



HIGH-LEVEL POLITICAL FORUM
ON SUSTAINABLE DEVELOPMENT

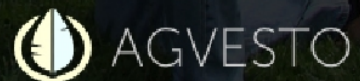
REPORT UN HLPF 2020 SIDE EVENT

Indigenous Peoples-led Use of Earth Observations

Held on
July 9th, 2020
United Nations, NY

<https://www.caneus.org/unhlpf2020>

Collectively Organized by



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Preface

Preface

We would like to thank the United Nations Secretariat for Coordination for Sustainable Development at the Department of Economic and Social Affairs, for offering us the opportunity to organize this unique Side Event “Indigenous Peoples-led Use of Earth Observations” as part of the United Nations 2020 High Level Political Forum – HLPF 2020, held on July 9th to 16th to follow up and review the 2030 Agenda for Sustainable Development.

While the HLPF provides political leadership, guidance and recommendations for implementation and progress of SDGs, the issues addressed by this Side Event, focused on challenges faced by Indigenous Peoples worldwide, which are particularly important in the current context of the COVID-19 pandemic.

Therefore, the outcome from this event reflects the urgent needs, and offers UN Member States opportunities to incorporate these outcomes in their own recommendations and implementation of SDG priorities with respect to supporting indigenous communities.

Co-organized by CANEUS International in partnership with Intergovernmental Organizations FILAC (Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean), and GEO (Group on Earth Observations) Indigenous Alliance, together with NASA, Conservation International and Agvesto, these efforts were a highly enriching and inspiring experiences bringing together complementary competences of Indigenous Peoples worldwide with those from the Earth Observation / space technology communities who work with them.

The event was well attended by 454 registered participants and supported by 19 experts from the co-organizing organizations contributing to its planning and implementation. 15 presentations by 16 speakers attempted to highlight the important issues facing the Indigenous Peoples and how EO tools and data can be made more accessible to help communities to pursue their self-determined development pathways while safeguarding traditional knowledge and systems.

Overall, the event was very productive in terms of its intended goals and offered participants an opportunity to learn about the challenges and opportunities for Indigenous Peoples’ engagement in the co-creation and use of solutions that support their sustainable development goals.

We invite all the UN Member States and SDG stakeholders to work together to help address the most pressing real-world issues facing the Indigenous Peoples’ worldwide covering key areas of land and ocean/seas where the rights agenda needs more support, undertake a review of the tools and training exist, as well as programmes or methodologies for knowledge transfer using Earth observations.

Milind Pimprikar
Chairman
CANEUS

Myrna Cunningham Kain
President
FILAC

Steven Ramage
Head External Relations
GEO Secretariat

Executive Summary

Executive Summary

The “Indigenous Peoples-led use of Earth Observations” side event was held on July 9th 2020, contributing to the 2020 United Nations High-level Political Forum on Sustainable Development (HLPF) under the auspices of the UN Economic and Social Council – UNESOC.

The theme of this undertaking, “Accelerated solutions for Indigenous Peoples 2030 socio-economic goals using Earth Observations (EO) based solutions” was aligned with the theme of UN HLPF 2020, i.e. “Accelerated action and transformative pathways: realizing the decade of action and delivery for sustainable development ”.

This side event was a collaborative efforts led by 19 contributors from CANEUS, FILAC, GEO, NASA, Conservational International, Agvesto, and others, representing Indigenous representatives as well as key actors in the field of EO and Information and Communications Technology (ICT) design.

It served as a platform for Indigenous Peoples to discuss opportunities and challenges for increasing Indigenous Peoples engagement with other stakeholders in the co-development, creation and use of culturally relevant EO data and tools.

The event specifically contributed to “knowledge exchange and capacity development” related to the GSDR (Global Sustainable Development Report) six entry points for transformation and the four key levers to accelerate those transformations.

The experts presented experiences and methodologies to mobilize stakeholders and promote solutions to leave no one behind, particularly the Indigenous Peoples. They further offered sustainable innovations, investment mechanisms and access to technologies, as well as bring community experience, including from youth.

The discussants contributed to develop a set of recommendations on how EO-based tools and methodologies can support SDG implementation in key areas of land and ocean/seas where the rights agenda needs more support. Additionally, discussants wanted to pursue their self-determined development pathways while safeguarding traditional knowledge and systems.

Background

Background

Recognizing and honouring Indigenous culture and knowledge, as well as supporting Indigenous stewardship of the millions of acres of land under Indigenous-management, represents a potential transformative pathway to meeting the SDGs.

Earth observations which includes satellite, aircraft and ground monitoring technologies can play a key role in supporting Indigenous-led land management. However, Indigenous peoples currently do not have equal access or opportunities to these technologies, including EO data and tools.

To narrow this gap, we must understand the unique challenges Indigenous communities face to use and develop EO technologies and address key topics to strengthen Indigenous peoples' rights and help unlock EO capabilities for all.



Objectives / Scope

Objectives / Scope

This side event served as a forum for Indigenous Peoples and those who work with them to discuss opportunities and challenges for increasing Indigenous peoples' engagement in the creation and use of EO data and tools that support their sustainable development goals.



Input from Speakers / Panelists and Participants

Input from Speakers / Panelists and Participants

The panel of experts discussed key challenges and opportunities for inclusive engagement with Indigenous peoples to advance EO design and applications for sustainable development at the community level. They also discussed the successes and lessons learned from experience co-designing and applying EO technologies to help advance Indigenous rights.

The welcoming remarks were presented by co-host CANEUS Chairman Dr Milind Pimprikar to greet all participants, speakers and those stakeholders who would access and benefit from the recording of this event. Milind emphasized the timeliness and need for this HLPF 2020 side event, and its significance within the current context of COVID-19 Pandemic. He outlined the design and structure of this event, the issues to be addressed by speakers and participants, contributing to measurable deliverables as an outcome to be submitted to the UN Sustainable Development Secretariat.

The event began with traditional Indigenous prayers by FILAC Director and esteemed leader Mrs. Otilia Lux of Guatemala.

In her opening address, FILAC President Ms. Myrna Cunningham Kain highlighted the challenges with the accelerated technological inequalities amongst the Indigenous Peoples. This is already one of the most vulnerable groups in the use and collection of data and information, where the technological gap is further widening. Thus, it must be a priority for accelerated development, that Indigenous Peoples have access and hands-on experience with implementing emerging technologies, such as artificial intelligence and space data. For example, benefitting from telemedicine to serve remote regions, among others with the goal of reducing inequalities.

These were further complemented by Mr. James Rattling Leaf Sr. in his opening remarks offering the vision for the GEO Indigenous Alliance to protect and sustain Indigenous cultural heritage utilizing and contributing to global Earth observation science, data, technology and knowledge.

The objectives and expected outcomes were presented by CANEUS Director Dr Thomas George, which helped set the stage for the core session of this event. The session was moderated by Mr. Steven Ramage, of the Group on Earth Observations (GEO) Secretariat and Mrs. Otilia Lux of FILAC, Guatemala.

Mr. Steven Ramage introduced the first speaker Hon Ms. Lisel Alamilla, Chair of the Toledo Maya Land Rights Commission, and Senator and Minister of Forestry, Fisheries & Sustainable Development, Belize (2012-2015) Government of Belize.

Ms. Lisel Alamilla highlighted the challenges for the Government to create an effective mechanism to identify and protect property rights and other rights arising from Maya customary land tenure, in accordance with Maya customary laws and land tenure practices. Her innovative approach covering the two phase process for the Delimitation Principles and Methodology – DPM, sets out in details the method by which the Government of Belize and Maya will collaborate to reach a mutual understanding and agreement as to what areas of land will be demarcated as Maya lands.

Next, Mrs. Otilia Lux introduced the second speaker Mr. Erwin Freddy Mamani Machaca Indigenous Quechua, Bolivia, Responsible for the Lithium Evaporative Resources, Uyuni Salt Flats, and Indigenous Peoples' Rights Commission (FRUTCAS). Whilst Mr Freddy outlined the obstacles for innovation as a source of change, he emphasized the urgent challenges such as access to new ICTs and the implementation of the right to develop for developing countries and Indigenous Peoples.

Mr. Steven Ramage steered the remainder of the program covering exciting presentations by (i) Mr. Titus Letaapo, Namunyak Wildlife Conservation Trust, Kenya, (ii) Dr. Amber Jean McCullum, NASA's Capacity Building Program, US, (iii) Ms. Minnie Degawan, Kankanaey Igorot, Director of Indigenous and Traditional Peoples Program, Conservation International, (iv) Ms. Diana Mastracci, Space 4 Innovation, Founder, GEO Indigenous hackathons, and (v) Mr. Bruce Stephen, (Retd) Director, Agriculture Canada, CANEUS, and Dr. Srin Sundaram, CEO, Agvesto, to support Indigenous socio-economic needs.

Mr. Titus highlighted key opportunities for inclusive engagement with Indigenous Peoples to advance EO-based applications at the community level, e.g. how availability of information on normalized difference vegetation index (NDVI) from partners enables sharing of visualization maps on vegetation greenness, and how the grazing committees have learnt the importance of linking science to traditional knowledge.

Dr. Amber Jean McCullum, provided an overview of ongoing efforts to connect NASA's Capacity Building Program to Indigenous Communities, which is aimed to guide the world to use Earth science data and to empower communities to improve their natural resource management decisions.

She described four primary initiatives: (i) SERVIR which is a partnership with USAID where they work within countries through many international hubs, (ii) the ARSET Program, which provides freely available remote sensing training online and in-person in many application areas, such as land management, water resources, and health and air quality, (iii) the DEVELOP Program which is an internship where groups of participants conduct short applied science projects with partners, and finally (iv) the Indigenous Peoples Initiative covering multiple objectives that all center around community, listening, and relationship building, and how it will help increase indigenous representation and knowledge systems at NASA, which will benefit both the NASA community and present indigenous and "western" knowledge side-by-side.

Particularly, with the current COVID-19 pandemic, NASA is working to create an online remote sensing trainings series that highlights many of the ongoing training topics, which can be accessed through <https://appliedsciences.nasa.gov/indigenous-peoples-pilot> Dr Cindy Schmidt, Program Manager at NASA had previously helped to organize the first ever Indigenous-focused session at the GEO Week 2019 (including a Ministerial Summit) held in Canberra, Australia in 2019. This meeting helped bring attention to the importance of Indigenous peoples to participate in GEO and further create the GEO Indigenous Alliance.

The inspiring presentation from NASA was followed by Ms. Minnie Degawan, Kankanaey Igorot, Director of Indigenous and Traditional Peoples Program at Conservation International. Ms. Minnie illustrated the Challenges for Indigenous Peoples, which range from issues of access to rights recognition, and eloquently outlined the key "Principles" to live by when working with Indigenous Peoples, e.g. importance of "respect for different knowledge systems" with "mutual learning from each other" and need to demonstrate the viability of EO based solutions. She further provided an example of an ongoing project "EO4IM: Earth Observations for Indigenous-led land Management".

Next, Ms. Diana Mastracci, shared the successes and lessons learned from her innovative series of "GEO Indigenous hackathons". These widely held Geo-Hacks help increase inter-generational knowledge transfer, increase cross-cultural communication, and further enhance local culture. Ms. Mastracci presented examples of two diverse global teams, e.g. one from Kenya / Sudan and second from Mexico/UK/Italy/Australia/Colombia, on how they successfully managed to develop solutions using EO to address the local challenges from local Indigenous Communities. She further outlined the process involved from "pre-hacks" to "final-hacks", and invited participation in the ongoing GEO Indigenous Hack4Covid which ends in September 2020.

The final joint presentation by Mr. Bruce Stephen and Dr. Srini Sundaram, proposed a project to bring together Earth observation data and tools, with traditional knowledge keepers and community land managers to optimize land use opportunities.

Dr Srini suggested a pilot focusing to map the traditional lands of Saskatchewan/Western Canada's First Nations, used for hunting, trapping, foraging, fishing and agricultural, as well as travel routes and settlement sites. Modelled on the RezMappers project on traditional Lakota lands (South Dakota), the proposed initiative will provide an educational opportunity for Elders and community knowledge keepers to educate their communities and especially their youth on the environmental and cultural importance of places and events.

It will also help identify opportunities for optimal lands management through historical and forward-looking predictive tools, such as climate forecasting, land use suitability, crop varieties and rotations, water availability and quality management, how they can inform land use and infrastructure investment decisions.

Following these thought-provoking presentations, the moderator Mr. Steven Ramage had the challenging task to manage audience questions for the panelists / speakers.

The Q&A session was highly productive and addressed four major questions, which further contributed for Steven to formulate three key recommendations.

The first question focused on the issue of "Territorial management". The discussants Hon. Ms. Lisel Alamilla from the Government of Belize complimented her presentation, emphasizing the need to consider a larger picture of land protection / management and resources to support such efforts. It was further echoed by discussants James and Minnie, illustrating the current challenges involving years of dispute litigations. There was consensus on the need for EO data tools and images for accelerated implementation of land management.

The second question addressed the key issue of linking emerging scientific methods with traditional Indigenous knowledge. The discussants, Dr Amber from NASA provided several examples of engaging the Elders, and Dr Srimi offered insights on effective ways to balance such practices.

The third question covering "Data ethics and ownership" generated lot of interest and debate from discussants Mr. James, Mr. Freddy and others about the importance of use and support for existing tribal and Indigenous data governance protocols and procedures as well necessary resources including funding and infrastructure to support such capability.

The moderator Mr. Ramage posed the fourth question on current practices and challenges with "Capacity development in local languages". The discussants Ms. Minnie offered examples of such efforts within Philippines and importance for developing the tools to support the local needs, and the challenges with the "technical terms" which may be discouraging to local practitioners. Dr Amber also provided examples of ongoing efforts within NASA Capacity development programs and how those could be further adapted to the local needs.

Additionally, there were several questions from the participants through the chat room that raised the issues covering investment tools and mechanisms such as Public Private Partnership (PPP).

The summarizing statements from the speakers further offered their insight on these questions and broader issues, e.g. (a) the technology gaps and how the pandemic is forcing everyone the use of technology, (b) the chicken and egg scenario of "internships" vs. "externships" and benefits from "innovation hackathons", (c) the critical need for "job creation" for youth, (d) Indigenous capacity development in decision making, and (e) data sovereignty. Finally, the closing remarks were presented by FILAC Secretary Mr. Alvaro POP and CANEUS Chairman Dr Milind Pimprikar.

Mr. Alvaro, while highlighting the key points from the speaker's presentations, drew attention that the knowledge of Indigenous Peoples in Latin America date from 5000-7000-years AD and we have been progressing in the framework of the United Nations to recognize and promote inter-science dialogue. The Indigenous Peoples are the protectors of biodiversity, forests, wetlands, and resources which constitute historical significance. To protect and nurture, we need access to new ICTs, as well promote technological transfer for developing countries and Indigenous Peoples, to widen South-South cooperation.

The closing statement from Milind called for action moving forward and described the next steps from the outcome of this event.

Acknowledging the tough task, to close the lively and stimulating debate moderated by Mr. Steven Ramage, Milind thanked all participants, speakers / panelists for the collective efforts, which has been invaluable and, without any doubt, has helped make the event a great success. It has benefited both the Indigenous and EO communities as well policy-makers from the UN HLPF stakeholders.

While numerous points of view have been outlined, the one overriding message is that key issues covering the wide spectrum of balancing the EO science to traditional knowledge, to those involving data ethics and sovereignty as seen from the perspective of the Indigenous Peoples, offers challenges and opportunities moving forward.

Milind emphasized the importance that the ideas contributed by the speakers as well as input from participants through the Q&A period, be formulated with specific recommendations and disseminated to a wider stakeholders for its measurable implementation.

In particular, he acknowledged the crucial support from FILAC President Ms. Myrna and their technical Secretary Mr. Alvaro and Head of UN Mission in NY Mr. Oscar Aguilar.

While they are too many to name individually, all those who have been involved in the successful organization of this event, he expressed special appreciation to the event translation team at FILAC, the design and technical support from Mr. Johnny Valencia, as well the ongoing translation support from young student Mr. William Alemán, whose contribution we highly value since the planning phases.

It is very important that the findings from this event be incorporated into the action items and implementation plans by the UN Member States and stakeholders, as well updated through various upcoming forums such as UN75.

Milind finally invited everyone to benefit from the video recording and report of this event, especially those who could not participate in this event.

Outcome

Outcome: Recommendations and Follow-up Action Plan

The outcome of this event includes following set of recommendations from Indigenous experts on how EO tools and data can be made more accessible to help communities to pursue their self-determined development pathways while safeguarding traditional knowledge and systems.

The three key recommendations include:

1. Consider key areas of land and ocean/seas where the rights agenda needs more support and how Earth observations can do so.
2. Assess the most pressing real-world issues linked to agriculture, biodiversity, climate change, disasters, etc.
3. Review what tools and training exist, as well as programmes or methodologies for knowledge transfer.

Recommendations covering Implementation and Progress of SDGs:

There is a sense that SDGs have been overlooking Indigenous peoples (IP), principally for 1) inadequate recognition of IPs in the goals and targets themselves, 2) the indicators' failure to disaggregate IP-specific figures from country-level data, and 3) for failing to recognize the potential contributions of IPs as active participants in attaining the goals, as opposed to mere recipients.

Recommendations covering Empowering Indigenous Sovereignty and Data Governance

The emergence of the global data revolution and associated new technologies can be a double-edged sword for indigenous peoples. If Indigenous peoples have control over what and how data and knowledge will be generated, analysed and documented, and over the dissemination and use of these, positive results can come about.

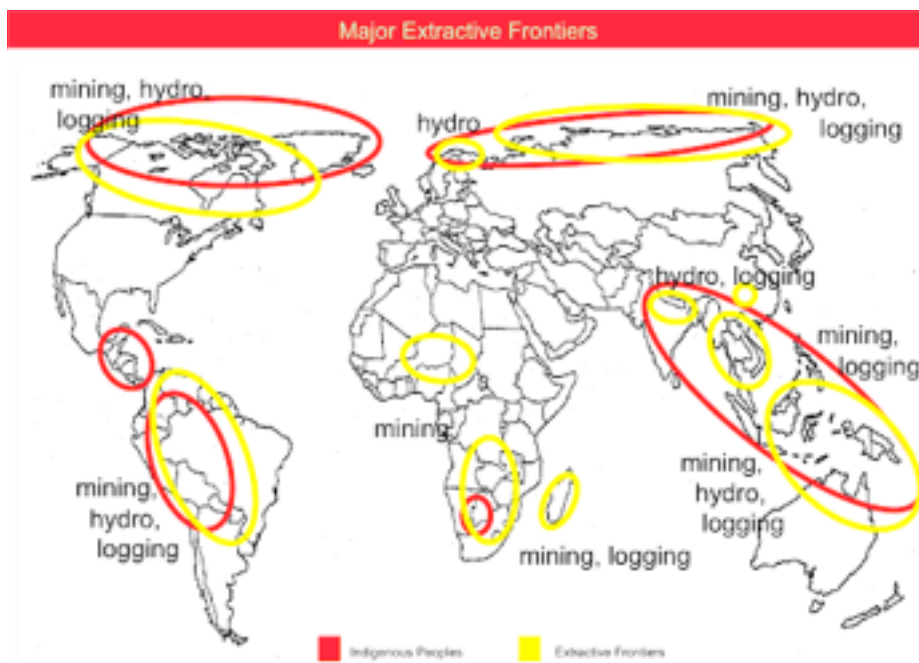
The collection and disaggregation of data on Indigenous peoples and the documentation and transmission of their knowledge to younger generations can be facilitated. They can be the primary beneficiaries of the use of data, their knowledge and their cultural heritage.

If, however, Indigenous peoples lose control because there are no existing laws and policies that recognise their rights and regulate the behaviour of institutions and individuals involved in gathering and disseminating data and knowledge, marginalisation, inequality and discrimination will persist. The respect of their right to have their free, prior and informed consent obtained before data are gathered and disseminated is crucial to prevent this from happening.

To inspire more Indigenous peoples to assert and actualise their rights to control, own and further, there is a need develop their knowledge and cultural heritage and to effectively transmit these to the younger generations.

Therefore, to empower Indigenous Data Sovereignty and Data Governance, the following action items are proposed:

1. Recognize and promote data sovereignty
2. Lead with indigenous ingenuity and core values
3. Conduct science in service to community-driven research that builds capacity within communities
4. Engage and promote Indigenous scholarships
5. Use and support existing tribal and Indigenous data governance protocols and procedures
6. Fund infrastructure, capacity, and capability



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Annexes

Annex - A (Program)

Welcome and Prayers (5 minutes):

- Welcome: Dr. Milind Pimprikar, Chairman, CANEUS ([PPT FILE](#))
- Prayers: Mrs. Otilia Lux, Director, FILAC Guatemala

Opening Remarks (10 minutes):

- Ms.. Myrna Cunningham Kain, President, FILAC ([PPT FILE](#))
- Mr.. James Rattling Leaf, Sr., Rosebud Sioux Tribe, GEO Indigenous Alliance ([PPT FILE](#))

Setting the Stage: Objectives (5 minutes):

- Dr. Thomas George, Director, CANEUS (5 minutes) ([PPT FILE](#))

Moderators (70 minutes):

- Mr. Steven Ramage, Group on Earth Observations (GEO)
- Mrs. Otilia Lux, FILAC, Guatemala
- Hon Ms. Lisel Alamilla, Chair of the Toledo Maya Land Rights Commission, and Senator and Minister of Forestry, Fisheries & Sustainable Development, Belize (2012-2015) Government of Belize ([PPT FILE](#))
- Mr. Erwin Freddy Mamani Machaca Indigenous Quechua, Bolivia, Responsible for the Lithium Evaporative Resources, Uyuni Salt Flats, and Indigenous Peoples' Rights Commission (FRUTCAS). ([PPT FILE](#))
- Mr. Titus Letaapo, Namunyak Wildlife Conservation Trust, Kenya ([PPT FILE](#))
- Dr. Amber Jean McCullum, NASA's Capacity Building Program, US ([PPT FILE](#))
- Ms. Minnie Degawan, Kankanaey Igorot, Director of Indigenous and Traditional Peoples Program, Conservation International ([PPT FILE](#))
- Ms. Diana Mastracci, Space 4 Innovation, Founder, GEO Indigenous hackathons ([PPT FILE](#))
- Mr. Bruce Stephen, (Retd) Director, Agriculture Canada, CANEUS, and Dr. Srin Sundaram, CEO, Agvesto, to support Indigenous socio-economic needs ([PPT FILE](#))

Closing Remarks (5 minutes):

- Mr. Técnico, Alvaro POP, Technical Secretary, FILAC ([PPT FILE](#))
- Dr. Milind Pimprikar, CANEUS ([PPT FILE](#))

Annex - B (List of Contributors)

1. **Milind Pimprikar**, Founder & Chairman, CANEUS
2. **Myrna Cunningham**, President and Chair of the Board of Directors of the Fund for the Development of Indigenous Peoples of Latin America and the Caribbean (FILAC).
3. **James Rattling Leaf**, Sr., Rosebud Sioux Tribe, GEO Indigenous Alliance
4. **Mrs. Otilia Lux**, FILAC, Guatemala
5. **Steven Ramage**, Group on Earth Observations (GEO)
6. **Hon. Lisel Alamilla**, Chair of the Toledo Maya Land Rights Commission, and Senator and Minister of Forestry, Fisheries & Sustainable Development, Belize
7. **Erwin Freddy Mamani Machaca** Indigenous Quechua, Bolivia, Responsible for the Lithium Evaporative Resources, Uyuni Salt Flats, and Indigenous Peoples' Rights Commission (FRUTCAS).
8. **Minnie Degawan, Kankanaey Igorot**, Director of Indigenous and Traditional Peoples Program, Conservation International
9. **Titus Letaapo, Namunyak** Wildlife Conservation Trust, County Director, Samburu
10. **Diana Mastracci**, Space 4 Innovation, Founder, GEO Indigenous hackathons
11. **Amber Jean McCullum**, NASA's Capacity Building Program, US
12. **Dr. Nancy D. Searby, Manager**, Capacity Building Program for NASA's Applied Sciences Program
13. **Bruce Stephen**, (Retd) Director, Agriculture Canada, CANEUS
14. **Srini Sundaram**, CEO, Agvesto
15. **Dr Thomas George** is CEO and co-founder of SaraniaSat Inc.
16. **Karyn Tabor** is the Senior Director of Ecological Monitoring in the Betty and Gordon Moore Center for Science at Conservation International.
17. **Dr Cindy Schmidt** is currently an Associate Program Manager for NASA's Applied Science Ecological Forecasting program.
18. **Mr. Álvaro Pop Ac**, Technical Secretary, FILAC

19. Mr. Oscar Aguilar FILAC

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