

Proposal for establishing National Eco-Security Commission (NESC) of Pakistan

Transgression of Planetary Boundaries

Six of the nine planetary boundaries (Biosphere integrity, Climate change, Novel entities, Freshwater change, Land system change, and Biochemical flows to the oceans) are transgressed up to 2023 (Richardson et al., Sci. Adv. 9, eadh2458, 2023, Qureshi 2023). The remaining three (Stratospheric ozone depletion, Atmospheric aerosol loading, and Ocean acidification) are also on the way towards transgression. This alarming state of our planet underscores the urgent need for concerted efforts to restore ecological balance and ensure sustainable development.

Emergence Of Nation Eco-Security System (NESS ISN) Beijing

Recognising the gravity of these challenges, the National Eco-Security System (NESS) was initiated by Chinese scientists as a mission of the International Science Network (ISN) aimed at safeguarding children in every country in the world. It is dedicated to ensuring the essential minimum Eco-Security conditions necessary for the sustained survival of children across all nations, as they represent the biological essence of humanity and the future of human civilization. This goal, encompassing the well-being of individuals (including one's own children and descendants) and the collective survival of humanity as a species, embodies a core value and ethical duty that necessitates collaborative efforts to uphold.

The inaugural NESS International Scientific Congress was held in Haikou in November 2022, launching the "One Target · An Eco-Security System for All People (Haikou) Initiative" to the global scientific community. The second Congress, convened in Haikou in October 2023, involved experts and students from 129 countries. The third Congress was held in Shennongjia, Hubei, China, in May 2024. 71 countries participated onsite. Presently, the initiative has garnered support of experts and scholars in 1,107 organizations including universities, research institutions, and other organizations from 154 countries.

Establishment of National Eco-Security System Pakistan (NESS-Pak)

On January 17, 2023, Prof. Subhan Qureshi became a supporter of the Haikou Initiative and presented papers in the 2023 NESS Congress. The Preparatory Committee for National Eco-Security System Pakistan (NESS-Pak) was established, to be hosted by the Dairy Science Park (DSP) at Peshawar accessible at: <https://dairysciencepark.org/ness/>. The Preparatory Committee NESS-SC Pakistan is headed by Prof M Subhan Qureshi, President Dairy Science Park/Ex-Dean FAHVS UA Peshawar as President and Prof Sher Bahadar Khan, Principal CVS, AWKUM Mardan would work as Secretary. The Preparatory Committee will work with Abdul Wali Khan University Mardan (AWKUM) to establish the NESS Research Center (NESS-RC) . The decision was made in an online meeting with the senior executives of NESS-International Science Network (ISN), Mr. Dexin Tian, Founder, Chief Scientist and Secretary General of NESS-ISN and Dr. Yan Xie, International Coordinator of NESS-ISN and Associate Research Professor, Institute of Zoology, Chinese Academy of Sciences.

2024 NESS Congress was attended by Prof Qureshi and Prof Sher. Country Report Pakistan was presented and a paper on species biodiversity was contributed at the Species Forum by Prof Qureshi.

Both the Scientists were notified as members of the International Editorial Committee of NESS-ISN. Prof Qureshi presented the NESS Global Report 2024 Pakistan Volume at the Congress.

Khunjerab National Park (KNP) was presented as a protected area during the Changbaishan Conference on Global Geoparks, hosted by the International Alliance of Protected Areas (IAPA/ISZS), Beijing. Consequently, KNP was enlisted as a Protected Area at the 2024 Annual Meeting of the International Alliance of Protected Areas (IAPA), Jilin, China;

NESS-Pak Initiative was supported by 74 (21.7%), 64 (18.7%) and 203 (59.5%) organizations on institutional, individual levels and with no promises yet, out of 341 higher education, research and other institutes in Pakistan and abroad, respectively. As of December, 2024, the number of members of the Editorial Committee has been: 97 Editorial Committee (EC) members for Pakistan Volume of NESS Global Report, as well as 47 Youth Editorial Committee (YEC) members were identified, with 3 executive members totalling 147, from various higher education institutions and research institutes. A total of 515 persons have registered as NESS-Pak Supporters.

Via letter dated 1 Dec 2024, Mr Tian Dexin, Founder & Chief Scientist, NESS International Science Network, observed that since no single institution (or a few institutions) can fully undertake the significant mission of securing the ecological conditions necessary for all people in a country, we advocate for the active participation of all HERIs (all disciplines) in collaborative research. It is currently crucial for countries to expedite the establishment of NESS National Scientific Commission composed of all HERIs in their countries as members (such as the Pakistan NESS National Scientific Commission). All issues should be addressed under the negotiation and guidance of this commission, and specific research topics and fields may be established as necessary.

The Proposal

In recognition of these global challenges and their local manifestations, the National Eco-Security Commission of Pakistan (NЕСP) is being proposed as a continuation of the National Eco-Security System-Pakistan (NESS-Pak), established under the auspices of the NESS International Science Network (NESS-ISN), Beijing. This initiative aims to address critical eco-security concerns across multiple domains, including environmental protection, biodiversity conservation, food security, public health, and livelihood security in the country.

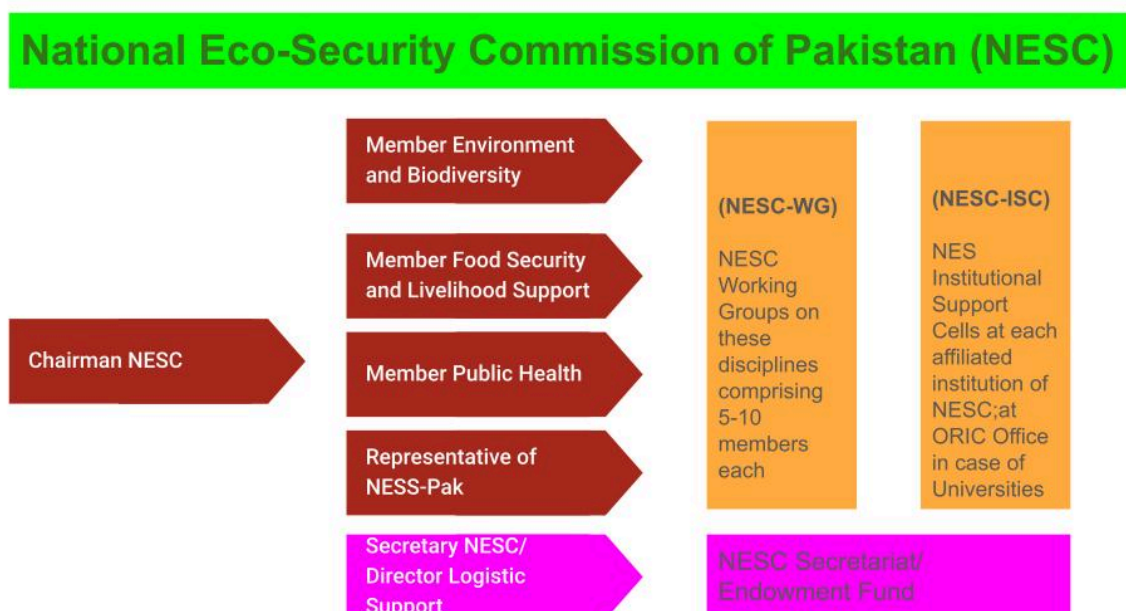
The NЕСP seeks to integrate scientific innovation, policy-making, and community participation to build resilient ecosystems and promote sustainable livelihoods. By leveraging the principles of the One Health and Triple Helix models, the Commission aims to bridge the gap between academia, industry, and government, fostering collaboration for effective and sustainable solutions.

As Pakistan faces increasing ecological and socio-economic challenges, the NЕСP will serve as a strategic platform to advance environmental stewardship, safeguard biodiversity, enhance food security, and improve public health outcomes while creating opportunities for economic growth and community empowerment. Through this initiative, Pakistan aspires to contribute meaningfully to global efforts in preserving the planet for future generations.

Objectives

1. **Environment Protection:** Conduct interdisciplinary research through affiliated institutions on the nine planetary boundaries (Biosphere integrity, Climate change, Novel entities, Freshwater change, Land system change, Biochemical flows to the oceans, Stratospheric ozone depletion, Atmospheric aerosol loading, and Ocean acidification), emphasizing the former six that have already been transgressed globally. Develop targeted policy recommendations as a response strategy, ensuring a collaborative approach involving academia, government, and civil society for effective implementation.
2. **Biodiversity Conservation:** Ensure the responsible introduction of genetically improved animal and plant species, with measures to prevent their invasiveness and protect native biodiversity; Safeguard Pakistan's rich biodiversity, focusing on the preservation of flora and fauna within protected areas; Promote community-led biodiversity conservation through education, awareness campaigns, and local empowerment initiatives.
3. **Food Security:** Foster sustainable agricultural and livestock practices to enhance food production and resilience against climate change; Facilitate the development of value chains to generate exportable surpluses and ensure equitable distribution of food resources.
4. **Public Health:** Strengthen the One Health approach to address the interconnection between human, animal, and environmental health; Implement bio-risk management programs to prevent zoonotic diseases and enhance disease surveillance in protected areas.
5. **Livelihood Security:** Create sustainable employment opportunities for local communities through eco-tourism, conservation efforts, and value-added agricultural products; Support the establishment of small and medium enterprises (SMEs) aligned with eco-security and sustainable development principles.

Organization



Mandate

- Engagement of various public and private sector organizations within the country and abroad, to respond to the eco-security challenges in the country and beyond, related to Environment, Biodiversity, Food Security, Public Health and Livelihood Security.
- Identification of researchable areas within the domains of NESC.
- Motivating and supporting the postgraduate scholars in entrepreneurship development through startups and facilitating registration of the startups as companies
- Launching relevant strategic studies and development of policy guidelines for implementation

Implementation

Board of Governors

The Board of Governors (BoG) of NESC will be the apex body of NESC of Pakistan with full administrative, financial and legislative powers, including hiring and supervision of staff, generation and spending of funds, approval of release of funds for the NESC Secretariat and NESC Institutional Support Cells and payment of honoraria to the members. The Board will approve quarterly and annual technical program focused at the objectives of NESC. The Board of Governor will comprise:

- Member Environment and Biodiversity
- Member Food Security and Livelihood Support
- Member Public Health
- Representative of NESC-Pak
- Secretary NESC/Director Logistic Support

NESC Secretariat

The NESC Secretariat will be headed by the Director (BPS-19) to be appointed through advertisement, having PhD qualification in any discipline within the domain of NESC with at least five years experience in a public or private sector organization.

NESC-Working Groups

NESC Working Groups will comprise about 5-10 members each from each domain. The members will be paid honoraria and will work with the affiliated organizations on identification of research areas and recommendation of research proposals for funding, to the NESC Secretariat.

NESC Institutional Support Cells

NESC Institutional Support Cells (ISC) will be established at each affiliated institution of NESC; preferably at ORIC Office in case of Universities. Each Cell will coordinate with the NESC Secretariat regarding their progress within the NESC domains and research proposals developed by the respective organisation. The scope of applied research targeted at development of entrepreneurship models would be highlighted.

Endowment Fund

An Endowment Fund would be provided to the NESC for funding applied research targeted at development of entrepreneurship models.

Budget

Cost estimates of National Eco-Security Commission of Pakistan (Pak Rs)

Item	Unit cost	Year 1	Year 2	Year 3	Total
Salaries and Honoraria	628,750	7,545,000	7,922,250	8,318,363	23,785,613
Director (PPS-9)	306,250	3,675,000	3,858,750	4,051,688	11,585,438
2 Scientific Officers (PPS-7)	157,500	1,890,000	1,984,500	2,083,725	5,958,225
2 Office Boys (PPS-2)	35,000	420,000	441,000	463,050	1,324,050
Honoraria to the members BoG	100,000	1,200,000	1,260,000	1,323,000	3,783,000
Honorarai to the members NESC-WGs	30,000	360,000	378,000	396,900	1,134,900
Logistic Support	5,000,000	5,250,000	5,512,500	105,451,888	116,214,388
Endowment Fund	10,000,000	10,000,000	0	0	10,000,000
Total	15,628,750	22,795,000	13,434,750	113,770,250	150,000,000

Pak Rs 150 million equivalent to US\$ 0.54 millions