A Future for Planetary Health and Human Wellbeing 2050

UNEP Regional Foresight Workshop, West Asia
Organised by Kuwait Foundation for the Advancement of Sciences, in collaboration with the United Nations Environment Programme

Kuwait City, Kuwait, 19-20 November 2023

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Summary Document

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Foreword

A note from the UNEP Chief Scientist: Reflections on the Regional Workshops

We are entering the final phase of our 2023-2024 Foresight Process. The first phase scoped a wide range of inputs including a Global Delphi survey and construction of four divergent scenarios of plausible futures to 2050. The next phase, the regional workshops, brought together over two hundred experts from six regions, to reflect on possible futures and crucially, to "reverse engineer" them: to walk backwards from them to the present, with respect to the interventions needed in 2023 to address the underlying causes of the triple planetary crisis and achieve planetary health and wellbeing. In doing so, we have identified some key issues, and perhaps more importantly, have signposted some of the pitfalls and cliff edges along the way.

Global issues require a global perspective, but also to take into account the unique contexts of each region. That's why UNEPs Foresight Process incorporates this regional element. What surprised many of us, was how diverse the visions which emerged from each region were. While it would be unscientific to read too much into the issues raised – the groups were not selected to be representative and this was not a polling exercise – it was nonetheless fascinating and instructive to be reminded that visions of the future are, by necessity, extrapolations of the preoccupations and anxieties of the present.

In West Asia, a lot of attention focused on a post-fossil fuel future. Was it possible, or even desirable? Might the dash to renewables bring its own set of unforeseen consequences? Water was a constant theme, and the possibility of it being weaponized, or even a source of conflict, was discussed. Technology and AI were seen as bringing threats as well as opportunities.

Some themes emerged from all of the Regional Workshops. Multilateral cooperation between states, combined with increased localisation and lower-level democracy. The need to engage and involve youth, women, and Indigenous Peoples in decision-making. Modification of our consumerist habits, and a push towards sustainable, healthy lifestyles. These goals are feasible and pragmatic: an encouraging sign for the next step of the process, which is to consolidate and evaluate the inputs, and craft a tool which will help mainstream foresight thinking into environmental and social policymaking.

Andrea Hinwood, Chief Scientist, UNEP
December 2023

Introduction

To better navigate current and future uncertainty and disruptive change, the strategic foresight initiative of the United Nations Environment Programme (UNEP) aims to put in place an institutionalised approach to foresight and horizon scanning. As part of this effort, UNEP and the International Science Council convened a Foresight Expert Panel who met in September 2023 to collectively interpret emerging signals of change distilled from a global survey. Four scenarios were developed at the global level, representing four possible visions of the world in 2050. The scenarios are neither "utopian" or "dystopian" visions, but rather, representations of possible futures used to facilitate discussions on issues, pathways and interventions which may affect planetary health and human well-being in the future.

- **Scenario A - Sustainability Paradox:** Science and technology are actively used to successfully solve many environmental problems and resource scarcity. Therefore, society continues to believe that economies can grow exponentially, and people continue to consume without limits.
- **Scenario B - Post-Truth Division:** Trust in science is eroded and social groups choose their own truths, aligning by shared attributes and beliefs. Conflicts exist within and across states and newly forming entities, down to the local level.
- **Scenario C - Fortress Multipolarity:** A future shaped by a 'polycrisis' forces humans to reorganise themselves into hybrid fortified enclaves with megacities, in competition and occasional cooperation with other megacities, and with an emphasis on internal security and surveillance.
- **Scenario D - Global Awakening:** New generations recognise the interconnectedness of their actions and their impact on the health of the planet. Supported by Artificial Intelligence (AI) and technology, they unite to create a world of harmony between humans and nature.

Regional workshops were held to contextualise global findings and explore region-specific dynamics, issues, risks, and opportunities. Participants took part in four main exercises, in a process co-designed by UNEP's Office of the Chief Scientist and the European Commission Joint Research Centre Foresight team: Ice Breaker, Reviewing Scenarios, Exploring Changes, and Identifying Policy Interventions (see Annex 1 for more detailed methodology).

This report provides an overview of the main insights captured during the West Asian Strategic Foresight Workshop, co-organized with the Kuwait Foundation for the Advancement of Sciences. The workshop was held in Kuwait City, Kuwait on 19-20 November, 2023, at the Kuwait University Campus and brought together several experts from across the region (see Annex 2 for a complete list of participants).

The report is not intended to present the full set of contributions that took place but rather to synthesise discussions with a view towards showcasing key insights for the region. The insights captured in the regional report as well as insights from the global process will be reflected in the 2024 Global Environmental Foresight Report.

Background

West Asia, the UNEP region encompassing the Kingdom of Bahrain, the Republic of Iraq, the Hashemite Kingdom of Jordan, the State of Kuwait, the Republic of Lebanon, the Sultanate of Oman, State of Palestine, State of Qatar, Kingdom of Saudi Arabia, Syrian Arab Republic, United Arab Emirates (UAE) and the Republic of Yemen. While it may be a relatively small region, it houses a wide range of population, economic and geopolitical realities that serve as the backdrop to a myriad of environmental challenges. This region, rich in oil and natural resources, is undergoing significant shifts in consumption patterns, demographic changes, geopolitical conflict, and economic inequalities that could impact its response to environmental concerns.

The region is mistakenly viewed as an environmental monolith however West Asia contains a highly contrasting range of terrestrial, freshwater, and marine ecosystems, ranging from Mediterranean forests, sandy and stony deserts, oases, savannas, plains, and rangelands, through to springs, lakes, mudflats, marshes, mangroves, seagrass beds and coral reefs.[1] These delicate ecosystems are at risk of collapse as increasing temperatures in the region continue to rise.

Preserving the environment and supporting human life in this region becomes increasingly challenging under the extreme climate change and resource scarcity conditions in the region. While the region is a major contributor to fossil fuel production, and therefore has access to necessary energy sources, it is also one of the highest energy users, with 4 West Asian countries listed among the top 10 of the world's highest per capita energy users in the world, with the vast majority of this energy coming from fossil fuel use.[2,3] The 2022 UNEP study *Net Zero Carbon Scenarios for the Energy Sector in West Asia* shows that under a business as usual scenario, CO_2 emissions from the energy sector in the region will double from 1,171 million tCO_2 in 2018 to 2,027 million tCO_2 in 2050.[4] Furthermore, several countries in West Asia have a strong influence on global energy markets due to their vast oil and gas reserves. UNEP's 2023 Production Gap report cites projections by Saudi Arabia's state-owned oil company, Aramco, that Saudi domestic oil production will increase at an annual rate of 1% until 2050 under a scenario where global oil demand levels off by 2037.[5] The region's heavy reliance on fossil fuels has resulted in substantial environmental degradation. The extraction, production, and consumption of oil and gas have led to air and water pollution, and greenhouse gas emissions.[6]

Demographic and population dynamics in West Asia show wide fluctuations owing primarily to changes in net international migration. The population in the Arab region continues to grow and that, as it does, it is diversifying. Population growth varies widely from country to country, from less than 1 per cent to over 3 per cent per year with an average of 1 per cent across the region in 2021. Based on the current rate of growth, the population of the region would be expected to double in size in approximately 35 years. The population in the region is also relatively young overall with the proportion of children under 15 years of age ranging from a low of 14.9 per cent in the United Arab Emirates (2021) to a high of 40.5 per cent in the Iraq (2021), followed by Yemen (2021) at 40.2 per cent. GCC countries have relatively large migrant populations, consisting primarily of labourers from South and Southeast Asia. As of 2019, the region also has the largest number of refugees and displaced populations

[1] UNEP-WCMC (2016) The State of Biodiversity in West Asia: A mid-term review of progress towards the Aichi Biodiversity Targets. UNEP-WCMC, Cambridge, UK. Retrieved from https://www.cbd.int/gbo/gbo4/outlook-westasia-en.pdf

[2] CIA World Factbook - Energy Consumption per capita. Retrieved from https://www.cia.gov/the-world-factbook/field/energy-consumption-per-capita/country-comparison/

[3] Sedaoui, R. (2022). Energy and the Economy in the Middle East and North Africa. In: Hafner, M., Luciani, G. (eds) The Palgrave Handbook of International Energy Economics. Palgrave Macmillan, Cham. Retrieved from https://doi.org/10.1007/978-3-030-86884-0_33

[4] United Nations Environment Programme (2022). Net Zero Scenarios for the Energy Sector in West Asia, Nairobi. Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/41153/net_zero_carbon.pdf?sequence=1&isAllowed=y

[5] SEI, Climate Analytics, E3G, IISD, and UNEP. (2023). The Production Gap: Phasing down or phasing up? Top fossil fuel producers plan even more extraction despite climate promises. Stockholm Environment Institute, Climate Analytics, E3G, International Institute for Sustainable Development and United Nations Environment Programme. Retrieved from https://doi.org/10.51414/sei2023.050

[6] Mahmood, H.; Asadov, A.; Tanveer, M.; Furqan, M.; Yu, Z. Impact of Oil Price, Economic Growth and Urbanization on CO2 Emissions in GCC Countries: Asymmetry Analysis. Sustainability 2022, 14, 4562. https://doi.org/10.3390/su14084562

worldwide, with three West Asian countries (Jordan, Lebanon, and the State of Palestine) hosting over 1 million refugees each. [7]

Additionally, water scarcity remains a critical concern, exacerbated by transboundary dependency, occupation and conflict, population growth, increased urbanisation, and climate change. Several countries in the region such as Saudi Arabia, Oman, and Yemen, depend largely on ground and surface water withdrawal for their water needs while others are heavily reliant on desalination, including Bahrain, Qatar, and Kuwait. Nearly 90 per cent of the region's population lives in countries with less than 1,000 cubic metres of fresh water per person per year, and 11 of the 12 West Asian countries are considered water scarce.[8] [9] [10]

Arab countries have also followed different trajectories of food security over the past two decades, with some countries getting closer to meeting the goal of ending hunger for all, while others have seen stagnation or deterioration. The percentage of people experiencing undernutrition has remained low to moderate in GCC countries, at an average of 5.2% in 2020, with some increases in Jordan and Lebanon in recent years, especially among refugee populations with rates of 16.9% and 10.9% in 2020, respectively.[11]

Despite these challenges, efforts are being made across the region to address environmental concerns. Several countries have implemented initiatives focusing on renewable energy adoption, water conservation, and sustainable development. The transition to renewable energy sources like solar and wind power has gained momentum, aiming to reduce reliance on fossil fuels and mitigate environmental impact.[12] [13] Many countries in the region, particularly GCC countries, are working towards reducing their dependence on oil revenues and diversifying their economies. Vision 2030 in Saudi Arabia, Vision 2021 in the UAE, and similar initiatives in other countries aim to develop sectors such as tourism, entertainment, renewable energy, and technology.

West Asia stands at a critical juncture in its response to environmental challenges. The region's consumption footprint continues to expand, propelled by demographic changes, economic inequalities, and a historic dependence on fossil fuels. However, strides toward sustainability, renewable energy adoption, and conservation efforts underscore a growing awareness of the need to participate in economic diversification and a green energy transition. [14] Collaborative efforts and policy interventions are imperative to ensure a more sustainable and resilient future for West Asia and the planet.

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[7] Arab Society: Demographic and Social Trends, Issue No. 16, March 2023, E/ESCWA/CL4.SIT/2022/2 Retrieved from https://www.unescwa.org/publications/arab-society-demographic-social-trends-16

[8] SDG 6: Clean Water and Sanitation, March 2023, E/ESCWA/RFSD/2023/INF.6, Retrieved from https://www.unescwa.org/publications/sdg-6-background-note

[9] de Waal, Dominick, Stuti Khemani, Andrea Barone, and Edoardo Borgomeo. 2023. The Economics of Water Scarcity in the Middle East and North Africa: Institutional Solutions. Washington, DC: World Bank. doi:10.1596/978-1-4648-1739-7. Retrieved from https://openknowledge.worldbank.org/server/api/core/bitstreams/6d4cbe0d-4156-4a9f-ad2f-57f100f411c6/content

[10] ESCWA Water Development Report 9: Groundwater in the Arab region. September 2022, E/ESCWA/CL1.CCS/2021/2, Retrieved from https://www.unescwa.org/publications/water-development-report-9

[11] Inequality in the Arab Region: Food Insecurity Fuels Inequality, June 2023, E/ESCWA/CL2.GPID/2023/3, Retrieved from https://www.unescwa.org/publications/inequality-arab-region-food-insecurity-fuels-inequality

[12] Hassan Q, et. al, Middle East energy consumption and potential renewable sources: An overview, Cleaner Engineering and Technology, Volume 12, 2023, Retrieved from https://doi.org/10.1016/j.clet.2023.100599.

[13] Aghahosseini A, Bogdanov D, Breyer C, Towards sustainable development in the MENA region: Analysing the feasibility of a 100% renewable electricity system in 2030, Energy Strategy Reviews, Volume 28, 2020. Retrieved from https://doi.org/10.1016/j.esr.2020.100466.

[14] Tagliapietra S, The impact of the global energy transition on MENA oil and gas producers, Energy Strategy Reviews, Volume 26, 2019, 100397, ISSN 2211-467X, https://doi.org/10.1016/j.esr.2019.100397.

Underestimated factors affecting planetary health and/or human well being

As a starting point, participants engaged in an exercise to openly identify issues that they perceived to be currently underestimated in public discussions but that are impacting planetary health and human well-being. This set the stage for the foresight exercises to follow by providing insight into the mindset of participants at the onset of the workshop and the priority issues held at the top of their minds.

Social Dynamics

Views were shared regarding how societal roles and established hierarchies are changing or even to a certain extent deteriorating compared to the more traditional social values that have been expected in previous generations. This is seen to be exacerbated by the influence of advancing technology, artificial intelligence, and social media which raised questions regarding how their influence on trust in institutions and science and whether or not the education system is equipped to support these changes.

Health Concerns

There were also concerns with respect to the trajectory of human health in the region. Several participants indicated that more discussions and public awareness is needed around issues of pollution and health, disease prevention, mental health issues, zoonoses as well as nutrition in the region. This was put forward against a backdrop of concerns regarding the effects of inclement weather on health, high risks of food and water insecurity in the region as well as access to adequate medical services.

Policy and Governance Structures

Participants expressed concern over changes in local and global policy and governance structure. They pointed to the increasing tendency of moving towards South-South cooperation as well as changing political and strategic governance models which are resulting in several countries in the region emerging as new voices on the global leadership stage. Questions were also raised around how geopolitical tensions in the region will affect the environment and how financial crises in some parts of the region can have reverberations across it. Financial challenges were also mentioned in the context of North-South taxing.

Behaviour changes

It was noted that many in the region have adopted certain behaviours and habits that do not take into account environmental considerations. Questions around whether citizens would be open to the challenges and lifestyle changes needed to adapt to climate change were made. This was supplemented by the idea that there needs to be more targeted capacity to translate policy to action in the region, possibly through the introduction of regionally and culturally relevant choice architecture methodologies.

The Scenarios

With these opening discussions in mind, participants spent much of the remaining time in the workshop in breakout sessions focusing on the four global scenarios, unpacking the scenarios in the West Asian context and exploring pathways to change between now and 2050 (Annex 1). These discussions, which incorporate and expand upon many of the key issues raised in the opening session, are summarised for each scenario. Below is a summary of the scenarios and how they were contextualised for the West Asia region:

Scenario A: The Sustainability Paradox

Global Scenario Summary: Science and technology is actively used to successfully solve many environmental problems and resource scarcity. Therefore, society continues to believe that economies can grow exponentially, and people continue to consume without limits.

What will West Asia look like in 2050 under this scenario?

- There is widespread collapse in ecosystems due to a lack of effective management and regulation. Environmental problems are dealt with on a case-by-case basis without regard for the bigger picture: for example, a demand for clean freshwater is met by a new desalination plant, without consideration of the impact of brine discharge.
- Communities have been organised into exclusive enclaves and social mobility is at a minimum. This has contributed to a decline in cooperation and ethical values.
- As fossil fuel resources diminish, there is large-scale investment in renewable energy. However, as this is motivated by energy demand rather than sustainability, the renewable projects themselves cause knock-on environmental issues, e.g. rare earth extraction, land use.
- There are tensions and rivalry between the states of the region as new patterns of energy use disrupt the power relationships. This can lead to open conflict.
- An unregulated, polluted environment leads to the emergence of new health risks and a decline in human wellbeing.

Scenario B: Post-Truth Division

Global Scenario Summary: Trust in science is eroded and social groups choose their own truths, aligning by shared attributes and beliefs. Conflicts exist within and across states and newly forming entities, down to the local level.

What will West Asia look like in 2050 under this scenario?

- There is a wide digital divide, with AI and social media algorithms used to sway public opinion and reinforce power of elites. Institutions and public bodies will lose trust and authority.
- Alongside the rise of nationalism to the mainstream, there is a rise in fringe beliefs including religious extremism and a return to "traditional" values around the family and gender roles.
- Global and continent-wide cooperation and institutions are replaced by bilateral agreements. Disputes increasingly result in conflict rather than mediation. War is a strong possibility.
- There is a decline in the rule of law and pro-mafia discourses become commonplace. Centralised decision-making has fallen out of favour and localism and communitarianism have risen, with many parallel and discrete communities formed along identity lines.
- There is a decline in environmental and consumer standards as weak enforcement leads to flagrant flouting of regulations.

Scenario C: Fortress Multipolarity

Global Scenario Summary: A future shaped by a 'polycrisis' forces humans to reorganise themselves into hybrid fortified enclaves with megacities, in competition and occasional cooperation with other megacities, and with an emphasis on internal security and surveillance.

What will West Asia look like in 2050 under this scenario?

- Democracy and human rights have been eroded as multinational cooperation cedes to a new nationalism, regionalism and localism. Authoritarianism prevails, with a loss of equality, diversity, and inclusion. The new power structures require increased surveillance and social control.
- Traditional employment has shifted toward automation. Despite lower working standards and greater job scarcity, there is widespread suppression of movements and protests, leading to a more compliant society.
- Finance revolves around digital markets and cryptocurrencies, and gold has reemerged as a financial tool. The global trade landscape has been replaced with protectionism and exclusive bilateral cooperation. This, however, has also led to an emphasis on resource efficiency and circular economy.
- There has been a loss of transparency in business practices, and lines between public and private sectors are blurred (for example, the "privatisation" of space). Standards are diluted and confused. "Fortresses" compete for control of raw materials.

Scenario D: Global Awakening

Global Scenario Summary: New generations recognise the interconnectedness of their actions and their impact on the health of the planet. Supported by artificial intelligence and technology, they unite to create a world of harmony between humans and nature.

What will West Asia look like in 2050 under this scenario?

- Groups of non-ideological, human wellbeing-focused governments in the region pursue policies which emphasise knowledge-driven policies and the circular economy. Educators, policymakers and NGOs have a prominent role in society.
- Technology, especially AI, is used to support education and human development. Data is predominantly open access and used to support democratic reforms.
- Corporations behave responsibly, with strict environmental oversight, a reduction or abolition of fossil fuel subsidies, and an emphasis on the development of Smart Cities.
- Governance is more inclusive and representative of society. There is decreased military spending and greater international cooperation under a reformed United Nations system.

Key Areas for Intervention

After diving deeply into the four scenarios, participants were asked to take a step back and reflect on what interventions might prevent, improve, or mitigate the outcomes of these 2050 visions. Though the initial workshop structure focused on how interventions might actually be implemented and by whom, discussions shifted towards identifying priority issues to be addressed and problems to solve.

With regards to who should be involved in implementation, participants highlighted a diverse array of stakeholders whose engagement is critical to making progress, including government, private sector actors, scientists, non-governmental organisations, and others. The main issues to be addressed that were identified cut across scenarios, incorporating multiple elements of coordination and cohesion, and are presented as such below.

Social Values, Education and Culture

With social values and culture evolving in response to the challenges of a changing world, it was noted that there needs to be a shift to preserve traditional culture and values in a way that also honours the need to remain in touch with modern society. Recognizing the necessity to fortify the region's capabilities for the future, there is an imperative to reevaluate the educational system, tailoring the curriculum to future needs with a localised focus that capitalises on intergenerational learning and mentoring to preserve traditional culture and knowledge.

It was observed that this can also be carried out through educational reform policies that focus on building a society that understands its values, including the value of work, while also building a labour force that can fill labour market gaps. This includes increasing the availability and promoting enrolment in technical and vocational education and training. Collaborative efforts involving government, NGOs, and universities can support professional development and keep abreast of technological advancements, providing necessary training.

The need for capacity building also encompasses the areas of data generation and data analytics as well as supporting the promotion of ethical safeguards for AI and new technologies with the view to ensuring the availability of a code of conduct and protocols for ethical governance. This includes maintaining data integrity, responsible data sharing, and widespread awareness of AI applications and potential misuse. Local alignment and empowerment of NGOs and grassroots movements are essential for instigating change at the local level, necessitating cooperation among various stakeholders.

Innovation and Technology Governance

The region grapples with the dual challenges of navigating innovation and adapting to new technologies while contending with a heavy reliance on imported goods and economic migrant labour. To address these pressing issues, a multifaceted approach is imperative.

Fostering local innovation stands out as a linchpin in this transformation. This involves providing incentives and de-risking investments in startups, creating a conducive environment for homegrown talent to thrive. Simultaneously, promoting digital literacy becomes equally crucial, ensuring that investors, the public, and government officials are well-versed in the digital landscape.

In the era of digital transformation, the establishment of digital autonomy takes centre stage. This entails safeguarding technology and data, coupled with a push for open-source data sharing to foster collaboration and collective progress.

Strategies for achieving regional independence include reducing reliance on overseas labour through the implementation of automation, stimulating local manufacturing, and offering financial incentives

to small and medium-sized enterprises. These measures collectively aim to bolster self-sufficiency and resilience.

Crucially, the success of this transition hinges on collaborative efforts. A synergistic partnership between the government, private sector, and various institutions is essential. By pooling resources, expertise, and perspectives, these stakeholders can navigate the complexities of innovation, ensuring a smooth and successful transition towards regional independence in the digital age.

Economic and Financial Resiliency and Social Safeguards

The advent of digital transformation brings with it a dual-edged sword of challenges and opportunities, compelling a critical reassessment of how economic success and prosperity are conceptualised and measured. The traditional reliance on Gross Domestic Product (GDP) as the primary indicator of prosperity is increasingly recognized as inadequate, spotlighting the urgent need for innovative metrics that account for natural capital and the true wealth of nations.

In response to this shifting landscape, there's a growing consensus on the importance of nurturing a sharing economy, pivoting from a consumer-centric to a producer-oriented mindset, and the strategic development of local, agile supply chains. These steps are pivotal in bolstering local economies, making them more resilient and sustainable.

Moreover, the power of collaborative regional initiatives cannot be overstated. By forming coalitions, regions can amplify their resources and capabilities, creating a synergistic effect that propels forward not just local but global economic reform.

Central to this transformative vision is the crafting of policies and practices aimed at mitigating environmental and social risks, with a pronounced emphasis on health, mental well-being, and adapting to our highly interconnected reality. This encompasses a heightened focus on public health, the implications of E-health, and the psychological effects linked to the rapid pace of technological advancements.

At the heart of this paradigm shift is the call for a new economic model—one that champions human and ecological well-being, severing the long-held ties to conventional growth metrics. Achieving this ambitious but necessary vision demands a collaborative effort spanning governments, private sector entities, and civil society, all united in the quest for a sustainable and inclusive future.

Promoting Improved Governance Structures and Trust

Crafting a comprehensive strategy for both monetary and human well-being is paramount. This involves establishing collaborative teams and dedicated centres for data, information, and knowledge exchange. Facilitating local knowledge transfer and streamlining approval processes are key components.

To instil greater accountability, a focus on evidence-based decision-making is crucial as well as combating corruption within government processes. Encouraging mainstream and strategic planning, breaking down silos, and fostering a unified vision contribute to a more cohesive approach. Furthermore, introducing a merit-based system and transforming leadership with a compelling narrative further strengthens governance.

Separating regulators from operators is proposed to enhance efficiency, complemented by the implementation of mission-based and integrated systems. Addressing the issue of enforcement gaps is essential, necessitating the establishment of a regulatory and standard setting regime with enhanced capacity and clear commands.

Recognizing the importance of local conditions, a bottom-up approach is recommended, ensuring policies are tailored to the local context. Reforming parliaments is identified as a means to reduce

corruption, while promoting foresight literacy through education is advocated for better long-term planning. This comprehensive approach aims to create a governance framework that is responsive, accountable, and oriented towards sustained well-being.

Next Steps

The outcomes of the regional workshops will serve to inform the second round of the Delphi Survey. This second round aims to prioritise the 259 signals and over 50 issues submitted during the first round of the survey, to the top 18 (three from each region). The original 6000 experts invited to take part in the original Delphi survey, in addition to all those who participated in the regional workshops, will be invited to rank the top 18 issues based on their potential for being most disruptive. Survey respondents will also be invited to give their thoughts on whether and how UNEP should be involved in each issue.

Ultimately all the data gathered during this foresight exercise will contribute to the final Foresight Report, to be presented at the Summit of the Future in New York in September 2024, and UNEP's strategic long-term outlook.

Annex 1: Methodology - Regional Foresight Workshop

UNEP's strategic foresight initiative aims to establish an institutionalised approach to foresight and horizon scanning. The goal is to develop an anticipatory and future-oriented culture, recognising the fact that tackling the global systemic challenges we are collectively facing requires integrating forward-looking knowledge and insights across disciplines, knowledge systems, and sectors of society.

The process comprises two distinct steps. The first was at the global level, bringing together a Foresight Expert Panel to interpret, analyse, and cluster and providing insights to potential for disruption following an analysis of 29 emerging changes and over 1000 signals of change identified from a horizon scan survey. Following this global analysis, a series of regional workshops were held to review the global outputs with the view to providing necessary regional perspectives to validate and adjust the initial identification of emerging signals of change and provide information on regionally specific issues, risks, and opportunities.

The structure for Regional Foresight Workshops was co-designed by UNEP's Office of the Chief Scientist and the European Commission Joint Research Centre (JRC) Foresight team in partnership with the International Science Council. The process included 4 key exercises:

1. ***Ice breaker Exercise:*** each participant was asked to share *one factor which, in their opinion, is affecting planetary health and/or human well being but is underestimated in public discussion.*
2. ***Reviewing Scenarios***: Participants were presented with the four UNEP scenarios that are being used as a foresight tool to engage in systemic reflections and the exploration of potential challenges, opportunities, and options for action in Africa. Participants were invited to familiarise themselves with the four scenarios and consider how to contextualise each of the thematic areas for the region as well as to refine and validate the scenarios.
3. ***Exploring Changes:*** participants were invited to a second discussion on exploring emerging changes under each of the four scenarios with the view to analysing the potential for disruption of the state of the environment, planetary health and human well-being.
4. ***Identifying Policy Interventions:*** Action oriented strategic reflection to identify how each of the main changes impact sustainable development in the region and to propose specific policy interventions that could be implemented to address changes that could negatively impact sustainable development.

The 2-day workshop in West Asia (19-20 November 2023) followed Chatham House Rules. It consisted of a series of facilitated breakout sessions during which participants discussed emerging changes in context of the four UNEP scenarios, shared their views on pathways through which those scenarios could possibly materialise and reflected on how this could affect the transition towards a sustainable future of improved planetary health and human wellbeing.

The knowledge and insights produced through the workshop – the collective intelligence generated through the discussions – together with the results of the Delphi survey and Global Sensemaking exercises, will ultimately culminate in a Global Report to be published in 2024 that aims to inform deliberations of the Summit of the Future.

Annex 2: Participants list

Name	Title	Organisation
Prof. Waleed Zubari	Professor of Water Resources Management	Arabian Gulf University, Bahrain
Prof. Odeh Al-Jayyousi	Professor of Innovation Policy	Arabian Gulf University, Bahrain
Motasem Saidan	Professor of Chemical Engineering (Former water Minister)	University of Jordan, Jordan
Hussein Shobokshi	Journalist, President – Shobokshi Investment, Chairman – Czech-Saudi Chamber of Commerce	Honorary Consul of the Czech Republic in Saudi Arabia, President – Shobokshi Investment, Chairman – Czech-Saudi Chamber of Commerce, TIME magazine, the Wall Street Journal, the Financial Times, CNN, CBS,
Mariam Al Ali Al Maadeed	Vice President for Research and Graduate Studies	Qatar University, Qatar
Eng. Muataz Al Riami	Gas Director	Petroleum Development Oman
Ibrahim Abdul-Jaleel	Consultant, Energy and Environment	Freelance, Egypt
Dr. Leila Dagher	Assistant to the President for Public Policy and Associate Professor of Economics	Lebanese American University
Dr. Ali Boumjadad	Research management consultant	Kuwait Foundation for the Advancement of Sciences
Dr. Maitham Safar	Research Management Consultant RD P1	Kuwait Foundation for the Advancement of Sciences
Dr Hanady Abdulsalam	Research Capacity Building Program Advisor (RD P2)	Kuwait Foundation for the Advancement of Sciences
Dr. Layla Al-Moussawi	Acting Director of the Scientific Culture Department	Kuwait Foundation for the Advancement of Sciences
Dr. Abrar Al-Moosa	Director of the Science and Mathematics Program - Department of Scientific Culture	Kuwait Foundation for the Advancement of Sciences
Mrs. Dalal Al-Hashash	Acting Director of the Strategic Partnerships Department	Kuwait Foundation for the Advancement of Sciences
Mr. Hussein Al-Sayegh	Aquarium Head of Department	The Scientific Center Kuwait (A KFAS Center).
Dr.. Dana Al-Tarrah	College of Public Health	University of Kuwait
Dr. Fahd Al-Senafi	sea science	University of Kuwait
Dr. Mohammad Alshawaf	College of Life Sciences - Department of Environmental Sciences	University of Kuwait
Dr. Abbas Al-Majren	Faculty of Science - Head of the Economics Department	University of Kuwait
Ohod Aaragum	Center for Environmental and Life Sciences Research	Kuwait Institute for Scientific Research
Dr. Anoud Aragum	Center for Environmental and Life Sciences Research	Kuwait Institute for Scientific Research
Dr. Sherine Al-Subiai	Center for Environmental and Life Sciences Research	Kuwait Institute for Scientific Research
Dr. Youssef Al-Osairiy	Center for Environmental and Life Sciences Research	Kuwait Institute for Scientific Research
Dr. Youssef Al-Abdullah	Energy and Building Research Centre	Kuwait Institute for Scientific Research
Dr. Fayza Al-Yamani	Center for Environmental and Life Sciences Research	Kuwait Institute for Scientific Research
Dr. Abdullah Al-Zaidan	Deputy Director for Technical Affairs	Environment Public Authority
Mrs. Sharifa Al-Shalfan	Member of the municipal council	Municipal Council
Dr. Aseel Al-Awadhi	Kuwaiti Embassy in Washington	Kuwaiti Embassy in Washington
Ms. Ghada Hatem Eltahir	UN Resident Coordinator	UN Resident Coordinator - Kuwait
Dr. Mounir Tabet	Deputy Executive Secretary - Programme	Economic and Social Commission for Western Asia (ESCWA)
Andrea Hinwood	UNEP Chief Scientist	United Nations Environment Programme
Jason Jabbour	Senior Programme Management Officer	United Nations Environment Programme
Dina Abdelhakim	Programme Management Officer	United Nations Environment Programme
Abdelmenam Mohammed	UNEP Regional Office for West Asia	United Nations Environment Programme
Awatif Al Hammadi	UNEP Regional Office for West Asia	United Nations Environment Programme
Richard Crompton	UNEP Writer	United Nations Environment Programme
Nourah Aldamkhi	Specialist I - Research Capacity Building	Kuwait Foundation for the Advancement of Sciences
Mariam Abdulmohsen	Administrative Officer-RD program	Kuwait Foundation for the Advancement of Sciences
Alaa Al-Saleh	Engineering Specialist	Kuwait Foundation for the Advancement of Sciences
Anoud Abdulaali		Kuwait Foundation for the Advancement of Sciences
Ghada Faraj		Kuwait Foundation for the Advancement of Sciences