

# INNOVATIVE SOLUTIONS FOR ENVIRONMENTAL CHALLENGES AND SUSTAINABLE CONSUMPTION AND PRODUCTION

## 1. INTRODUCTION

### *A. The world is shifting*

The world is increasingly recognizing that environmental challenges such as climate change, environmental degradation, unsustainable consumption and production practices, resource scarcity have a significant impact on economies and the people. Economies are under increasing pressure to reduce human and ecological risk factors such as resource scarcity and price volatility. In addition, the environment stands as highly potent in providing solutions for accelerated socio-economic transformation to solve leading challenges of food insecurity, poverty, unemployment, food waste, migration and implementation of global commitments. For effective implementation of global commitments and solutions to environmental challenges, there is need to re-focus our development pathways. If the 'business as usual' approach continues, countries will not be able to respond to the environmental challenges, thereby undermining the effective implementation of SDGs and other related global commitments.

There is, therefore, a growing need to find innovative approaches that can help to address sustainability while offering opportunities for growth, cost reduction, competitiveness and prosperity.

### *B. The world environmental challenges*

There are numerous environmental challenges that impact society, economy and environment such as unsustainable consumption and production, environmental displacement, antimicrobial resistance, sand and dust storm, unsafe nanomaterials, poverty, energy insecurity, unemployment, migration, loss of biodiversity, pollution, natural disasters such as fires and floods among others. Some of these challenges are long standing but have not been paid attention to, such as land mismanagement and desertification causing sand and dust storms and displacement. Whilst some are persistent, others are emerging. Now is the time for national governments, the business sector and civil society to tackle these threats by adopting innovative approaches.

## 2. WHAT AND WHY INNOVATIVE SOLUTIONS?

Innovative Solutions are a **business unusual approaches** and **creative ways** aimed at addressing social, economic and environment needs in a **holistic** mode to drive change. The logic behind innovative solutions embodies a paradigm shift to incentivize country led actions to accelerate socioeconomic transformation. Innovative Solutions, in this context, are neither invention nor restricted to technology. Conventionally, inventions focuses mostly on technological developments, but innovative solutions are facilitated by non-technological changes as well.

Innovative Solutions are creative approaches that incorporate sustainability across the value chains in various sectors. Innovative Solutions for environment challenges are **modifications** or **creative solutions** applied to ecosystem services, products, processes, market approaches and organizational structures which lead to enhanced sustainability, productivity and eco-benefits (ecological and economic). Innovative Solutions call for **life-cycle thinking** while incorporating all aspects of sustainability: economic, social and environmental and fostering partnerships across all value chains.

Innovative solutions **increase technical capacity** through acquisition of skills, knowledge, exchange of information and participation from c collaboration with value chain partners. Innovative solutions attract **new investments** and re-investments because they have higher resilience and viability in the long-term making them profitable. Investments decisions are increasingly being made based on sustainability. Innovative solutions **open new markets** to cater to untapped demand in market segments where no previous solution existed.

Innovative solutions increase productivity and **profitability** by identifying opportunities for improvement through material, water and energy efficiency, minimizing wastes, responsible consumption and production and shared risks and gains across value chains, thereby creating wealth and jobs. Innovative solutions require **enabling conditions** including enabling policy environment and markets however there are limitations to having them in place. This requires a concerted global policy to drive innovative solutions.

### **3. RELEVANCE OF INNOVATIVE SOLUTIONS TO ACHIEVEMENT OF SDGS**

The global community now widely accepts that an integrated approach is needed to implement the SDGs. The question is on how to turn the integrated approach into action. Agenda 2030 recognizes innovation as one of the major drivers of productivity, inclusive economic growth and job creation. Agenda 2030 calls upon all businesses to apply their creativity and innovation to solving sustainable development challenges. The global community identifies development oriented policies that support innovation as one of the vehicles through which higher levels of economic productivity may be attained (SDG8).

Innovative solutions on integrating ecosystem-based adaptation contributes to climate adaptation (SDG13 and 15) and will also boost food security thereby contributing to Goal 1, 2, 3. Innovations in energy, for instance adopting clean energy (SDG 7) will contribute to reduction emissions and help respond to Sustainable Development Goal 13, and also catalyze economic growth and employment (Sustainable Development Goal 8) by enhancing green and inclusive jobs.

Innovative solutions to green the industrial sector through investment in resource-efficient and cleaner production technologies could contribute to SDG 9; as well as sustainable production and consumption (SDG 12); conservation of natural resources (e.g. water (SDG 6) and energy (SDG 7); marine and terrestrial ecosystems (SDG 14 and 15); control of environmental pollution through reduced chemical consumption, and improved environmental compliance which further help improve occupational health and safety (SDG 3), and create more jobs (SDG 8).

When innovative solutions such as the above are implemented, it results in reduced resource scarcity, increased security and wealth and therefore contributing to Goal 16 to promote peaceful and inclusive societies.

Research and development, upgrading technological capacities, encouraging innovations and substantially increasing the number of research and development workers per every one million people, to foster innovation as found in goal 9, is an underpinning goal.

#### 4. FOCUS AREAS REQUIRING INNOVATIVE SOLUTIONS

As stated above, addressing environmental challenges in an innovative manner requires change to life-cycle thinking, integrating sustainability and partnerships. UN Environment Programme has in the recent past supported innovative solutions to environmental challenges across the world. The following are some of the environmental challenges (focus areas) that can be addressed through innovative solutions:

- *Pollution, including indoor air pollution*
- *energy insecurity*
- *food insecurity*
- *loss of biodiversity*
- *Waste*
- *Unsustainable consumption and production*
- *anti-microbial resistance*
- *sand and dust storms*
- *environmental degradation and displacement*

#### 5. INNOVATIVE SOLUTIONS FOR IMPLEMENTATION

Policy and non-policy interventions to create an enabling environment for innovative solutions to environmental challenges and SCP are needed. Having them in place stimulates investment, financing and enables transition to sustainable development. Implementation of the interventions also calls for change in governance frameworks: policies, laws and institutions to trigger change, on a foundation of equity, inclusiveness and participation. Some of the interventions are:

##### I. Circular Economy

Economic systems are moving from the current linear models to circular economy. Circular economy calls for prioritizing regenerative resources (use of renewable, reusable, non-toxic), maximizing the lifetime of products, using waste as

resources, rethinking business models, designing for the future; all of which call for innovative solutions.

## **II. Sharing economy**

An example of an innovative solution is the current move towards sharing economy or collaborative consumption. Today's society is changing from the belief that owning things is commensurate to one's status in society, more and more people are becoming inclined to agree that there are sometimes real advantages to renting over owning<sup>1</sup> – **access is the new ownership**. For instance, a company offering integrated pest management services to farmers using organic material and products, instead of the standard way of selling the pesticides, the company offers the service to their clients.

## **III. Policy harmonization**

Harmonization of policies across multiple sectors creates an enabling environment to drive Innovative solutions. For example, agriculture ministry will need to work with environment and forestry ministries to ensure EBA techniques like agro-forestry are integrated into mainstream agriculture policies (SDGs 2, 13, 15). To catalyze investment in clean energy powered value addition, agriculture policies will need to reconcile with industry policies, energy policies, lands policies and private investors to ensure relevant-cross cutting policies that incentivize investment by both state and non-state actors in plants and clean processing industries.

## **IV. Innovative Financing Schemes**

The Addis Ababa Action Agenda calls upon all businesses to apply their creativity and innovation to solving sustainable development challenges. It also seeks to promote social innovation (including innovative practices of indigenous peoples) to support social well-being and sustainable livelihoods.

New financial streams (mobile banking; renewable energy systems; retro-fittings in buildings, green bonds, green mortgages) are needed.

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<sup>1</sup> [https://www.pwc.fr/fr/assets/files/pdf/2015/05/pwc\\_etude\\_sharing\\_economy.pdf](https://www.pwc.fr/fr/assets/files/pdf/2015/05/pwc_etude_sharing_economy.pdf)

## **V. Innovative Partnerships**

Human capital is the most important component of wealth globally. Innovative solutions call for inter-disciplinary collaboration, where state, non-state, individual, institutional stakeholders drawn from complementary sectors have mutually beneficial partnerships to drive the above enablers. These partnerships and implied in goal 17 of the SDGs are already proving workable as exemplified in the aforementioned examples.

## **6. Synergistic Implementation**

Synergistic implementation is where simultaneously actions are taken to address environment, social and economic challenges through policy, financial, market, partnerships innovative solutions. For example, efforts to combat food waste and loss by integrating aspects of processing, preservation result in enhanced food security and job creation. Using clean energy to power these processes drives emissions mitigation to achieve a climate objective. Cumulatively, we have environmental, social & economic aims being achieved simultaneously. Through this process, SCP objectives will simultaneously be achieved through increased production, Increased food security, improved material efficiency.

The implementation of the theme needs a concert effort of countries and the international community first through exploitation of existing mechanisms that enhance innovative solutions for environmental challenges and SCP. Notable among these mechanisms include:

- The expansion of the role of the 10-YFP Secretariat on SCP (hosted by UN Environment Programme), through its Trust Fund, to explore more innovative solutions for environmental challenges (both existing and emerging). This would mean that the existing mechanism for putting resources into the Trust Fund needs to take into consideration the requirements of countries to adapt and adopt innovative solutions so that they are incorporated into development plans (including national SCP plans, where they exist).
- Support to Research and Development, especially for developing countries and economies in transition that focuses on innovative solutions as per the national requirements. The implementation will also require replication some of the already existing mechanisms, projects, ideas that already exist

or are practised elsewhere. One issue to note is that emerging environmental challenges are transboundary and can have impact in equal measures to both developed and developing countries. Therefore, sharing information and experiences as well as research outcomes that promote innovative solutions for environmental solutions are of critical importance.

- Innovative infrastructure that promotes the use of fewer resources (resource efficiencies) is of surmountable importance – information and knowledge sharing/exchanges on sustainable and resilient infrastructure (such as design of green buildings) will assist developing countries to apply the relevant innovative solutions in this process.
- Developing countries have taken the lead in putting in place innovative financing mechanisms (such as mobile money) that need to be scaled up to contribute to the attainment of some of the SDGs and abatement of environmental challenges that still afflict this category of countries. It is important that developed countries target some of these interventions to create synergies that can have a stronger multiplier effects.

## 7. ROLE OF UNEP

UN Environment has been supporting the development and uptake of innovative solutions to address environmental challenges and promote sustainable consumption and production globally.

- **Green business development:** SWITCH programs – Asia<sup>2</sup>, Africa<sup>3</sup>, Mediterranean<sup>4</sup> region - Innovative policies to create an enabling environment, networking and partnerships to promote green business, support to MSMEs

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<sup>2</sup> <http://www.switch-asia.eu/>

<sup>3</sup> <http://www.switchafricagreen.org/>

<sup>4</sup> <https://www.switchmed.eu/en>

- **Eco-innovation**<sup>5</sup> project in Africa, Asia and Latin America– Support given to businesses to embed sustainability into core decision making and integrate it throughout all business dimensions. Here, a single enterprise looks beyond its gates to assess sustainability risks and opportunities throughout its value chain, and in cooperation with the key partners.
  
- **Green financing:**
  - a) **AATIF**<sup>6</sup>- Green financing for the agricultural value chain in Africa to ensure that investments in the sector comply with environmental and social safeguard guidelines to mitigate potential environmental risks and impacts.
  - b) **UN Environment Sustainable Finance Facilities programme** – seeks to help channel finance from the private sector to fund sustainable economic development in emerging countries (green loans).
  - c) **UNEP FI**<sup>7</sup> - global partnership between the UN Environment and the financial sector (banks, insurers and investors to promote sustainable finance).
  
- **Partnership for Action on Green Economy (PAGE)**<sup>8</sup>- support given to countries and regions in reframing economic policies and practices around sustainability to foster economic growth, create income and jobs, reduce poverty and inequality, and strengthen the ecological foundations of their economies.
  
- **Operationalizing Green Economy Transition in Africa** – Support given to countries to translate their national green economy and climate resilience strategies to concrete development plans at the sub-national levels (mainstreaming green economy at sub-national level).

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<sup>5</sup> <http://unep.ecoinnovation.org/>

<sup>6</sup> <https://www.aatif.lu/home.html>

<sup>7</sup> <http://www.unepfi.org/about/>

<sup>8</sup> <http://www.un-page.org/>



- **Ecosystem Based Adaptation for Food Security –EBAFOSA.** UN Environment is promoting EBA through ministerial-level collaboration across ministries of agriculture, environment, energy, industrialization and others that are forming interagency policy task forces. These policymakers are further joined by stakeholders from private sector and the development community to share knowledge and experiences in aligning policy.
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- **Africa Regional GEO-thermal Facility** has supported the establishment of a centre of excellence for learning and skills development in renewable energy

#### 8. Possible interventions by UN Environment Program on the focus areas

- Setting global political agenda and prioritization
- Mobilizing state and non-state actors to upscale innovative solutions
- Developing guidance documents and tools on how to apply innovative solutions
- Providing policy support to governments to create enabling environment for innovative solutions
- Supporting countries to implement, piloting, draw lessons learnt,
- Engaging partners including private sector, business, investors, financial institutions, research and development to explore funding mechanisms
- Capacity building, Networking and knowledge sharing, dissemination and outreach
- Promoting green business development