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Accelerating the Green Transition:

Socioecological Systems and the Future of Development

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The planetary crisis is the greatest challenge humanity has ever faced, an existential threat calling into question the future of civilization. Unless collective action is taken to halt and reverse the decline of the planet's ecosystems, the road to 2030 will be defined by accelerating levels of social vulnerability, poverty and crisis.² The polycrisis experienced in the Middle East and North Africa (MENA) region over the past decade is a case in point, providing critical insights on the role of ecological change in the emergence of complex multidimensional crises.³ This paper explores lessons and insights from a new generation of integrated local solutions that have emerged across the region to manage risks and build resilience, and makes the case for a new systems orientation to development paradigms and practice to achieve goals of transformational change. In moving towards 2030, a new paradigm is needed in which development is seen no longer as a linear set of goals and targets but as the emergent property of a complex socioecological system.

Complexity, Crisis and the Green Transition

We are entering a new era of complexity and instability, with atmospheric carbon dioxide reaching levels not seen in three million years,⁴ the onset of a sixth mass extinction in the Earth's history, growing frequency and severity of climate-induced disasters⁵ and pandemics affecting billions of people.⁶ These drivers of change are now slowing the rate of progress for achieving the SDGs and could well lead to a reversal of development gains by mid-century, pushing hundreds of millions

of people into extreme poverty and situations of displacements and eroding the fundamental freedoms and choices at the core of the human development paradigm.⁷

“Whether humanity has the collective wisdom to navigate the Anthropocene to sustain a liveable biosphere for people and civilizations, as well as for the rest of life with which we share the planet, is the most formidable challenge facing humanity.”⁸ “In

the twenty-first century, people and planet are truly interwoven and coevolve, shaping the preconditions for civilizations. Our own future on Earth, as part of the biosphere, is at stake.” Far from a dystopian tale of the future, the implications of accelerating climate change and ecosystem disruption are already upon us.⁹ This is no more apparent than in the MENA region.

For many parts of the region affected by conflict and displacement, alongside the daily barrage of rockets and gunfire, many communities grapple with a more insidious but no less important foe: ecological change. Already the most water-scarce, food import-dependent region, MENA has emerged as a global climate hotspot with temperatures rising twice as fast as the global average.¹⁰ Ecological change played an important role in the onset of multidimensional crises in the region over the past decade. This includes record drought cycles and climate-induced disasters that rolled back gains in poverty reduction and triggered mass displacement, the rise of the MERS pandemic,¹¹ transboundary locust outbreaks¹² and other ecological factors that underlay social vulnerability in advance of the Arab uprisings.¹³

As ecological change, social vulnerability and crises expand across the region, the need for more effective development cooperation has also grown. Over the past decade, the United Nations Development Programme (UNDP), for example, doubled its level of cooperation in the MENA region to help communities manage risk and build resilience, with a US\$500 million portfolio of local grant initiatives ongoing and under development today across climate, nature and energy thematic areas combined with over \$1 billion of co-financing from public and private partners. The UN’s largest grant-based offer of assistance for a green transition in the region, this represents a dedicated push to advance climate-resilient food and water systems, accelerate the transition to sustainable energy pathways, halt and reverse the decline of land and critical ecosystems and reduce the impact of waste and pollution on humans and ecosystems, all in a way that can generate co-benefits across priority SDGs, such as poverty reduction and peace. Yet with an estimated \$600 billion needed to implement the Nationally Determined Contributions to Climate Change (NDCs) across the region by 2030, and even more to implement national biodiversity plans, large and growing levels of UN grant assistance will have an important objective to crowd-in and catalyse larger levels of finance accompanied by an enabling policy environment.

Securing an Ecological Safety Net

Ecosystems have been at the base of human development in the MENA region for millennia, with the effective use of natural assets a key foundation in the onset of agricultural civilization.¹⁴ While communities have adapted to ecosystem change throughout history, the pace and scale of change today is surpassing the ability of communities to cope. This is a particularly critical challenge for nomadic and rural communities that rely on natural assets for livelihoods and social cohesion.¹⁵ Deltas, wetlands, oases, marshland, mountains, drylands and watersheds are under intense pressure, including from accelerating rates of climate change.¹⁶ Water insecurity has become more severe,¹⁷ as have protracted cycles of drought, with some parts of the region seeing some of the most severe droughts in the past 1,000 years.¹⁸

To address these issues, UNDP leads a portfolio of over \$100 million in grants ongoing and under development in the region specifically for sustainable use of biodiversity, ecosystem restoration and sustainable access to water, in line with the UN Decade of Ecosystem Restoration and the new Global Biodiversity Framework.¹⁹ At the upstream level, this helps raise ambition by putting in place and enhancing national NBSAP biodiversity plans and national biodiversity finance action plans across the region. Through the support of the Global Environment Facility (GEF), a number of initiatives are also underway and emerging to scale up the implementation of policy frameworks. In Algeria, Egypt, Jordan, Lebanon, Morocco, Somalia, Sudan and Yemen, for example, scaled-up results are being seen to conserve land and marine biodiversity, restore critical ecosystems and improve groundwater sustainability, with co-benefits for poverty reduction, women’s empowerment and community livelihoods.²⁰

Support is also expanding for the resilience of ecosystems and communities to climate change.²¹ At the policy level, this has helped enhance national NDC climate plans and national adaptation plans (NAPs) in places like Egypt, Iraq, Jordan, Lebanon, Morocco, Somalia and Sudan. In addition to setting an enabling policy environment, these initiatives also set the stage for scaled-up public and private investments for climate-resilient food and water systems and ecosystem integrity. Today, UNDP has approximately \$150 million in grants ongoing and planned for countries in the region specifically focused on climate-resilient development pathways. With the financial support of the Green Climate Fund (GCF), the Adaptation Fund (AF), the Least Developed Country Fund

(LDC-F), SIDA, the UK, Canada and others, these initiatives help countries generate new climate-resilient infrastructure, early warning systems to better manage risks from climate-induced disasters, and climate-resilient agriculture and water systems to combat growing social vulnerability.²²

Decarbonizing Development

Another critical area where a concerted push has been made in recent years is the acceleration of the energy transition.²³ While challenges exist in overcoming entrenched dynamics around the region's oil-based rentier economies, solar is increasingly seen as a strategic asset for building the knowledge-based, high-tech, youth-employment-generating economy of the future. For example, more than 2 million new jobs can be generated by 2050²⁴ through the emerging clean energy transition. Solar and wind energy capacities have increased more than ten-fold over the past decade.²⁵ Ambitious targets and policies now exist across the region as a base for attracting private investment, reforming energy subsidies and establishing renewable energy institutions. Together, countries of the MENA region have set a cumulative target to reach 190 gigawatts of renewable energy capacity by 2035. This would represent around 30 percent of the power mix, a dramatic increase from just 7 percent today.²⁶ Even in oil-exporting economies, there is heightened attention to diversification strategies, with an emerging global consensus on the shift to net zero pathways.²⁷

Maintaining this spirit of change in the region, however, will require dedicated measures to mainstream solar solutions into broader development pathways and to ensure that new capacities benefit all segments of society and leave no one behind. To this end, UNDP has under implementation or under design over \$150 million of grant initiatives in the MENA region on sustainable energy, crowding in a further \$500 million of public and private co-financing. This is done with a view to leaving no one behind and addressing challenges of fragility and vulnerability at the community level. Through the support of the GEF, for example, solar mini-grids are emerging in places like Djibouti, Egypt, Somalia and Sudan to expand energy access for poverty reduction and livelihood goals, while investments are being scaled up for low-carbon city models in Egypt, Iraq, Jordan and Morocco. In oil-exporting countries of the region, like Bahrain, Saudi Arabia and the United Arab Emirates, initiatives financed by local partners have helped reduce the energy intensity of growth in key industry sectors.²⁸

Green Recovery

By 2030, up to 60 percent of the world's poor will live in fragile and crisis contexts, with SDG achievement prospects increasingly shaped by the challenges of achieving a resilient recovery.²⁹ In the MENA region, most countries affected by conflict and displacement are also among those seeing the fastest rates of increased poverty while being global hotspots of climate change and ecological fragility. This has led, in recent years, to rapidly growing awareness across the region of the role of the planetary crisis as a threat to peace and security.³⁰

Meanwhile, growing risks from climate change and ecosystem fragility are also increasingly recognized as critical for stabilization and recovery efforts. The ability of communities to cope with and rapidly recover from crisis also often hinges on their ability to regain sustainable access to energy and water, like that needed for health and education services and regenerating livelihoods.³¹ Green solutions are also key to ensuring that systems reconstructed following a conflict can withstand future environmental shocks by mainstreaming sustainability measures into the recovery of climate-vulnerable sectors like agriculture, tourism and infrastructure.

In this regard, UNDP and development partners have scaled up support over the past decade to address immediate needs and set the stage for resilient pathways of recovery.³² For example, in Yemen, Lebanon, Palestine, Sudan and Somalia, through the support of the European Commission, South Korea, Japan and other donors, a number of strategic initiatives are helping restore energy access for micro, small and medium-sized enterprises (MSMEs), health facilities and schools, and irrigation and agricultural livelihood needs.³³ These and other initiatives help countries advance sustainable energy pathways while generating clear co-benefits for recovering livelihoods and basic services. Meanwhile, in Yemen, Syria, Somalia, Palestine, Libya and Iraq, local initiatives have also helped restore water and waste services damaged by war for households, businesses, health facilities and schools.³⁴

In addition to tangible benefits for local communities, cooperation has also focused on greening upstream policies, including, for example, those affiliated with the UN Regional Refugee and Resilience Plan (3RP), a platform to coordinate actions in countries impacted by the war in Syria.³⁵ In Jordan and Lebanon, for example, development partners led the push for integration of sustainable energy and nature-based solutions into national crisis response plans and investments.³⁶

Systems Shift: Rethinking Development

Expanding levels of cooperation in the years following the onset of the SDGs and the Paris Agreement have had important benefits for community resilience and supporting initial steps towards a green transition. But in reviewing the state of the region today and future scenarios, it is also clear that despite an expanding array of well-crafted initiatives by development partners, a major gap exists in terms of catalysing a shift in overarching development policies and practices. Indeed, as highlighted by Biermann et al., the lack of impact on overarching development discourse and pathways has been one of the greatest gaps globally in SDG achievement to date.³⁷

In the MENA region, so impactful has been the ecological crisis that many now call into question the basic assumption that progress through expanded development cooperation will make the future look better than the past. Ecological change is destabilizing and even eroding countries' hard-won development gains, just as trust and adherence to conventional development paradigms, policies

and practices is being questioned.³⁸ To achieve the 2030 vision of transformational change, the scale of today's polycrisis requires a rethink of foundational development paradigms, policies and practices advanced by governments and development partners that have failed to bend the curve of ecological decline.³⁹

For many practitioners, the assumption has been that the disciplinary fundamentals around the 2030 Agenda have already been set and that the challenge remaining is one of more efficient and better-financed development initiatives. While that remains important, an even greater challenge is to transform the 'how' of development practice, building on the potential of the 2030 Agenda to reshape socio-political discourse and catalyse innovative approaches in policies and institutions.⁴⁰ Further enhancing solutions requires shifting from the conventional, linear, thematically siloed orientation of development practice and programming to more systems-oriented, multidisciplinary solutions.

Practice Shift: From Adaptation to Transformation

A number of key lessons can be seen from the past decade of cooperation across the MENA region for achieving greater impact in coming years. Conventional programmatic approaches by development partners have been important in managing risks, adapting development to emerging priorities and building resilience. But the experience from the MENA region is that a major gap remains on the road to 2030 to transform the nature of development practice and programming to better embrace and manage system-wide shifts.⁴¹ "Adaptation refers to human actions that sustain development on current pathways. Transformation is about shifting development into new pathways and even creating novel ones."⁴² Transformation refers to "the capacity to create fundamentally new systems of human-environmental interactions and feedback when ecological, economic, or social structures make the continuation of the existing system untenable."⁴³

To help countries achieve this goal, increasing calls urge the UN system to embrace systems-based approaches within its business models and programmatic frameworks, catalysing greater impact from interventions through enhancing the ways development interventions are crafted and

implemented.⁴⁴ As noted by Ramalingam a decade ago in the seminal *Aid on the Edge of Chaos*, this is needed to move from an outdated mode of operation where development is seen as a linear machine achieving a set of discrete outputs and products to a broader view where development programming and interventions are contextualized within socioecological systems and better able to address the increasing complexity.⁴⁵ A systems lens can help explain why trends continue to decline, despite good intentions and expanded development finance and programming, and ways that conventional approaches serve as a barrier to achieving greater impact.

A further push to resolve the complex socioecological crisis affecting the region will thus rest not only on expanded levels of finance and programming but also on our ability to make a shift from conventional linear modes of development policy and practice to systems thinking and complexity-based, risk-informed models of development. A particular need exists to broaden approaches and avoid becoming trapped in conventional courses of action that may have been suited for the past but may not be as well geared to the emerging complexities on the road to 2030 and beyond.

Systems approaches help advance policy and institutional innovations, going from a siloed understanding of issues from solely thematic perspectives to a broader understanding of contextual factors and from single-point solutions to measures that expand the scope of impact and co-benefits across multiple dimensions.⁴⁶ A systems approach “means looking beyond sectoral challenges for opportunities for transformative change, understanding interdependencies and leveraging linkages across interventions to achieve broader goals”⁴⁷ with a need for existing development frameworks and socio-economic policies to realign with a systems approach. Importantly, a systems approach also holds the prospect of shifting from transactional programming to relational modes of engaging partners by embracing a broader ecosystem of actors needed for change. To this end, a number of lessons can be extracted from past experiences of attempting a shift towards greater impact and results in the MENA region.

- **Adaptative management:** Beyond incremental solutions to address the ecological crisis, programmatic interventions should increasingly take a systems approach to address the complexity of challenges through the lens of socioecological systems, a complexity- and resilience-based vision to help generate results with greater co-benefits across the SDGs.
- **Policy coherence:** It’s necessary to ensure that the base of programme ideation includes a set of robust analytic assessments of the multidimensional challenges for advancing environmental sustainability, along with

identification of cross-thematic solutions to generate co-benefits to address poverty, gender, market transformation, crisis prevention and recovery goals.

- **Policy-investment nexus:** Programmatic responses for a green transition are most impactful when they couple upstream technical assistance aimed at strategic innovation and policy solutions with action on the implementation agenda through large-scale investments and partnerships mobilized to accelerate local results.
- **Market transformation:** Expand capacity development at systemic and institutional levels for local enactment and use of sustainable finance instruments, green industrial policy, carbon market mechanisms, clean technology commercialization, shifts in consumer behaviour, private sector innovation and green impact investments.
- **Network integration:** Programming for a green transition can be better designed to serve as multi-partner platforms among UN agencies, government agencies, private partners and CSOs to pool analytic capacities, consolidate financing and resources and advance collective results.
- **Inclusion:** Expand efforts to engage women, youth and community constituencies to advance systems change in a way that is just and inclusive, focusing on equitable access by vulnerable and marginalized communities to the benefits of a green transition. Furthermore, moving beyond the benefits, a need also exists to minimize potential negative impacts of the green transition on vulnerable populations.

Paradigm Shift: Development as a Socioecological System

In addition to reshaping development practice and programmatic solutions, a systems approach is also critical for catalysing a shift in the paradigms that underlie development practice. The severity of the crisis enveloping the MENA region reminds us that today’s development models are unsustainable. The complexity and multidisciplinary nature of risk today require a look beyond sectoral, linear approaches to decision-making and constructing new development paradigms and policies with nature at the centre.⁴⁸ This shift in discursive perspective can catalyse a transition in MENA from a legacy model of development founded on an extractive, utilitarian orientation to one based on an understanding of complex socioecological systems.⁴⁹

Given the accelerating ecological crisis in the region, development can no longer be thought of as a purely socio-economic venture. In many ways, the dominant epistemological frameworks that underlie development theory retain an implicit bias towards the exploitation of nature as a means of reducing human vulnerability and advancing socio-economic goals. But ecological change, standing today as a major driver of poverty, inequality and displacement, now makes this equation incomplete, emerging as a source of ‘un-freedom’ and reversing decades of hard-won development gains.⁵⁰ The multidimensional nature of crises in the region makes clear the closely intertwined nature of social and natural systems, with development now best understood as the emergent property of a complex socioecological system.⁵¹

Bringing nature to the centre of development requires more than recognizing the value of ecosystem resilience for sustainability; it requires forward-looking institutions and flexible anticipatory policies that are better able to adapt and transform when socioecological tipping points are reached.⁵² The past decade of polycrisis and protracted fragility in the MENA region could well be such a tipping point, inspiring new ways of thinking about nature and development. The decline of natural systems is generating a profound shift in future development prospects, destabilizing status quo conceptions of progress and development paradigms.⁵³

In an era of accelerating ecological crises, a key outcome on the road to 2030 must be the redefinition of the development narrative. Nature-based paradigms of development view ecosystems as agents of change, with “trajectories, propensities and tendencies of their own” that need to be taken into account when contemplating the future form and function of development policies.⁵⁴ Ecosystems, with their power of metamorphosis, exhibit self-

governing capacities with different components impinging upon each other and on development results in numerous ways.⁵⁵

Rethinking development as a socioecological complex is not simply an acknowledgement of the environment as a factor to consider within a new generation of integrated solutions. Rather, it recognizes that development is an emergent property of a broader socioecological system, that the impersonal forces of nature have trajectories in their own right — that they hold degrees of resilience and shape development outcomes in much the same way that human actions do.⁵⁶

Reimagining development beyond inherited visions of reductive, linear and mechanistic goals and targets is, in many ways, the most urgent task on the road to 2030. With the ecological crisis now accelerating and destabilizing the foundations of civilization, the reality of our interconnectedness to nature must become a new driver of change in the politics and policies of sustainable development in the region.

Policy Shift: A New Compact with Nature

Another key lessons from the past decade in the region is that the ability to affect change will rely on enhancing systems of governance. Making systemic change in systems of governance will be a major litmus test in coming years for achieving the 2030 vision for transformational change. Beyond enhancing individual policies and strategies for a green transition, changes are also needed in the overarching political discourse and processes that shape outcomes. This also holds the prospect of addressing the inequalities inherent in extractive development pathways, with nature-based pathways also promoting inclusive development results.

In this regard, among the agendas for change that arose strongly across the MENA region over the past decade has been a call for a new social compact based on greater levels of freedom, justice and accountability within the process of development.⁵⁷ As social contracts have grown fragile over the past decade, a growing focus has been on redefining the basic assumptions, including a shift of perspective regarding social values and public goods.⁵⁸ Within this process comes the opportunity for advocating a new social contract based on nature-based paradigms of development and systems of accountability and justice that address drivers of ecological change and socioecological complexity.⁵⁹

Control over natural resources and the environment has been central to state legitimacy and power in the MENA region for decades, shaping autocratic, centralized systems of governance.⁶⁰ State control of nature has been a foundation for the consolidation of power and wealth, influencing how sovereignty and statecraft function in the region, with the social compact in many countries having been defined by a balance between state control over natural resources and the conversion of those resources into socio-economic assets. A particular challenge has been to achieve sustainable use of natural assets and equitable benefit sharing from the region’s natural wealth for the average citizen and for the poor in particular.

As noted by Anand and Sen during the formative years of the human development paradigm, sustainable development is about more than charity; it is also about justice and accountability.⁶¹ Justice is an “ideal of accountability and fairness in the protection and vindication of rights and the prevention and punishment of wrongs.”⁶² The poor tend to live in communities with fragile ecosystems. Heavily reliant on natural resources for livelihoods, the poor lack equitable access or benefits from their use while suffering disproportionately from the ill effects of climate change, loss of ecosystem

services and pollution. They are also the least able group to mobilize against abuse of power, corruption and other forces behind unsustainable development.⁶³ For people in many of the poor and marginalized communities in the MENA region, ecological decline is an affront to their ability and that of the next generation to earn a sustainable livelihood and live a healthy life.

In context of the 2030 Agenda, freedom means not only greater achievement of social welfare targets but also greater accountability for and freedom from the inequities that result from entrenched systems of natural resource exploitation and the disproportionate impacts of ecological change on the poor.⁶⁴ Civil society movements in the MENA region have become more vocal on these issues, including an environmental undercurrent within broader calls for rights and accountability over the past decade of uprisings and calls for change. This includes growing demands to end the abuse of power in natural resource governance and calls for state action to ensure resilience of lives and livelihoods in the face of climate change, freedom

Conclusion

Today, the MENA region is one of the world's hotspots of multidimensional crisis, but solutions exist and are in our hands if we act with resolve to support new nature-based norms, values and institutions to shape the future of development.⁶⁷ Development pathways in the region can no longer be seen as purely socio-economic enterprises based on the linear ascent of countries and individuals to developed status and the rapid achievement of social-welfare goals.⁶⁸ Rather, the ecological crisis in the MENA region makes it clear, today more than ever, that development is the emergent outcome of a complex socioecological system, with development outcomes shaped by a growing proliferation of 'entanglements' between ecology and society.⁶⁹ The polycrisis facing the region is catalysing decision-makers as well as civil society advocates for change to look beyond sectoral, linear approaches to policies and institutions.

from the toxic impacts of industry and war, and rights for all people to food, water and energy. Civil society can also be a key ally in promoting the awareness, knowledge and behavioural change so critical for the shift to a nature-based paradigm. A new social contract must thus empower and enable civil society as an impetus for sustainability efforts to take root.

The road to 2030 will bring higher expectations across the region to reset the social contract related to the use and control of the environment.⁶⁵ A new spirit of environmental citizenship is arising among youth of the region, defining a new vision for the effective, accountable and participatory use of the environment as a public good and the preservation of ecosystems for future generations.⁶⁶ Taking action on this in coming years means developing local capacities to expand citizen access to information regarding the ecological risks associated with development, participation in decision-making processes related to use of natural resources and the environment and access to systems of accountability, remedy and justice.

The road to 2030 can be defined by more frequent and severe ecological crises, or we can reset our trajectory towards the 2030 vision of sustainability and resilience. In many ways, the MENA region has been on the global frontlines of the challenge of managing multidimensional crises. But while much attention has been placed over the past decade on building the resilience of systems to conflict and displacement, less attention has been placed on the need to ensure the ecological safety net on which recovery and development goals will ultimately rest. To this end, we must also push for a new generation of policies and institutions that can catalyse a transformation — from a legacy model of development founded upon an extractive utilitarian orientation to a new just and green transition based on socioecological resilience.

Endnotes

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