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Environmental Awareness and Resilience among Internally Displaced Populations in North-East Nigeria: A Qualitative Assessment

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ABSTRACT

Nigeria's North-East region, located within the Sahel ecological belt, faces a dual burden of prolonged conflict and environmental degradation. Recurrent droughts, deforestation, desertification, and water scarcity have intensified human displacement and undermined recovery efforts. Understanding the environmental awareness of internally displaced persons (IDPs) is critical for shaping sustainable resilience strategies.This qualitative study assessed environmental awareness among IDPs in Borno and Taraba States, examining how perceptions of environmental change influence displacement and adaptation. Twelve Focus Group Discussions (FGDs) were conducted across four camps—Teachers' Village and MOGCOLIS in Borno, and Shawuya and Howai – Mile Six in Taraba — comprising adult men, women, and community leaders. Transcribed data were thematically analyzed using the Environmental Performance Index (EPI) domains of water, forestry, air, energy, and agriculture. Ethical approvals were obtained from state authorities. Findings reveal variable but practical environmental awareness among participants. In Taraba, respondents linked displacement to flooding, river pollution, and declining soil fertility, while in Borno, conflict and insecurity remained dominant, though participants recognized changing rainfall and erosion patterns. Camps faced severe environmental challenges, including inadequate sanitation, deforestation for firewood, open defecation, and solid-fuel dependence. Awareness of government or NGO environmental initiatives was limited, yet IDPs exhibited strong experiential understanding of resource depletion and its health implications. Integrating environmental education into humanitarian programs—through clean-energy adoption, tree-planting, waste segregation, and "g reen camp " management — can enhance health, adaptation, and resilience. Strengthened intersectoral coordination between humanitarian and environmental agencies is proposed.

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1. Introduction

The Sahel region of Africa, stretching across a semi-arid belt from Senegal to Sudan, is one of the most environmentally fragile regions in the world. Recurrent droughts, erratic rainfall, desertification, and resource depletion have severely affected livelihoods dependent on rain-fed agriculture and pastoralism. The combination of climate variability, deforestation, and rapid population growth has eroded ecosystem resilience, leading to widespread poverty, food insecurity, and forced migration. Nigeria's North-East zone, particularly Borno, Yobe, and Taraba States, lies within this vulnerable ecological belt and represents the intersection of environmental degradation and human displacement [1].

Over the past fifty years, the Sahel has witnessed persistent ecological decline. Desertification is advancing southward at an estimated 0.6 kilometers per year, and rainfall patterns have become more erratic [2]. Lake Chad, once a critical water source supporting millions, has shrunk by almost 90 percent since the 1960s, drastically affecting the livelihoods of over 30 million people who depend on its basin. This ecological collapse has deepened poverty and triggered violent competition over dwindling resources between herders and farmers, contributing to migration and displacement [3].

The North-East region of Nigeria also faces protracted insecurity, particularly from the Boko Haram insurgency that began in 2009, which has displaced more than 2.2 million people within Nigeria and forced 300,000 others across international borders [4]. This conflict has destroyed livelihoods, disrupted agriculture, and decimated infrastructure. IDP camps emerged as temporary sanctuaries, but they too face environmental pressures, including deforestation, unsanitary waste disposal, and water contamination [5].

Environmental awareness among internally displaced persons (IDPs) is a critical but under-researched aspect of humanitarian resilience. Awareness and understanding of environmental degradation can influence community capacity to adapt and rebuild sustainably. Studies such as Ogunleye [6] emphasize that environmental education is central to community empowerment. However, among displaced populations in Northern Nigeria, environmental education remains minimal, and low literacy levels further limit environmental engagement.

Between 2015 and 2019, the North-East experienced multiple crises: insurgent attacks on agricultural communities, flash floods, cholera outbreaks, and economic stagnation. These shocks compounded vulnerabilities and created feedback loops between insecurity, poverty, and environmental decline [7]. Climate models project that by 2050, average temperatures in the Sahel could rise by 1.5–3°C, with increasingly unpredictable rainfall patterns [8]. Without adaptive interventions, agricultural yields may decline by 25 percent [9], deepening food insecurity and possibly transforming temporary IDP settlements into permanent urban slums.

In this context, the present study investigates environmental awareness among internally displaced persons in Borno and Taraba States. It examines how IDPs perceive and respond to environmental change, identifies the relationships between displacement and environmental degradation, and explores how awareness may contribute to resilience and sustainable recovery.

2. Methodology

Study Design

A qualitative exploratory design was employed to assess environmental awareness among IDPs in North-East Nigeria. This design allowed the study to capture the nuanced perceptions and lived experiences of displaced communities, particularly where formal education and literacy levels were limited.

Study Area

The study was conducted in four formally recognized IDP camps: two in **Borno State** (Teachers' Village and Mohammadu Goni College of Islamic and Legal Studies [MOGCOLIS]) and two in **Taraba State** (Shawuya Camp and Howai – Mile Six Camp). The camps were selected in collaboration with the State Emergency Management Agency (SEMA), based on population size, security, and accessibility.

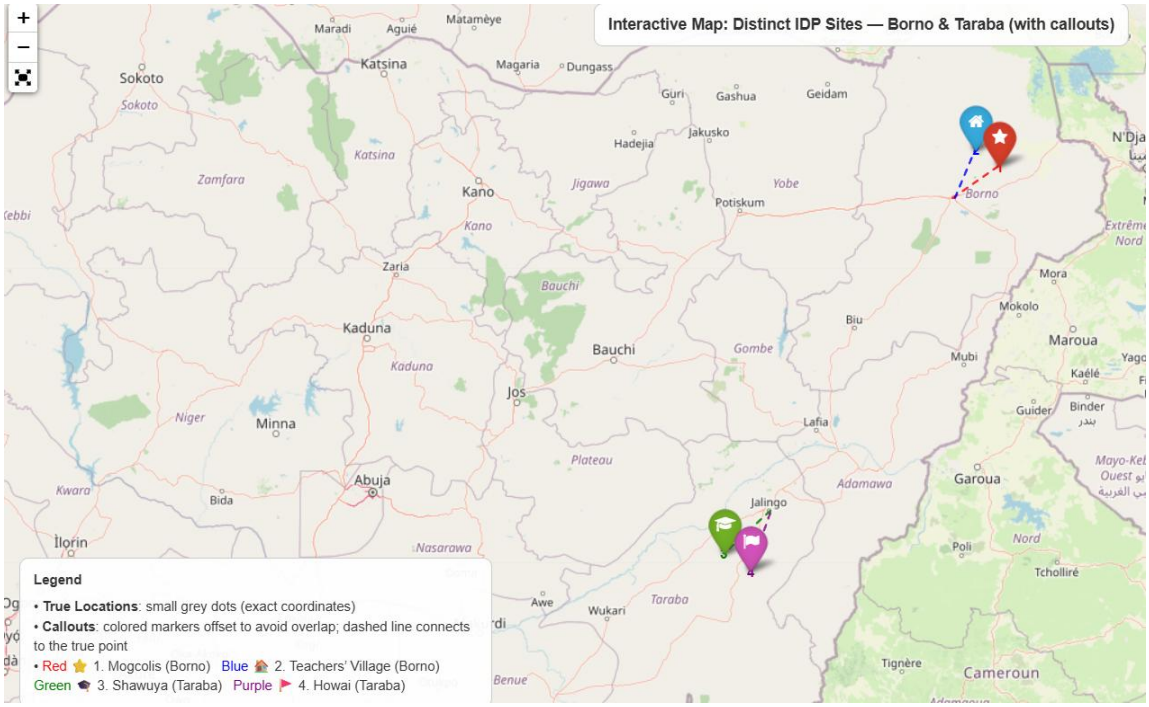
Borno State

1) **Teachers' Village Camp (Maiduguri Metropolitan Council):** Established in 2015, it housed over 27,000 IDPs displaced from Kukawa, Gwoza, and Marte LGAs. The camp had two health facilities, 314 latrines (251 functional), and relied on boreholes for water. Sanitation challenges and intermittent electricity supply were noted.
2) **MOGCOLIS Camp (Maiduguri):** This camp sheltered about 5,800 IDPs in converted college dormitories. It had two functional clinics providing immunization, antenatal, and malnutrition services, and an average monthly patient volume exceeding 3,000. Overcrowding and waste management were persistent concerns.

Taraba State

1) **Shawuya Primary School Camp (Jalingo LGA):** With 12,200 IDPs, this camp lacked any on-site health facilities. Residents accessed nearby public clinics. Only two latrines served the entire camp, and clean water was obtained from boreholes.
2) **Howai (Mile Six) Camp (Jalingo LGA):** Accommodating 5,723 IDPs, this camp relied on a local primary health center for medical care and had only one toilet facility. Water was supplied by community taps and boreholes.

Figure 1. Map of Study Sites: IDP Camps in Borno and Taraba States, Nigeria



Sampling and Participants

A purposive stratified sampling strategy was employed to select participants. Each camp included three focus group categories: adult men, adult women, and community leaders (men and women). Each group consisted of eight participants, yielding a total of 12 FGDs and 96 participants across the four camps.

Eligibility criteria included being aged 18 or older, resident in the camp for at least six months, and capable of providing informed consent. Discussions were held in Hausa or Kanuri, depending on participants' linguistic backgrounds. In Borno, a Kanuri interpreter facilitated discussions to ensure inclusivity.

Data Collection

Data were collected through semi-structured Focus Group Discussions (FGDs) guided by translated interview protocols structured around six environmental themes derived from the *Environmental Performance Index (EPI)*: air pollution, water quality, land cover and forestry, water resources, climate and energy, and agriculture [10]. Each FGD lasted 60–90 minutes, moderated by a trained facilitator and supported by a recorder and translator.

Data Management and Analysis

Data were transcribed and translated into English immediately after collection. Transcripts were validated for accuracy by bilingual reviewers. Analysis followed thematic content analysis [11] using both inductive and deductive coding. NVivo software supported data organization, enabling cross-comparison across gender and state-level variables.

Ethical Considerations

Ethical approval was granted by the Borno State Health Research Ethics Committee, while Taraba State Ministry of Health provided official authorization. Written and verbal consent were obtained from participants. Confidentiality and anonymity were maintained throughout the research process.

Study Limitations

Key limitations included language barriers, security constraints in Borno, and challenges in gender balance during discussions. Some women deferred to male participants, influencing group dynamics. Additionally, as the study was qualitative and context-specific, findings are not generalizable to all IDP settings.

3. Conceptual Framework

Theoretical Basis

This study's conceptual framework is anchored in the Environmental Performance Index (EPI) model developed by Yale and Columbia Universities [12], which evaluates countries' progress across two broad policy objectives — Environmental Health and Ecosystem Vitality. These dimensions are linked to the United Nations' Sustainable Development Goals (SDGs), especially SDG 13 (Climate Action) and SDG 15 (Life on Land).

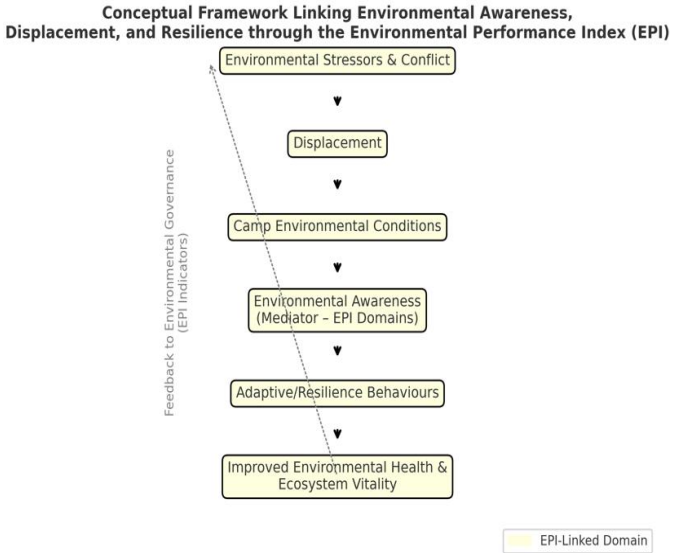
The framework also draws from the Planetary Health paradigm [13], emphasizing the interconnectedness of human health, ecological systems, and environmental governance, and the Resilience Theory [14], which describes adaptive capacities within systems exposed to shocks such as conflict and displacement.

Framework Logic

The framework posits that environmental stressors (climate variability, deforestation, water scarcity, and pollution) and conflict act as dual drivers of displacement in North-East Nigeria [14]. Once displaced, populations encounter new environmental pressures within camps — overcrowding, poor sanitation, and fuelwood dependence — that further degrade their surroundings [3].

However, environmental awareness functions as a mediating factor between ecological stress and adaptive resilience [15,6]. When IDPs perceive and understand environmental change, they can adopt coping mechanisms such as resource conservation, reforestation, or hygiene improvements [10,7] These behaviours collectively strengthen community resilience and align with national environmental performance goals (as captured in the EPI).

Figure 2. Conceptual Framework Linking Environmental Awareness, Displacement, and Resilience through the Environmental Performance Index (EPI)



Legend:

- Solid arrows: causal pathways
- Dotted arrow: feedback link to policy improvement
- Shaded nodes: EPI domains (Water, Air, Forestry, Climate & Energy, Agriculture)

4. Results

Homeland Environmental Conditions

Participants described homeland water sources as predominantly rivers, with some borehole access in Borno; water quality in several Taraba communities was considered unsafe due to animal faeces and stagnation. Respondents reported tree loss, overgrazing, and erosion affecting land cover, while harmattan haze and sand/dust storms were common seasonal air-quality challenges.

Environmental Awareness and Links to Displacement

While most Borno respondents attributed displacement primarily to conflict, a larger share in Taraba linked it to floods, water-source changes, and agricultural losses. Across sites, respondents recognized polluted water, deforestation, and rainfall variability as drivers of disease and livelihood instability.

"We get water from the river and borehole. We share the river with cattle, leading to crisis between us and herdsmen." – Adult Woman, Taraba Camp

"Our water is polluted due to death of frogs." – Adult Woman, Taraba Camp

"Trees are cut for firewood… the soil washes away when it rains." – Adult Leader, Taraba Camp

Camp Environmental Conditions and Practices

Across camps, participants noted overcrowding, irregular waste collection, and reliance on solid-fuel cooking. In Teachers' Village, sanitation inventories documented high absolute latrine numbers but substantial nonfunctional units; in Taraba sites, absolute latrine scarcity was the dominant constraint.

Table 1. EPI Domains and Policy gaps

EPI Domain	Observation	IDP Awareness Level	Policy Gap
Water Quality	Shared water with livestock; pollution from runoff	Moderate	Weak enforcement, no treatment
Land Cover & Forestry	Deforestation, soil erosion	High (experiential)	Absence of reforestation programs
Air & Energy	Biomass cooking, harmattan dust	Moderate	Lack of clean-energy solutions
Agriculture	Reduced yields, unpredictable rains	Moderate	No livelihood adaptation schemes
Governance	Minimal NGO/state presence	Low	No environmental education

Table 2. Core Constructs and EPI domains

Construct	Description	Connection to EPI Domains
Environmental Stressors	Climate change, drought, floods, deforestation, water scarcity, soil erosion, and pollution driving resource depletion and displacement.	*EPI domains: Climate & Energy, Water Resources, Land Cover & Forestry, Air Quality.*
Displacement Drivers	Armed conflict (Boko Haram insurgency), loss of livelihoods, and environmental collapse resulting in migration to IDP camps.	*Indirect indicators of ecosystem vitality and governance (EPI).*
Environmental Awareness	IDPs' knowledge and perception of their immediate environment, resource management, and environmental risks — derived mainly from lived experience.	*Mediating construct reflecting EPI subdomains: Environmental Health, Ecosystem Vitality, and Environmental Governance.*
Camp Environmental Conditions	Waste management, water access, sanitation, energy use, and deforestation within IDP camps that either reinforce or mitigate degradation.	*Measured by EPI indicators of environmental health (water, sanitation, air quality).*

Construct	Description	Connection to EPI Domains
Adaptive and Resilience Behaviours	Actions by IDPs to mitigate or adapt — such as reusing materials, planting trees, or adjusting farming practices upon resettlement.	*Linked to EPI progress metrics in sustainability and resilience.*
Policy and Institutional Response	Humanitarian and governmental programs integrating environmental education, green-energy solutions, and ecological restoration.	*Governance indicators of EPI and SDG alignment.*

5. Discussion

The study's findings align closely with the dimensions of the Environmental Performance Index (EPI), which evaluates countries' progress in environmental health and ecosystem vitality. The six EPI domains examined in this research—air pollution, water quality, land cover and forestry, water resources, climate and energy, and agriculture —provided a framework to assess community-level awareness among internally displaced persons (IDPs). The results demonstrate that awareness levels among IDPs mirror Nigeria's EPI ranking, reflecting systemic challenges in environmental governance and awareness.

Water Quality and Resources

Participants across camps recognized the importance of clean water but had limited access to safe sources, particularly in Taraba where river water is shared with livestock. This correlates with Nigeria's EPI performance on water and sanitation indicators, where contamination and open defecation remain widespread [10] in certain regions in the Sahel. The perception of polluted water as a driver of disease—expressed in focus groups—indicates experiential awareness consistent with EPI's health exposure metrics. However, lack of institutional programs in camps underscores a persistent implementation gap.

Land Cover and Forestry

Deforestation, overgrazing, and soil erosion were major concerns raised by participants, especially in Taraba camps. These findings align with Nigeria's EPI scores on biodiversity and habitat conservation. Respondents' recognition of tree loss leading to erosion and loss of soil fertility illustrates an intuitive understanding of ecosystem vitality, yet formal reforestation initiatives remain absent. The insight supports the argument that IDP communities can become stakeholders in environmental restoration if guided by structured education and community-based programs.

Air Pollution, Climate, and Energy

Seasonal harmattan dust and reliance on firewood for cooking represent dual stressors: natural and anthropogenic. The study echoes EPI findings that Nigeria may face high air-pollution exposure and low access to clean fuels in the region. Respondents associated smoke and dust with respiratory symptoms, confirming awareness of air-quality impacts. The dependency on biomass energy reflects a broader national challenge in achieving Sustainable Development Goal 7 (clean energy) and calls for integrating improved stoves or alternative energy sources within IDP interventions.

Agriculture and Food Security

Focus group participants described reduced crop yields, erratic rainfall, and land degradation as major livelihood challenges, aligning with the EPI agriculture indicator that highlights inefficient land use and vulnerability to climate variability. The awareness of declining productivity demonstrates adaptive potential within these communities. Their emphasis on fluctuating rainfall patterns corresponds with national meteorological projections, affirming that community perceptions can complement scientific monitoring.

Environmental Governance and Awareness Programs

Most respondents reported the adequacy of state or NGO programs to promote environmental awareness or resource management. Where such initiatives existed, they were sporadic, such as tree-planting campaigns or flood -control efforts. This finding aligns with Nigeria's governance sub-scores in the EPI, indicating weak enforcement and public participation. Incorporating environmental education within humanitarian relief operations could bridge this gap by linking awareness with behavioral change and resilience building.

Implications for Resilience and Policy

Overall, the study reveals that environmental awareness among IDPs is practical, experience-based, and survival -oriented. While not framed in scientific terms, these perceptions align with EPI indicators of environmental health and sustainability. Integrating EPI frameworks into local-level resilience assessments would strengthen policy coherence between national environmental goals and humanitarian response. Moreover, the recognition of environmental degradation as both a cause and consequence of displacement highlights the need for multi-sectoral collaboration between environmental agencies and humanitarian actors. Ensuring that IDPs have access to environmental information, clean energy technologies, and community-led conservation initiatives will improve health outcomes, enhance adaptive capacity, and contribute to Nigeria's long-term environmental performance.

Conclusion and Recommendations

The study demonstrates that environmental awareness among internally displaced persons in North-East Nigeria is grounded in lived experience and practical observation rather than formal education. IDPs exhibit awareness of key environmental issues that align with the Environmental Performance Index (EPI) domains—particularly in water quality, land cover, and climate–energy dynamics. However, this awareness is constrained by the lack of structured environmental education, poor service infrastructure in camps, and limited governmental support.

Policy and Programmatic Recommendations

1) **Integrate Environmental Education into Humanitarian Programs:** Environmental awareness modules should be embedded in camp management training and health-promotion programs to enhance IDPs' understanding of sustainable practices such as waste segregation, water conservation, and reforestation.
2) **Establish Green Camp Management Policies:** Federal and State Emergency Management Agencies (SEMA/NEMA) should adopt "Green IDP Camp" guidelines emphasizing renewable energy (e.g., solar stoves), waste recycling, and eco-sanitation. These can serve as models for environmentally responsible displacement sites.

3) **Strengthen Intersectoral Collaboration:** Environmental, water resources, and health ministries should work with humanitarian agencies to design integrated interventions—such as climate-resilient shelters and community-led reforestation programs—that address both environmental and livelihood challenges.
4) **Enhance Data and Monitoring Systems:** National and state governments should institutionalize environmental indicators in IDP monitoring frameworks, linked to Nigeria's commitments under the Sustainable Development Goals and EPI metrics.
5) **Invest in Local Capacity Building:** Training of local leaders and IDP committees in environmental management will empower communities to participate in environmental protection and post-displacement recovery.

Recommendations for Future Research

1) **Quantitative Assessment of Environmental Knowledge:** Future studies should apply mixed-method designs to measure environmental literacy levels using structured instruments, correlating them with behavior change outcomes.
2) **Longitudinal Studies on Resilience and Adaptation:** Research should track how environmental awareness evolves over time as IDPs transition from camps to resettled communities, evaluating whether awareness leads to sustainable livelihood practices.
3) **Comparative Studies Across Regions:** Expanding the research to other Sahelian countries would provide regional insight into how environmental stress and displacement intersect under varying governance frameworks.
4) **Policy Impact Evaluation:** Studies should assess the effectiveness of integrating EPI-based indicators into humanitarian programs to determine if these interventions yield measurable improvements in environmental performance and human well-being.

In conclusion, improving environmental awareness in humanitarian contexts like the IDP camps of North-East Nigeria is essential to bridging the gap between immediate survival and long-term sustainability. Embedding EPI-aligned environmental goals in national displacement and recovery strategies will enhance resilience, reduce ecological degradation, and contribute to Nigeria's progress toward global environmental performance standards.

Publishing Ethics

This article is fully compliant with the Journal's Publishing Ethics.

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Data Availability

For any inquiries regarding the protocols used or the data, please contact the corresponding author (irkashim@gmail.com)

Conflict of Interest

We do not have any competing financial interests or any personal relationships that could have had an impact on the work published in this article. There is no conflict of interest; this is only our original work, and all other materials used have been duly acknowledged in the text.

References

[1] United Nations Environment Programme (UNEP), Sahel Environmental Outlook: Vulnerability and Resilience in a Changing Climate. Nairobi: UNEP, 2020. Available: https://wedocs.unep.org/handle/20.500.11822/31091
[2] World Bank, The Sahel Adaptive Resilience Program Annual Report 2022. Washington, D.C.: World Bank Group, 2022. Available: https://documents.worldbank.org
[3] U. T. Okpara, A. P. Stringer, and D. J. Dougill, "Climate–Conflict Interactions in the Lake Chad Basin," Environmental Research Letters, vol. 14, no. 11, p. 114007, 2019. https://doi.org/10.1088/1748-9326/ab467a
[4] International Organization for Migration (IOM), Nigeria Displacement Tracking Matrix Report 2023. Abuja: IOM, 2023. Available: https://dtm.iom.int/nigeria
[5] United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), Nigeria Humanitarian Needs Overview 2022. Geneva: UNOCHA, 2022. Available: https://reliefweb.int/report/nigeria
[6] F. Ogunleye, "Environmental Sustainability in Nigeria: The 'Awareness' Imperative," African Issues, vol. 31–32, pp. 35–48, 2003–2004. https://doi.org/10.2307/1167084
[7] T. O. Adewuyi and A. Musa, "Environmental Displacement and Livelihood Vulnerability in North-East Nigeria," Journal of African Environmental Studies, vol. 7, no. 2, pp. 14–28, 2021. https://doi.org/10.5281/zenodo.5789432
[8] I. Niang, O. C. Ruppel, M. A. Abdrabo, A. Essel, C. Lennard, and J. Padgham, "Climate Change and the Sahel: Regional Projections and Adaptation Pathways," African Climate Review, vol. 10, no. 1, pp. 1–25, 2022. Available: https://climateknowledgeportal.worldbank.org
[9] Intergovernmental Panel on Climate Change (IPCC), Sixth Assessment Report: Impacts, Adaptation, and Vulnerability. H.-O. Pörtner et al. (Eds.), Cambridge: Cambridge University Press, 2021. https://doi.org/10.1017/9781009325844
[10] Yale Center for Environmental Law and Policy and Columbia University Center for International Earth Science Information Network (CIESIN), 2018 Environmental Performance Index. New Haven, CT: Yale University, 2018. https://doi.org/10.13140/RG.2.2.32675.12322
[11] V. Braun and V. Clarke, "Using Thematic Analysis in Psychology," Qualitative Research in Psychology, vol. 3, no. 2, pp. 77–101, 2006. https://doi.org/10.1191/1478088706qp063oa
[12] World Health Organization (WHO), Climate Change and Human Health: Risks and Responses. A. J. McMichael, D. H. Campbell-Lendrum, C. F. Corvalán, K. L. Ebi, A. Githeko, J. D. Scheraga, and A. Woodward (Eds.). Geneva: WHO, 2009. Available: https://www.who.int/publications/i/item/9241590815
[13] L. H. Gunderson and C. S. Holling, Panarchy: Understanding Transformations in Human and Natural Systems. Washington, DC: Island Press, 2002. ISBN: 9781559638579
[14] United Nations Development Programme (UNDP), Human Development Report 2021–2022: Uncertain Times, Unsettled Lives—Shaping Our Future in a Transforming World. New York: UNDP, 2022. Available: https://hdr.undp.org
[15] United Nations Department of Economic and Social Affairs (UNDESA), The Sustainable Development Goals Report 2023. New York: United Nations, 2023. https://doi.org/10.18356/9789213588490