- It is recognized that ancestral knowledge is extensive and despite efforts to systematize it, there are still limitations that must be recognized, and deliberate conditions must be created to have policies and resources to incorporate it into food systems where western knowledge predominates.
- The summit represents an opportunity to build to recognize the problems and how to implement the solutions that we are mostly familiar with.

### 2. Outcome from Tracks 3 and 4:

#### Recommendations:

Panel provided recommendations that may be useful for harvesting indigenous knowledge, utilizing it, and promoting sustainable food production, distribution, and consumption.

- Ensure through policy making and institutional change that Indigenous Peoples rights to lands and waters is ensure. Respecting Indigenous Peoples' rights to self-determination is also crucial to advance to more equitable livelihoods and support their own processes to build and maintain more resilient communities.
- Technology innovation –driven by geotagging, agrotagging, Earth observation, machine learning, and ICT-enabled citizen science, mapping new consumerism –which provides essential entry points for integrating the local knowledge and indigenous knowledge (I am not comfortable with the world intelligence, could you explain what do you mean?) for site-specific advisory, access to services/information that benefits the remote and smallholder farmers and consumers while safeguarding the environmental flows.
- Involving and supporting Indigenous Peoples in the process of gathering data and evidence that supports the need to preserve their knowledge, lands, and waters. Those processes should also be led by Indigenous Peoples.
- Implementation of low-cost technology solutions may be shared with indigenous populations to improve data quantity and quality.
- Collaborative efforts focusing on resilience plans have the greatest benefits.
- The availability of space-based data may be used to substantially improve such plans when combined with information from indigenous populations.
- The frequency and availability of space-based data may aid indigenous populations in making better decisions about crop management/resilience.

### 3. Outcome from Track 5:

The challenges posed by climate change and its consequent extreme events in the sustainability of food systems of indigenous peoples require establishing bridges between research in science and technology and traditional/ancestral knowledge and practices. These knowledges for years were able to sustain the rich and healthy diet of the indigenous peoples. However, today we observe tendencies towards deterioration.

Through these spaces of dialogue, our aim was to listen openly about what indigenous peoples have to say; which builds the necessary complementarity and synergy between technological innovations and traditional practices, to face the current situation that indigenous peoples experience due to the weakening of their food systems.

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## AREAS OF DIVERGENCE

Discussion synthesis from Tracks 1 and 2:

- According to what was presented, there are many and several initiatives that already focus on knowing and valuing ancestral knowledge, they represent an opportunity to strengthen them and give more strength to the proposal of this dialogue.
- Reflecting on the financing of the proposals and how to really get to the political side to make inclusive decisions that promote new policies and legislations.

Discussion synthesis Tracks 3 and 4:

First of all, no action track will achieve its goals and objectives as far as the right to self-determination of Indigenous Peoples is not guaranteed as well their rights to their lands and waters. Many of the technologies and indigenous knowledge is preserved within Indigenous Peoples territories and with the daily use of their language and this is how they pass the knowledge from one generation to other. Thus, it becomes imperative to respect their right to self-determination, lands and waters.

The discussion helped to define a workable and replicable new development model for integrating emerging science and technology (S&T) based solutions with Indigenous knowledge. The panelists discussed ongoing efforts and new ideas based on their experience in using S&T, especially E Earth Observation (EO) and ICT based tools for food security and food system transformation.

It advocated the use of innovations to integrate indigenous knowledge and wisdom for better diet diversity, farming systems and planetary health, and use of Earth Observation and frontier technologies to investigate and integrate Indigenous knowledge for food and nutritional security.

Discussion synthesis Track 5:

It is of crucial importance to open dialogues about the transmission of knowledge among young peoples of indigenous communities. There is a key role of carrying out the analysis work from their ancestral knowledge but at the same time under the lens of the recovery of this knowledge by the indigenous peoples themselves, especially from the oldest wise peoples to the youth, under their praxis and their own cosmovision.

### ACTION TRACKS

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# ATTACHMENTS AND RELEVANT LINKS

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## ATTACHMENTS

- **Report of the Dialogue**  
[https://summitdialogues.org/wp-content/uploads/2021/06/Report\\_UNFSS\\_Global\\_Dialogue\\_May\\_31\\_2021\\_Final.pdf](https://summitdialogues.org/wp-content/uploads/2021/06/Report_UNFSS_Global_Dialogue_May_31_2021_Final.pdf)

## RELEVANT LINKS

- **Background Paper**  
[https://caneus.org/1.UNFSS\\_Background\\_Paper\\_May\\_31.pdf](https://caneus.org/1.UNFSS_Background_Paper_May_31.pdf)