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JPAC Public Forum on *Building Sustainable Economies: Circular Models and Nature-based Solutions for a Resilient North America*
24 July 2025, Mexico City, Mexico

Summary Records

JPAC Public Forum Traditional Indigenous Welcoming Ceremony

During the ceremony, Carlos Montaño, inspired by the Teotihuacan worldview, sent greetings out to the seven cosmic directions, each with a profound meaning: North, symbolizing the wisdom inherited from the ancestors; South, connected to the will and represented by Huitzilopochtli; East, emblem of the sun's energy as a creative and illuminating force; West, incarnation of creative and sustaining feminine energy; the center of the galaxy, cosmic origin and source of consciousness; Mother Earth, giver of life, medicine, and unconditional love, and finally, the Heart, the creative center of reality and the symbol of unity and co-creation.

In his concluding message, Montaño put out a call for collective co-creation from the Heart, wishing harmony and unity to all of humanity.

Opening Remarks by Anne-Raphaëlle Audouin, JPAC Chair

Anne-Raphaëlle Audouin began her introductory speech by expressing gratitude to Carlos Montaño for the ceremonial welcome. She then provided an overview of the forum's agenda and its goal: to explore how the integration of Circular Economy and Nature-based Solutions can accelerate the transition to more-sustainable and more-equitable economic systems. Audouin also provided insight into the role of the Joint Public Advisory Committee (JPAC) and invited fellow JPAC and Traditional Ecological Knowledge Experts Group (TEKEG) members to introduce themselves.

Welcoming Remarks by Jorge Daniel Taillant, CEC Executive Director

Jorge Daniel Taillant opened his introductory speech by emphasizing the importance of relationality, the deep interconnection between all forms of life—humans, animals, plants, and ecosystems. He advocated for a relational worldview, where our perception and interaction with nature actively shape our reality. He highlighted the importance of Indigenous knowledge, recognizing it as a foundational understanding of this interconnectedness long before it was acknowledged by Western science.

Taillant then turned to the urgent environmental challenges we face, including the climate crisis, biodiversity loss, and widespread environmental degradation. He pointed to the unsustainable development models driving these crises and issued a call to action in response, urging a fundamental rethinking of development models and a shift toward circularity and Nature-based Solutions. He stressed that humanity still has the power to change course and move toward sustainability, and he called for cooperative trilateral action across North America.

Keynote Presentation – Building Sustainable Economies: Unlocking the Potential of Circular Economy and Nature-based Solutions, by Danielle Holly, Executive Lead for North America, Ellen MacArthur Foundation, USA

Danielle Holly, Executive Lead for North America of the Ellen MacArthur Foundation, opened her keynote by highlighting the urgent need to shift from a linear economic model—based on extraction, production, and disposal—that is driving multiple environmental crises, to one that regenerates and re-uses. She

emphasized that both the Circular Economy and Nature-based Solutions aim to reconnect with the planet and maximize resource value.

Transitioning to a circular model requires designing materials for multiple lifecycles; changing policies, infrastructure, and consumer behavior; as well as decoupling business growth from production volume. Ultimately, the conversation must shift upstream to design systems that prevent waste from the outset, and these should be included as part of university curricula, and research. Holly underscored the economic and environmental potential of CE: a $1 trillion opportunity, enhanced resilience, and major reductions in biodiversity loss and emissions related to products, materials, and food.

Nature-based Solutions complement this approach by regenerating ecosystems and offering natural defenses—like forests and reefs—against climate threats. Drawing on biomimicry, Holly shared advice from Catherine Collins of the Biomimicry Institute: *"Listen to nature. When you have different stakeholders at the table, think about the systems within nature that would tell you what to do."*

With 6% of the world's population, 10% of its landmass, 25% of the GDP and 33% of global tech and innovation capabilities, North America has a great opportunity to define a new economic and innovation agenda. Holly called for inclusive collaboration, especially with younger generations, to rebuild systems that are resilient, regenerative, and equitable.

Session 1. Nature-based Solutions: Ecological Regeneration and Economic Opportunities

Invited Speakers:

- **Gregg Brill**, Associate Director, Accounting for Nature Program, The Pacific Institute
- **James Rattling Leaf, Sr. - Wahpe Sla Sla**, Tribal Advisor for the Environmental Science Innovation and Inclusion Lab and the North Central Climate Adaptation Science Center, University of Colorado Boulder
- **Liette Vasseur**, Deputy Chair for the Commission on Ecosystem Management (CEM) and Co-Lead of the CEM Climate Change and Biodiversity Policy and Practice Thematic Group, International Union for Conservation of Nature (IUCN), and UNESCO Chair on Community Sustainability, Brock University
- **Luis Alain Zúñiga Hernández**, President and Founding Partner of Ecopil MX and member of the Mexican Committee of the International Union for Conservation of Nature (IUCN), Ashoka Mexico, and the Mexican Alliance for Biodiversity and Business (AMEBIN)

Moderated by Felicia Marcus, JPAC member, the session opened with the intervention of Liette Vasseur, who provided a comprehensive overview of the evolution, standards, and practical application of Nature-based Solutions. The concept of Nature-based Solutions traces back to the early 2000s, with the emergence of the ecosystem approach —a strategy for the integrated management of land, water, and living resources that promoted conservation and sustainable use in an equitable way. This approach laid the foundation for ecosystem-based approaches to climate adaptation (EbA), marking a significant shift in how nature was viewed: not merely as something to protect, but as a vital ally in addressing societal challenges. The concept continued to evolve, culminating in 2016, when the International Union for Conservation of Nature (IUCN) formally defined Nature-based Solutions[1], establishing its place in global

[1] Nature-based Solutions: "Actions to protect, manage and restore natural or modified ecosystems, which address societal challenges, effectively and adaptively, providing human well-being and biodiversity benefits" (IUCN 2016). WCC-2016-Res-069-EN: Defining Nature-based Solutions. Quoted by Liette Vasseur from: IUCN. 2020. IUCN Global Standard for Nature-based

discourse on environment and development. This definition was later expanded by the United Nations Environment Assembly (UNEA) in 2022, adding language to emphasize the adaptive and inclusive nature of Nature-based Solutions. The UNEA definition describes Nature-based Solutions as (with additions to the IUCN definition shown in red):

> *"Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits."* [2]

Nature-based Solutions is an umbrella concept that encompasses different approaches and is uniquely capable of addressing multiple societal challenges simultaneously, including food security, water quality, biodiversity loss, climate change, disaster risk reduction and livelihood. To support their implementation, IUCN launched Global Standards for Nature-based Solutions in 2020, which aim to establish a shared understanding and provide a framework for designing, implementing, assessing, adapting, and improving Nature-based Solutions initiatives.

At the end of her intervention, Liette Vasseur noted that enabling successful Nature-based Solutions requires multi-level partnerships among stakeholders—including local and regional governments, the private sector, and civil society—along with long-term engagement, trust-building through transparent processes, a commitment to fair, inclusive, and participatory approaches, adherence to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), and transparent co-construction with stakeholders.

The rest of the interventions collectively identified key enablers for scaling Nature-based Solutions across North America: building local capacity, empowering youth, mobilizing private-sector innovation and finance, and integrating Indigenous perspectives rooted in traditional ecological knowledge (TEK). Across these dimensions, speakers emphasized the need for inclusive, culturally respectful, and financially viable initiatives that ensure long-term ownership, transparency, and ecological regeneration.

Luis Alain Zúñiga Hernández, President and Founding Partner of Ecopil MX, presented an innovative model developed by his organization to protect and regenerate the environment through Nature-based Solutions. Structured around five key actions—generating participatory science, promoting talent, implementing projects, sharing best practices, and boosting investment and partnerships—the model centers on empowering youth and communities and fostering collaboration among government, academia, civil society, and the private sector.

Through capacity-building and co-design, Ecopil ensures each project reflects the identity of the community, promoting long-term ownership. Its National Strategy for Talent Development offers training, funding, and mentorship to young people, helping them launch projects and access additional resources and technology. National Gatherings on Social Innovation and Environmental Leadership bring

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Solutions. A user-friendly framework for the verification, design and scaling up of Nature-based Solutions. First edition. Gland, Switzerland: IUCN.

[2] United Nations Environment Assembly. 2022. Resolution on Nature-based Solutions for Supporting Sustainable Development (UNEP/EA.5/Res.5). United Nations Environment Programme. Retrieved from https://wedocs.unep.org/handle/20.500.11822/398641.

together environmental leaders from across the country, fostering network-building, experience-sharing, and the exchange of best practices.

To cultivate long-term change–makers, Ecopil develops educational tools in science and technology, uses art to promote nature in schools and protected areas, created an app for project monitoring, and built a funding network linking private and philanthropic support to communities. This synergy among capacity-building, leadership, environmental knowledge, and artistic expression has proven effective in fostering ecological awareness and collective action.

Next, Greg Brill, Associate Director, Accounting for Nature Program, at The Pacific Institute, explored the potential of private-sector innovation and financing to scale Nature-based Solutions. He began by highlighting a stark reality: despite their potential to address multiple social and environmental challenges, Nature-based Solutions currently receive less than 0.1% of global climate-finance flows—far below what is needed to meet the scale of environmental challenges, and over 80% of the funding comes from the public and philanthropic sectors. In this context, private-sector engagement is essential—not only as a source of capital but also as a driver of innovation. The sector's potential lies in its ability to provide catalytic capital that can de-risk public or blended finance, leverage technology and data to improve monitoring and outcomes, and integrate Nature-based Solutions into supply chains through investments—for example, in regenerative agriculture and sustainable forestry. This marks a shift from corporate social responsibility to embedding sustainability into core business strategy.

Nonetheless, the private sector faces several technical, financial, and governance-related challenges. Among them, Brill highlighted the lack of standardized approaches to identify and account for Nature-based Solutions benefits. To overcome this challenge, tools and models that convert intangible benefits—such as carbon sequestration, water regulation, and biodiversity gains—into monetized value or risk mitigation are essential. Brill outlined two key approaches: identifying, quantifying and validating benefits as a key pre-feasibility starting point; and promoting effective finance models and partnerships, such as pay-for-performance models like water funds and carbon credits, blended finance approaches that combine public and private investment to reduce risk, and collective action platforms, such as the CEO Water Mandate, which pool resources and foster trust, transparency, and accountability. The ultimate goal is to transform Nature-based Solutions into scalable, replicable solutions with practical and predictable returns.

The presentation concluded with a call to action: mobilize private capital through clear valuation of benefits, scalable finance models, and transparent outcome-reporting. Public-private partnerships (PPPs) are crucial, and companies must begin to view Nature-based Solutions not as philanthropic endeavors, but as strategic investments in risk mitigation, regulatory compliance, and long-term resilience.

Lastly, James Rattling Leaf, Sr. - Wahpe Sla Sla, Tribal Advisor for the Environmental Science Innovation and Inclusion Lab and the North Central Climate Adaptation Science Center, University of Colorado Boulder, offered a deeply rooted Indigenous perspective on Nature-based Solutions, emphasizing that Indigenous peoples have a vital role to play in environmental stewardship. Their approach is grounded in holistic systems–thinking and community-led initiatives, with a strong emphasis on culturally relevant design and governance.

He highlighted that Indigenous communities are leaders in biodiversity conservation and that ethical and legal considerations—particularly those outlined in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)—must be respected when engaging with them. This includes recognizing Indigenous peoples as rights holders and protecting their intellectual property. A central question he posed was how traditional ecological knowledge (TEK) is valued within Western science. He advocated for

stewardship over ownership and emphasized relational accountability as a guiding principle for building trust through transparency and accountability and acknowledging the harms of the past and commitment to healing and reconciliation. Acknowledging Indigenous rights also means ensuring appropriate funding allocation to support Indigenous-led Nature-based Solutions initiatives.

To illustrate the intersection of biodiversity and climate action, he shared the example of buffalo (*tatanka*, in the Lakota language) reintroduction. This effort is not only symbolic of Indigenous nations but also a practical strategy to strengthen culture, restore biodiversity, and rebuild traditional lifeways.

In conclusion, Rattling Leaf asserted that we must not separate nature from culture or economy from ecology. He called for a regeneration of relationships with the land and with one another, underscoring the interconnectedness of ecological and cultural restoration.

The interventions were followed by a panel discussion centered on the integration of Nature-based Solutions and the Circular Economy, emphasizing the importance of combining ecological approaches with sustainable economic models to tackle pressing environmental challenges. The conversation also highlighted the critical role of community engagement and education, particularly in fostering long-term success and facilitating intergenerational knowledge transfer.

During the Q&A session, audience members highlighted the need to assign economic value to natural resources and waste. Examples from shrimp farming and jojoba oil production illustrated how valuation can incentivize conservation and spur innovation. The session concluded with a call for proactive innovation before environmental issues reach crisis levels, and encouragement of continued dialogue and collaboration beyond the panel. The overarching message was clear: collective action is essential to driving meaningful and lasting change.

Session 2. Circular Economy: Closing Material Cycles and Creating Sustainable Systems

Invited Speakers:

- **Arturo Rech**, President and Chief Executive Officer, MexHub for Circular Economy and Sustainability
- **Daniel Normandin**, Director, Center for Intersectoral Studies and Research on the Circular Economy (CERIEC); Director, Quebec Research Network on Circular Economy (RRECQ); member, *Cercle d'excellence*, *Université du Québec*
- **Jennie Romer,** Director of Policy, North America, The Ellen MacArthur Foundation
- **Martín Rincón Arredondo**, Director of Corporate Operations and Sustainability, Bio Pappel, SA de CV

Bob Varney, JPAC member, moderated this session, which focused on exploring the enabling conditions that support the development and scaling of Circular Economy solutions in North America.

The first presentation, delivered by Jennie Romer, Director of Policy, North America, at The Ellen MacArthur Foundation, examined the role of policy in the transition toward a circular economy. She emphasized that policy and regulation are central to this transformation, serving as critical enablers for both companies and policymakers to realize the vision of a circular system.

To accelerate and scale Circular Economy through policy, Romer outlined five universal policy goals:

1. Stimulate circular design: Incentivize upstream practices and business models across sectors.
2. Preserve resources value: Develop robust management systems to keep products and materials in productive use and at high value.

3. Create the conditions needed to scale circular outcomes: For example, align taxation, financial incentives and competition policy with circularity.
4. Invest in innovation, infrastructure, and skills: Use public finance capabilities to develop innovation, infrastructure and skills, and to mobilize private investment.
5. Collaborate for systems change: Enable responsive, inclusive, systemic collaboration, by setting indicators and targets, building international policy alignment and developing roadmaps.

Romer underscored the crucial role of businesses in driving the transition to a circular model and highlighted three sectors showing the most momentum: plastics and packaging, critical minerals (highlighted through a CEC project on mobile phone circularity), and retail sectors, such as food and fashion. She concluded with a call to action for systemic collaboration, stressing the unique role of the CEC in fostering cross-jurisdictional partnerships and advancing an integrated, accelerated approach to Circular Economy implementation.

The next presentation showcased a real-life example of circularity, highlighting how the adoption of a circular business model transformed the whole operations of Bio Pappel, SA de CV, one of North America's leading paper manufacturers, and the importance of innovation and investing in infrastructure to close the loop. Martín Rincón Arredondo, Director of Corporate Operations and Sustainability presented how the company has fully embraced circular-economy principles to transform its operations and environmental impact. At the core of Bio Pappel's sustainability strategy is its "Urban Forest" model, which allows the company to manufacture paper without cutting down a single tree. Instead, it recycles paper repeatedly, aligning perfectly with Circular Economy values. As one of the top five paper recyclers in the Americas, Bio Pappel demonstrates leadership in resource efficiency.

Through strategic investment in infrastructure, the company has also achieved energy independence—producing 85% of its energy through cogeneration, using steam from its own processes. It recycles 92% of the water used in production, resulting in one of the lowest water consumption rates in the industry. Impressively, Bio Pappel is carbon-positive, capturing more carbon than it emits.

The company's impact and innovation have earned it top awards from governments and environmental organizations. Guided by a philosophy of intergenerational responsibility, Bio Pappel embraces the Indigenous belief that we do not inherit the planet from our ancestors, we borrow it from our children. Its motto, "We are recycling life," reflects a deep commitment to sustainability, innovation, and long-term ecological stewardship.

The third presentation was delivered by Arturo Rech, President and Chief Executive Officer at MexHub for Circular Economy and Sustainability. MexHub works with governments, businesses, industries, and clusters, promoting the adoption of Circular Economy through collaborative triple-impact projects: creating strategic intelligence to identify real circularity opportunities; supporting companies, municipalities, and clusters in implementing concrete solutions; and connecting stakeholders across sectors. This is not only a response to environmental demands but also a strategy that offers tangible benefits such as operational efficiency, innovation, regulatory compliance, and the attraction of investment and talent.

Arturo Rech emphasized that implementing the Circular Economy requires structural and cultural transformations, and highlighted three key areas: legal and fiscal reforms to facilitate systemic and traceable adoption; a mindset shift among businesses, governments, and consumers; and investment in innovation, training, and monitoring. He also highlighted the role of international standards (through ISO) as facilitators of the transition to standardized models for both small and medium-size enterprises (SMEs) and large enterprises.

Looking ahead, he proposed the creation of a Trinational Circular Innovation Corridor between Mexico, the United States, and Canada. This alliance would unite knowledge centers, technology platforms, financing mechanisms, and shared standards, to build a strong regional infrastructure. Finally, he stressed that the Circular Economy is not imposed—it is built collectively through alliances, collaboration, shared metrics, adequate infrastructure, and mutual trust.

The role of research and ecosystem development was discussed during the final presentation. Daniel Normandin, Director of CERIEC and RRECQ, and member of the *Cercle d'excellence* at *Université du Québec*, offered a perspective on the role of research, education, and ecosystem development in implementing the Circular Economy, using the example of Quebec and CERIEC's work.

CERIEC's work is organized around three main pillars: research and innovation, education, and dialogue and knowledge transfer. In the area of research and innovation, two major initiatives were highlighted. The first is ELEC, an ecosystem of Circular Economy acceleration labs. These labs function as living labs where stakeholders from specific sectors establish a circular vision of the sector, identify barriers to the achievement of that vision and co-create solutions, through workshops, experimentation projects, and knowledge transfer. ELEC operates on a three-year timeline and targets sectors such as construction, food, textiles, plastics, healthcare, and electric vehicle batteries—many of which are aligned with Quebec's governmental Circular Economy roadmap adopted in 2024.

The second initiative is RREC (*Réseau de Recherche en Économie Circulaire*), a multidisciplinary research network unique to Canada and the first of its kind globally. RREC serves as an interface between researchers and society, driving the transition toward a more circular economy. Its research focuses on change and transition management, planning and optimization, resource and product maximization, and policy levers. In terms of education and training, CERIEC supports initiatives such as summer schools, online courses, and the *Québec Circulaire* platform, which diffuses information, training materials, and news, and maps circular initiatives.

At the end of his presentation, Daniel Normandin recalled that circularity currently represents only 3.5% of Quebec's economy, underscoring the need for continued alignment, innovation, and systemic change.

The Q&A session on Circular Economy brought together voices from academia, civil society, Indigenous communities, and industry to explore the promise and complexity of circular models across North America. Panelists emphasized the need for cross-sector collaboration, standardized frameworks, certifications, and federal platforms to foster inclusive participation. Extended Producer Responsibility (EPR) was identified as a key policy tool, shifting waste management responsibilities from municipalities to producers. Canada's Circular Economy acceleration labs were discussed as adaptable models for Mexico, with potential for localized implementation using context-adapted animation techniques. The role of academia in shaping strategic policy was highlighted, alongside plans for a Circularity Observatory in Quebec to track sectoral progress. Education and eco-fiscal policy were also recognized as critical levers for reducing the region's material footprint.

The session concluded with reflections on preserving value within circular systems and the importance of transparent, inclusive decision-making, underscoring the need for sustained collaboration across sectors.

Overview of the Submission on Enforcement Matters (SEM) Process, by Paolo Solano, Director, Legal Affairs and Submissions on Enforcement Matters Unit, CEC, and Esteban Salcedo, Legal Officer, Legal Affairs and SEM Unit, CEC

Paolo Solano, Director of Legal Affairs and Submissions on Enforcement Matters at the CEC, explained the Submissions on Enforcement Matters (SEM) process, highlighting that it continues to serve as a key mechanism for promoting transparency and law enforcement across North America. Since the creation of the mechanism in 1994, 115 submissions have been received, and 28 factual records have been published. Paolo Solano and Esteban Salcedo, Legal Officer at the CEC, presented three active cases:

- **Hydraulic Fracturing in Nuevo León (Mexico):** Submitted on 3 October 2018, with the publication of a factual record in 2025, the case concerns exploratory hydraulic fracturing activities in the municipalitiy of Los Ramones, as part of Pemex's Integral Cuenca de Burgos project. The investigation focused on two wells—Tangram-1 and Nerita-1—but was unable to confirm the sources of water used, as no concessions for surface or groundwater use were granted prior to exploration. Additionally, water quality analyses lacked data on heavy metals and toxic substances, and both ASEA and Conagua stated they lacked authority to regulate water resulting from the fracturing process.
- **Vaquita Marina (Mexico):** Submitted in 2021 by four US organizations, the petition claims that the vaquita's decline is due to incidental capture during illegal totoaba fishing. The vaquita, the world's smallest cetacean and most endangered marine mammal, inhabits only 1,500 square miles in Mexico's Upper Gulf of California. Fewer than ten individuals are believed to remain. The totoaba, a large, endangered fish, shares part of this habitat. In April 2022, the Secretariat recommended preparing a factual record regarding the enforcement of fishing regulations in the vaquita's habitat, and the final record was presented to the Council on July 7.
- **North Atlantic Right Whale (NARW) (United States):** Submitted by Oceana in 2021, the petition alleges that the United States is failing to effectively enforce environmental laws related to vessel speed limits and commercial fishing practices, which are critical to protecting the species from ship strikes and entanglement. The NARW is one of the most endangered large whale species, with fewer than 350 individuals remaining, including fewer than 70 reproductive females. The petition underscores the urgent need for stronger protections to prevent further decline due to human-related threats.

During the Q&A session, public comments and questions highlighted the vital role that the SEM Process plays in supporting transparency and accountability in the enforcement of environmental law.

Traditional Ecological Knowledge Expert Group (TEKEG) Intervention

Amelia Reina Monteros Gijón opened with a ceremonial request for permission from the Giver of Life, the ancestors, and the hearts present. This gesture underscored the deep spiritual connection Indigenous peoples maintain with nature, setting the tone for a reflection rooted in Indigenous worldviews on the Circular Economy. She emphasized that while the term "Circular Economy" may be relatively new, its principles have long been practiced by Indigenous communities: respect, reciprocity, and balance with Mother Earth. Monteros Gijón explained that Indigenous economies are not solely economic systems, but also spiritual and familial ones, deeply grounded in communal and relational values. Regarding the relationship with nature, she stressed that only what is needed is taken, always with respect and gratitude.

She also addressed the impacts of climate change, noting that medicinal plants have lost effectiveness and that environmental degradation threatens both the health and cultural integrity of Indigenous communities. Monteros Gijón highlighted the importance of ancestral knowledge, affirming that the wisdom of elders is essential and must be passed on to future generations. She criticized the imposition

of development projects without prior consultation and called for respect for Indigenous territories, traditions, and elders.

As a call to action, she urged the integration of TEK into public policy, education, and development initiatives. She proposed designing sustainable, holistic solutions that incorporate spirituality, values, and respect for nature, and advocated for Indigenous participation at all levels of decision-making

Session 3. Multi-actor-facilitated Dialogue – From Vision to Action: Building Sustainable Economies Together for a Resilient North America

The public dialogue segment opened with a presentation by Rodolfo Lacy Tamayo, Advisor to the Sustainability Office at the *Universidad Nacional Autónoma de México* (UNAM) and to the Environment and Sustainability Leadership Program (LEAD-México) at *El Colegio de México* (Colmex). In his remarks, Lacy addressed the urgent need to move from vision to action in response to the environmental and climate challenges facing North America. He described a shared vision of a future where humans live a life fully integrated and with respect to the environment. However, this aspiration is confronted by urgent realities.

Lacy presented alarming examples that underscore the urgency of change: projections suggest that by 2050, there could be more plastic than fish in the ocean, and recent studies show that nanoplastics can reach the brain, appearing more frequently in individuals with dementia. He also noted that the plastics industry remains one of the least regulated sectors. The issue of electronic waste (e-waste) was also raised, identified as the fastest-growing waste stream globally, with over 57.4 million tons accumulated and an estimated global value of $60 trillion.

Turning to solutions, Lacy emphasized that climate change has disrupted natural cycles, biodiversity, and overall quality of life. North America is particularly vulnerable, and he proposed recognizing a fundamental climate right for all living beings: the right to know whether their lives are at risk due to extreme events through alert systems. He warned that the “new normal” includes increasingly frequent weather extremes and anomalies in temperature and precipitation, making urgent the enactment of climate policies such as circular-economy models and Nature-based Solutions. He concluded with a call for trilateral cooperation among Canada, the United States, and Mexico to identify and implement large-scale strategic priorities for adaptation and mitigation. This includes prioritizing key sectors and developing biological corridors that connect ecosystems across the continent.

An open dialogue between JPAC members and the public followed the presentation. During this segment, comments and questions sparked discussion around three key topics.

The first topic focused on how to make responsible products and services more accessible to the average consumer. JPAC members emphasized the importance of market development strategies, such as offering subsidies to stimulate both production and demand. These measures would help lower prices over time, making sustainable options more affordable and accessible to a broader range of consumers.

The second topic explored how North America can meet its carbon reduction targets through Indigenous engagement and participation. JPAC members highlighted the need to support forest management by Indigenous communities—through initiatives such as land recovery, as practiced by the government of California and several Canadian provinces. They also stressed the importance of integrating traditional ecological knowledge (TEK) into forest management strategies and promoting deeper involvement by transferring ownership of projects and initiatives to Indigenous peoples.

Lastly, the third topic addressed the importance of supporting and conserving traditional systems that are already in place and actively contributing to the preservation of natural resources and the provision of ecosystem services. Carlos A. Paillez, a hydraulic engineer from the *Fideicomiso de Infraestructura Ambiental de los Valles de Hidalgo*, presented a proposal for a Circular Economy and Nature-based Solutions project, which aims to holistically address food and water waste while protecting the *chinampas* of Xochimilco—artificial, rectangular islands or floating gardens created in shallow lakebeds, using a Mesoamerican agricultural technique. At Carlos Paillez's request, the full proposal has been included in Annex 1 of this document. Following his presentation, JPAC members acknowledged the broader significance of the issue, framing it within the complex challenge of managing urban water sources—which demands a coordinated regional strategy.

Closing Remarks by Anne-Raphaëlle Audouin, JPAC Chair

The closing reflections on the event highlighted key themes that emerged throughout the day, with participants most frequently using words like collaboration, respect, cooperation, and alliances to describe how to build sustainable economies across North America. These sentiments were visually captured in the final poll and accompanying word cloud, reinforcing the collective spirit of the discussions.

Gratitude was expressed to a wide range of contributors who made the event possible and impactful.

To close the day, attendees were invited to a networking event and visibility space located next door, offering an opportunity to continue conversations, build connections, and strengthen the collaborative momentum generated during the Forum.

16:15–17:00 **Networking and CEC Visibility** [In-person only.]

18:30–21:00 **Official Opening of the 32nd Regular Session of the Council** [In-person event. Attendance by invitation only.]

Annex 1. Proposal Submitted by Carlos A. Paillez, hydraulic engineer, *Fideicomiso de Infraestructura Ambiental de los Valles de Hidalgo*

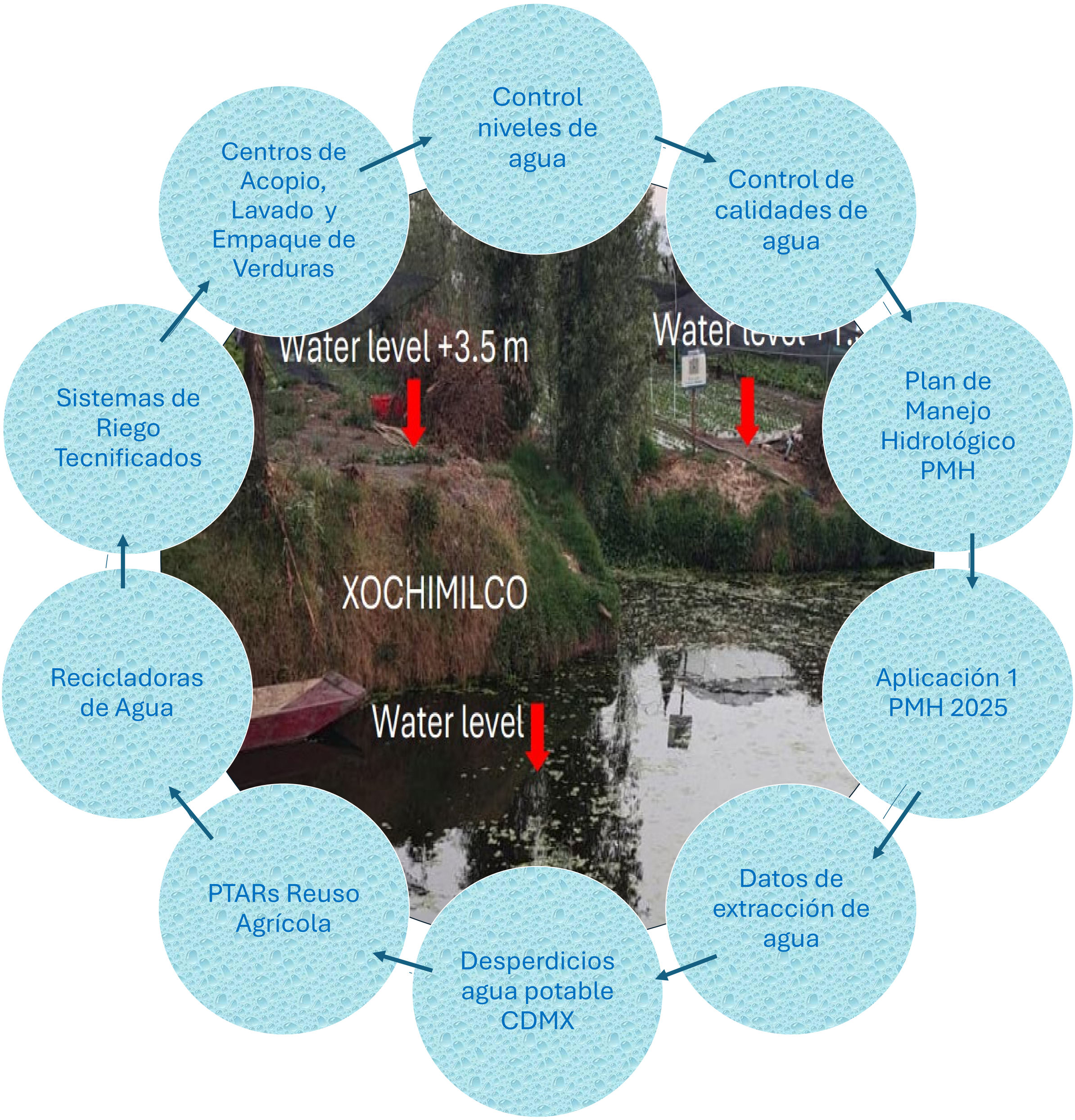
COMISION PARA LA COOPERACION AMBIENTAL DE AMERICA DEL NORTE

COMITÉ CONSULTIVO PUBLICO CONJUNTO

EL GRAVE PROBLEMA HIDROLOGICO AGRICOLA ALIMENTICIO DE XOCHILCO-CDMX
Y LA APLICACIÓN DE SOLUCIONES SUSTENTABLES, ARTICULADAS POR LA
ECONOMIA CIRCULAR

Prioridades ambientales críticas y emergentes, a nivel local, regional y nacional:

- Detener la pérdida del recurso agua, en cantidades y en niveles
- Detener la pérdida del área chinampera.
- Recuperar hidrológicamente su capacidad sistémica y productiva.
- Reintegrar el valor comercial de la producción agrícola del sistema chinampero, afectado por una múltiple intermediación



MEDICION Y EVALUACION DE LOS NIVELES DE AGUA EN LOS CANALES.

Con 60 sitios de MEDICION DIRECTA, en TIEMPO REAL, TRANSMITIDA a un SITIO DE CONTROL, pueden conocerse las VARIABLES HIDROLOGICAS que conduzcan a la integración de un PLAN DE MANEJO HIDROLOGICO, indispensable para la CONSERVACIÓN de los volúmenes de agua requeridos por el SISTEMA LAGUNAR DE CHINAMPAS, de 8 SIGLOS DE HISTORIA, que mereció la designación como PATRIMONIO NATURAL Y CULTURAL DE LA HUMANIDAD por parte de UNESCO WORLD HERITAGE CONVENTION.

Inversión: FIAVHI US$46,000 CORENADR US$46,000

CONTROL DE CALIDADES DE AGUA.

El REUSO DE LAS AGUAS RESIDUALES TRATADAS, según Guías de la OMS, aplicado al suministro de tal tipo de agua a los canales de Xochimilco, requiere evaluaciones , de semanales a diarias, de las distintas calidades de agua en los sitios diversos. La existencia de más de 1,500 descargas directas, de áreas habitadas a los canales, hacen obligatorio este control, no existente. FIAVHI dispone de equipo de última tecnología, que permite en tiempo real conocer los principales parámetros relativos a estas aguas, estando registradas en la Facultad de Información de Ciencias de la Tierra de la UNIVERSIDAD DE TWENTE, HOLANDA.

Inversión anual: FIAVHI US$19,000 CORENADR US$19,000

ELABORACION DEL PLAN DE MANEJO HIDROLOGICO. PMH

A partir de la obtención de los datos batimétricos en tiempo real, en la red de canales, junto con las calidades de agua, ya es posible elaborar el muy necesario e indispensable PLAN DE MANEJO HIDROLOGICO DE XOCHIMILCO, requerido por lo menos en 7 ocasiones por UNESCO WORLD HERITAGE CONVENTION.

Inversión FIAVHI US$32,000 CORENADR US$32,000

APLICACIÓN 1 DEL PMH. 2025

En conjunción con los productores agrícolas de los distintos PARAJES, HABRÁ DE APLICARSE EL PMH1, correspondiente a 2025, REGULANDO tanto las descargas de aguas tratadas como las extracciones de agua y añadiendo la precipitación recibida. A ello se deducen los volúmenes evaluados del uso consuntivo de agua en los cultivos, para disponer, VERIFICANDO O CORRIGIENDO, los VOLÚMENES DISPONIBLES para el siguiente ciclo hidroagrícola.

Inversión FIAVHI US$12,000 CORENADR US $12,000

OBTENCION DE LOS DATOS DE EXTRACCION DE AGUA DEL ACUIFERO Y DE LOS MANTOS SE AGUA ASOCIADOS AL MISMO.

Con la total colaboración de la SEGIAGUA (antes SACMEX), es necesario contar con los datos reales de las tales extracciones de agua, tanto de los pozos que abastecen el Acueducto de Xochimilco a la CDMX, como aquellos que surten de agua a los habitantes de la Alcaldía.

Inversión FIAVHI US$5,000 CORENADR US$5,000

El resultado indica que no existe un volumen disponible para otorgar nuevas concesiones; por el contrario, el **déficit** es de **480,429,914 m3** anuales.

RESUMEN DE INVERSIONES: FIAVHI US$489,000 CORENADR US$489,000
Menor al 1% del Presupuesto Operativo Anual.

DESPERDICIOS Y FUGAS DE AGUA EN CDMX.

La red de agua potable de la CDMX, con inicios hace 150 años y con crecimientos exponenciales hace 75 años, requiere de SUSTITUCIONES por CIRCUITOS, ya experimentadas por CONAGUA y FIAVHI hace 25 años pero no continuadas. Los desperdicios abundan y su corrección es en el corto plazo. La CCA en 2021 impulsó una evaluación de desperdicios de productos agrícolas en la Central de Abasto , CEDA, que permitió detectar un DESPERDICIO DE CASI DOS MILLONES DE LITROS DIARIOS DE AGUA POTABLE, solamente en el LAVADO DE PAPA. Con la acción conjunta de CEDA y FIAVHI, fueron diseñadas, instaladas y puestas en operación DOS UNIDADES DE RECUPERACION Y RECICLADO DE AGUA (URRAs), con recuperaciones del 92 y del 97%.

CON EL CAMBIO DE ADMINISTRACIÓN SE SUSPENDIÓ ESTE PROCESO, INEXPLICABLEMENTE, ????????

Inversión FIAVHI US$ 30,000 CEDA US$ Cero

PLANTAS DE TRATAMIENTO DE AGUAS RESIDUALES, PTARs, PARA REUSO AGRICOLA.

Con la especial participación de PNUMA, CEPAL, OMS, FAO y BID, de 2001 a 2012 fue posible implementar un programa, PROSSAPyS, que puso en operación la repetida RECOMENDACIÓN de los 3 primeros FOROS MUNDIALES DEL AGUA: LA RECONVERSION DE LOS USOS DEL AGUA: USAR EL AGUA DE LOS ACUIFEROS PARA USO HUMANO Y REUSAR EL AGUA RESIDUAL, ESPECIFICAMENTE TRATADA, PARA RIEGOS AGRICOLAS TECNIFICADOS. Incluyó la elaboración de 14 MANUALES DE SANEAMIENTO por SEMARNAT y CONAGUA, recomendando la participación de fideicomisos y fondos de inversión como facilitadores controladores. La Universidad de las Naciones Unidas , con su Instituto para el Manejo Integrado de Flujos y Residuos (UNU-FLORES), impulsó conjuntamente con FIAVHI, esta iniciativa en México, Perú, Guatemala y Bolivia, contando con el apoyo de la INICIATIVA PARA PARA LA ECONOMIA CIRCULAR DE LA REPUBLICA ALEMANA

Inversión FIAVHI US$ 190,000 CORENADR US$ 190,000

RECUPERADORAS Y RECICLADORAS DE AGUA.

Habiéndose evidenciado las distintas calidades de agua, en los canales de Xochimilco, es necesario usarlas, con la medición y evaluación ya indicadas. Para el lavado de los productos agrícolas ya se han realizado positivamente las pruebas de RECUPERACION Y RECICLADO DE AGUAS con procesos a base de polímeros de tercera y cuarta generación.

Inversión FIAVHI US$90,000   CORENADR US$90,000

SISTEMAS DE RIEGO TECNIFICADOS.

El posicionamiento del agua de riego en la raíz de cada planta, ha demostrado sus especiales ventajas, lográndose crecimientos muy satisfactorios con el 15 al 25% de la usada en riegos por inundación. Los riegos por goteo, por inyección y aún los hidropónicos ya tienen un uso pleno, que deben emplearse en esta aplicación de Economía Circular.

Inversión FIAVHI US$60,000   CORENADR US$60,000

CENTROS DE ACOPIO, LAVADO Y EMPAQUE DE VERDURAS.

Con esta función buscan obtenerse resultados básicos en la Economía Circular planteada: 1. MEJORAR sustancialmente la CALIDAD y la SANIDAD de los productos cosechados. 2. Lograr que el VALOR principal de la cosecha y de su manejo sea trasladado a los PRODUCTORES REALES, SUPERANDO LA MULTIPLICIDAD DE INTERMEDIARIOS. 3. INTEGRAR DICHO VALOR en el proceso de MANTENER EL MANEJO HIDROLOGICO sustancial para la supervivencia y vigencia del sistema de chinampas. Cabe señalar, como ejemplo de la Economía Circular, que en California, de 1982 a 1996, con el 25% del valor agregado a las cosechas, pudieron implementarse 55,000 acres con riego por goteo, en una operación impulsada por los fundadores de FIAVHI, en un programa de la Universidad de California San Diego y el Estado de California.

Inversión FIAVHI US $35,000 Inversión CORENADR US $35,000

MEDICION Y EVALUACION DE LOS NIVELES DE AGUA EN LOS CANALES.

Con 60 sitios de MEDICION DIRECTA, en TIEMPO REAL, TRANSMITIDA a un SITIO DE CONTROL, pueden conocerse las VARIABLES HIDROLOGICAS que conduzcan a la integración de un PLAN DE MANEJO HIDROLOGICO, indispensable para la CONSERVACIÓN de los volúmenes de agua requeridos por el SISTEMA LAGUNAR DE CHINAMPAS, de 8 SIGLOS DE HISTORIA, que mereció la designación como PATRIMONIO NATURAL Y CULTURAL DE LA HUMANIDAD por parte de UNESCO WORLD HERITAGE CONVENTION,

Inversión: FIAVHI US$46,000 CORENADR US$46,000

CONTROL DE CALIDADES DE AGUA.

Los avances en el REUSO DE LAS AGUAS RESIDUALES TRATADAS, según Guías de la OMS, aunados al ACTUAL suministro de tal tipo de agua a los canales de Xochimilco, hacen necesario contar con actualizaciones, de semanales a diarias, de las distintas calidades de agua que se presentan en los sitios diversos, para integrar las recomendaciones correspondientes.

La existencia de más de 1,500 descargas directas, de áreas habitadas a los canales, hacen obligatorio este control, no existente.

FIAVHI dispone de equipo de última tecnología, que permite en tiempo real conocer los principales parámetros relativos a estas aguas, pudiendo estar registradas en la Facultad de Información de Ciencias de la Tierra de la UNIVERSIDAD DE TWENTE, HOLANDA.

Inversión anual: FIAVHI US$19,000 CORENADR US$19,000

ELABORACION DEL PLAN DE MANEJO HIDROLOGICO. PMH

A partir de la obtención de los datos batimétricos en tiempo real, en la red de canales, junto con las calidades de agua, ya es posible elaborar el muy necesario e indispensable PLAN DE MANEJO HIDROLOGICO DE XOCHIMILCO, requerido por lo menos en 7 ocasiones por UNESCO WORLD HERITAGE CONVENTION.

Inversión FIAVHI US$32,000 CORENADR US$32,000

APLICACIÓN 1 DEL PMH. 2025

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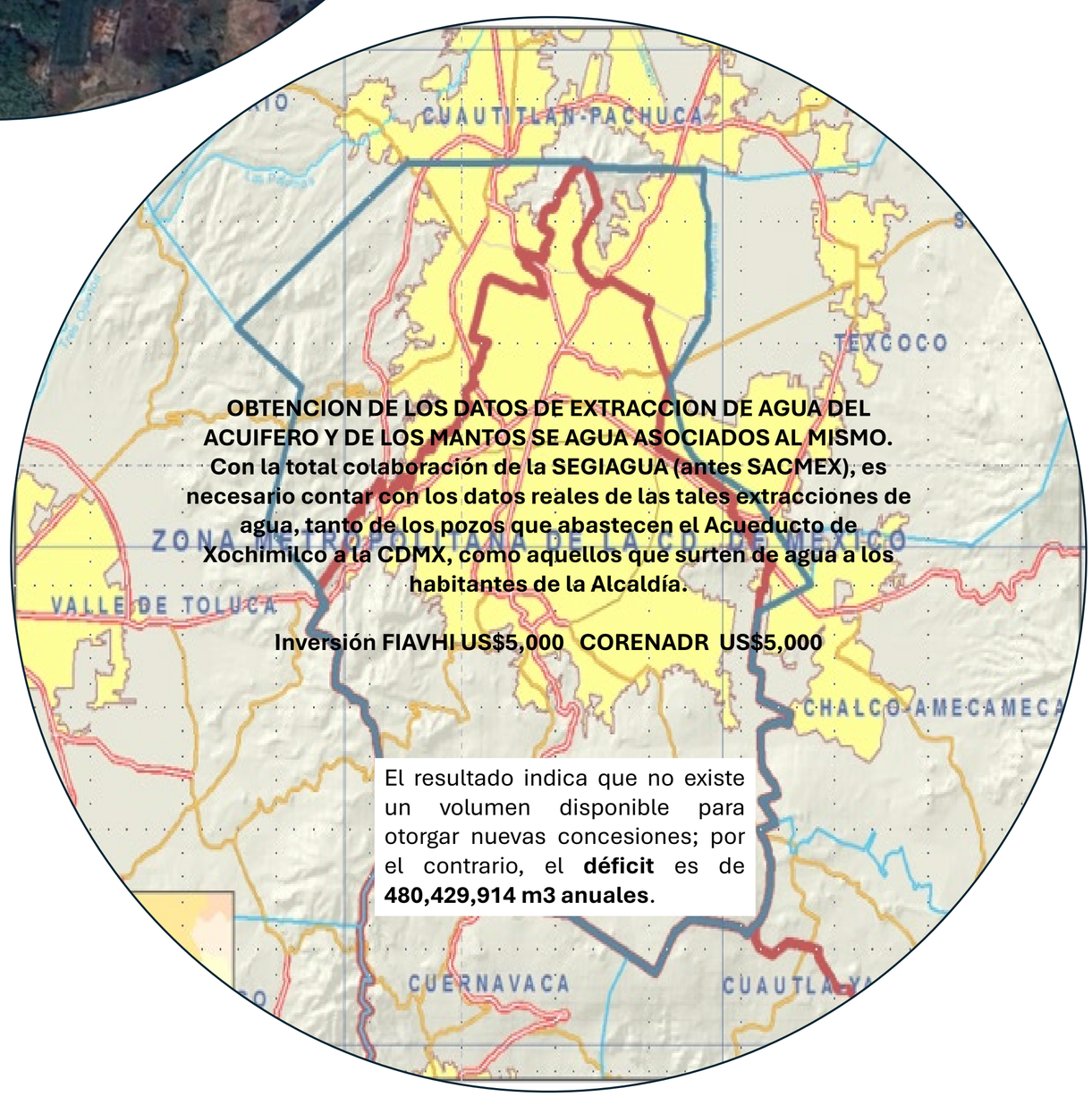
Inversión FIAVHI US$12,000 CORENADR US $12,000



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Inversión FIAVHI US$ 190,000 CORENADR US$ 190,000

RECUPERADORAS Y RECICLADORAS DE AGUA.
Habiéndose evidenciado las distintas calidades de agua, en el caso de Xochimilco, el agua de sus canales las presenta, siendo necesario aplicarlas con la medición y evaluación ya indicadas. Para el lavado de los productos agrícolas ya se han realizado positivamente las pruebas de RECUPERACION Y RECICLADO DE AGUAS con procesos a base de polímeros de tercera y cuarta generación.

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