

# BOOK OF ABSTRACTS

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## I. SESSION DESCRIPTION

**ID: T2**

Pathways of the biodiversity–water–food–health– climate nexus in Latin America

**Format: Hybrid**

**Hosts**

	Name	Organisation	E-mail
<b>Host</b>	Ana Paula Turetta	Brazilian Agricultural Research Corporation - EMBRAPA	ana.turetta@embrapa.br
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### Abstract

The growth in the number of publications on the nexus in the last years attests the belief researchers are putting into this approach to face ever–pressing global challenges. The recognition of the promising approach that leverages the synergies and trade–offs of a system of resources has ensured that the topic received a strong momentum and popularity but has also seen disappointed expectations in its practical implementation and lack of widespread adoption in national policies, programmes and institutions. The integration and participation promoted by the approach require in fact a good level of coordination and negotiation across different sectors and scales, opening up to a multifaceted endeavor of multi–level governance challenges. However, the significant claim of reaching a genuinely holistic approach through the nexus comes not without considerable challenges: to achieve its truly integrative effect in natural resource management, the nexus approach has to bring in a transformation in the whole governance system of natural resources. This is a great endeavor, especially in the countries of Latin America, which already face socio, economic and political struggles. In this regard, the IPBES Nexus Assessment that is now being produced (<https://ipbes.net/nexus>) aims to synthesize the knowledge that is currently

available on biodiversity–water–food–health Nexus, its role in sustainable development, potential threats, and options for policy responses. Furthermore, the present session aims to reinforce this initiative in LA, opening a hybrid in–person/virtual session to discuss the Nexus development in LA.

### Goals & Objectives

Gathering experiences of Nexus approach application in Latin America; identify the main gaps to develop this approach in Latin America; highlight empirical or theoretical developments of the NEXUS made by LA researchers, and promote a knowledge network in Nexus approach in Latin America.

### Planned Output

High level debate in the use of Nexus approach in Latin America; case studies organized across different ecosystems and available for public consultation (book of abstracts); build a Latin America network in Nexus approach.

### Session Format

Abstracts presentation, wrap–up discussion in a hybrid format. Duration: one morning OR one afternoon

### Acceptance of voluntary contributions

Abstracts presentation, wrap–up discussion in a hybrid format. Duration: one morning OR one afternoon

### Relation to ESP Working Groups or National Networks

Thematic Working Groups: TWG 2 – Biodiversity & Ecosystem services

## II. SESSION PROGRAMME

**Date of session:** Wednesday 8<sup>th</sup> November

**Time of session:** 14:00–15:30

### Timetable speakers

Time	First name	Surname	Organization	Title of presentation
14:00– 14:10	Luana	Meister	Universidade Federal do Paraná	Distribution of ecosystem services in southern Atlantic Rain Forest
14:10– 14:20	Virginia Alonso	Roldán	Universidad Tecnológica Nacional; Grupo de Estudio de Mamíferos	Interacciones para asegurar alimento, agua, salud y contribuir a la biodiversidad en contexto de cambio climático: el

Time	First name	Surname	Organization	Title of presentation
			Terrestres, (GEMTE),	caso del Valle inferior del Río Chubut
14:20– 14:30	Edmundo	Barrios	Food and Agriculture Organization of the United Nations (FAO)	Harnessing the benefits of the biodiversity–water–food–health–climate nexus to facilitate transformative change and agroecological transitions to sustainable agrifood systems

### III. ABSTRACTS

*1. Type of submission:* Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T2 – Pathways of the biodiversity–water–food–health– climate nexus in Latin America

Distribution of ecosystem services in southern Atlantic Rain Forest

*First author(s):* Luana Meister

*Presenting author:* Luana Meister

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The distribution of ecosystem services is influenced by different ecological and social aspects, which subject the production of different services to spatial configurations. The interaction between ecosystem services may imply the expansion or reduction of provision, and considering the simultaneous occurrence of different services may contribute to the spatial planning of natural resources. With this objective in mind, we carried out a survey and mapping of eight ecosystem services (carbon stock, soil conservation, water balance,

biodiversity, commodity production, beans, cassava, and coffee) in the state of Paraná, southern Brazil, inserted in the Atlantic rain forest. We analyzed the correlations and possible interactions between the services based on eight indicators. Subsequently, each service was categorized based on the similarity of the data, allowing the grouping of observations and spatialization of each service for the municipalities of the state (n = 399). The correlation of services in the municipalities of the state of Paraná showed a positive correlation between biodiversity, soil conservation, carbon stock, and water balance. For agriculture, the production of beans and commodities (wheat, soy, and corn) showed a positive correlation, but a negative one between coffee and cassava. Soil conservation and carbon stock were also negatively correlated with coffee and commodity production. As well as cassava production, it showed trade-offs with water balance and carbon stock. The results demonstrate that regulation services, such as water balance, carbon stock, and soil conservation are amplified when they occur together in space. The cultures that underpin the local agriculture system affect the distribution and provision of services, including the production of different crops. When capturing the spatial distribution of ecosystem services, the direction of planning actions regarding natural resources must seek to maximize synergies and reduce trade-offs, forming part of the strategies for action on climate change.

*Keywords:* Atlantic rain forest; Brazil; ecosystem services; synergies

2. *Type of submission:* Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T2 – Pathways of the biodiversity–water–food–health– climate nexus in Latin America

Interacciones para asegurar alimento, agua, salud y contribuir a la biodiversidad en contexto de cambio climático: el caso del Valle inferior del Río Chubut

*First author(s):* Virginia Alonso Roldán

*Presenting author:* Virginia Alonso Roldán

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Uno de los principales desafíos de la agenda mundial es contribuir simultáneamente a las metas de asegurar alimento, agua, salud, cuidar el ambiente y mitigar el cambio climático (aproximación del Nexo). La participación de la sociedad es clave para llevar adelante acciones sinérgicas en varios de estos componentes. Por ello indagamos las interrelaciones de estos componentes desde la perspectiva de actores sociales mediante talleres participativos en las principales localidades de la cuenca baja del Río Chubut en la Patagonia central–Este. Consultamos a actores relacionados con diferentes actividades socio–productivas en el área sobre cuáles son las principales contribuciones de la naturaleza a su bienestar y si presentan restricciones. Diversos actores percibieron múltiples restricciones al acceso al agua que encadenan todos los componentes del Nexo. Por efecto del cambio climático se espera que disminuya la disponibilidad de agua para diversos usos en el río como ya sucedió en 2021. En este escenario el uso de agua para producción de alimentos sin regulaciones puede reducir severamente el caudal del río aguas abajo afectando el suministro de agua a las ciudades. De esta manera también se afecta la salud de los ciudadanos que depende fuertemente de la disponibilidad de agua segura para su ingesta e higiene. La disminución de caudal en el río también afecta el ecosistema de la cuenca baja y la biodiversidad, su capacidad de mantener la calidad del agua, e impacta negativamente en la salud mental ya que afecta a las actividades de esparcimiento y disfrute de la biodiversidad. En este escenario la percepción utilitaria del agua, que se ha identificado en los procesos participativos, colisiona con concepciones holísticas que si bien están presentes en el sistema no suelen ser predominantes. Resulta necesario fortalecer las concepciones holísticas que permitan acuerdos y una gobernanza inclusiva del sistema.

*Keywords:* Nexo, Patagonia, Contribuciones de la Naturaleza a las Personas, proceso participativo

3. *Type of submission:* Abstract / Resumen

T. Thematic Working Group sessions / Sesiones del Grupo de trabajo Temáticas: T2 – Pathways of the biodiversity–water–food–health– climate nexus in Latin America

Harnessing the benefits of the biodiversity–water–food–health–climate nexus to facilitate transformative change and agroecological transitions to sustainable agrifood systems

*First author(s):* Edmundo Barrios

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The magnitude and urgency of the challenges facing agriculture and food systems demand profound modifications in different aspects of human activity to achieve transformative change and sustainability. The disconnection between food production and consumption, and between local practices and global commitments is a significant restriction to the implementation of the SDGs by limiting the capacity for alignment of single actors and collective action towards positive economic, environmental or social impacts. Successful transitions to sustainable agrifood systems would likely benefit from holistic and people-centred approaches that embrace a long-term vision, such as agroecology, which is increasingly acknowledged for its potential to bring about transformative changes required to meet the SDGs. Agroforestry, broadly described as the integration and management of trees on farms together with crops and livestock, is a major land use associated with 43% of all agricultural land globally and characterized as agroecology in practice. Agroforestry can offer beneficial effects to address constraints associated with nutrient cycling, water availability, and pest management, as well as fostering biodiversity conservation, food security and nutrition, and climate change adaptation and mitigation. Case studies from Latin America will be analyzed using the 10 Elements of Agroecology framework approved by FAO as an analytical framework to support the design of differentiated paths for agrifood systems transformation. The important contributions of agroforestry to harnessing the benefits of the biodiversity–water–food–health–climate nexus will be highlighted through a structured process using visual narratives that rely on the 10 Elements of Agroecology to graphically dissect prospective social–ecological transition trajectories and guide integrated policy design. It will be shown that this type of structure can allow different stakeholders to articulate challenges faced, build consensus towards desired goals, use a common language when sharing information on the status of implementation, and encourage collective action and alignment towards achieving the greatest possible impact.

*Keywords:* agroecology, agroforestry, nexus approach, sustainability, transformative change