

A BETTER WORLD

VOLUME 9



Actions and Commitments in support of the

SUSTAINABLE DEVELOPMENT GOALS

SDG Summit 2023 Special Edition

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— VOLUME 9 —

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The SDGs

The Sustainable Development Goals or Global Goals are a collection of seventeen interlinked objectives designed to serve as a “shared blueprint for peace and prosperity for people and the planet, now and into the future”

1 NO POVERTY



End poverty in all its forms everywhere

2 ZERO HUNGER



End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

6 CLEAN WATER AND SANITATION



Ensure availability and sustainable management of water and sanitation for all

7 AFFORDABLE AND CLEAN ENERGY



Ensure access to affordable, reliable, sustainable and modern energy for all

8 DECENT WORK AND ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Ensure sustainable consumption and production patterns

13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy

14 LIFE BELOW WATER



Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Ensure healthy lives and promote well-being for all at all ages



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



Achieve gender equality and empower all women and girls



Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation



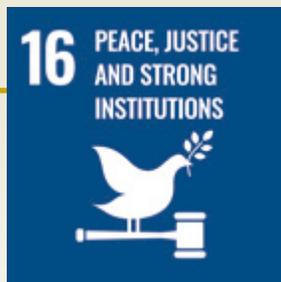
Reduce income inequality within and among countries



Make cities and human settlements inclusive, safe, resilient, and sustainable



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



Strengthen the means of implementation and revitalize the global partnership for sustainable development

The SDG Summit



“The SDG Summit in September must be a moment of unity to provide a renewed impetus and accelerated action for achieving the SDGs”

UN Secretary-General António Guterres

While the war in Ukraine is deepening food insecurity and the climate emergency is reaching cataclysmic proportions, millions more people globally are expected to be trapped by extreme poverty in 2030. Under the auspices of the UN General Assembly, the SDG Summit in September 2023 marked the beginning of a renewed push to accelerate progress towards the Sustainable Development Goals (SDGs), a roadmap out of such crises.

Recognising that urgent and ambitious action is needed to achieve the SDGs, Heads of State and Governments convened at the UN Headquarters in New York together with political and thought leaders from governments, international organizations, the private sector, civil society, women and youth and other actors to supercharge the breakthroughs needed to achieve the SDGs.

Adopted by world leaders in 2015, the SDGs — a global promise to secure the rights and wellbeing of everyone on a healthy, thriving planet — are in jeopardy. Halfway to the deadline, progress has stalled or even reversed amidst the climate crisis, the economic downturn, conflicts, and the lingering impacts of COVID-19. The number of people living in extreme poverty is higher than it was four years ago, and hunger is now back at 2005 levels.

In response to UN Secretary-General Guterres’s call for transformative action, including through an SDG Stimulus, world leaders are made bold global commitments as well as national commitments to SDG transformation.

An agreed political declaration was adopted during the opening of the Summit that provided high-level political guidance on the transformative, accelerated actions needed to reach the Goals by their 2030 endpoint.

The opening of the Summit featured statements by the President of the General Assembly, the UN Secretary-General and the President of the Economic and Social Council.

A short plenary segment followed to hear the actions and commitments delivered on behalf of groups of States. Six Leaders’ Dialogues were held to allow Heads of State and Government to set out concrete national commitments to SDG transformation.

This was the second SDG Summit since the adoption of the 2030 Agenda in September 2015. It built on other major events in 2023, including international conferences on the least developed countries, water, disaster risk reduction and food systems. It also acts as a step towards the Summit of the Future to be convened at the United Nations in 2024.



The reports chosen for this special edition have all demonstrated their understanding, commitment and practical actions in support of the Sustainable Development Goals. All author institutions have clearly shown not only their adherence to the SDGs but also how those goals give communities around the world the framework to make the lives of real people in real communities better in a real and sustainable way. From national institutions in countries as diverse as Brunei, China, Singapore, Israel and South Korea; agricultural specialists in solutions for the sustainable development of rice, coconuts, wheat and so many crops that feed people often in challenging climates and geographies; leaders in the reforestation and stewardship of the world's forests; specialists in meteorology and disaster management who use the latest space technologies in the field of disaster management, dedicated to making the world a safer place; scientific institutions that drive research into all aspects of sustainable living; faith based organisations who feed communities both literally and spiritually and who espouse the ethics of sustainable living; and finally the development Banks and financial institutions that spearhead investment in all of the sectors covered by the Goals, whose funding drives the wheels of progress in making peoples' lives better.

Any institutions looking to the SDG Summit 2023 for inspiration should look no further than those that have created these reports, who from the widest set of disciplines and geographies all have one goal, which is to build A Better World!

Sean Nicklin

Sean Nicklin
Human Development Forum
September 2023

Earth observations in support of the 2030 Agenda for Sustainable Development

Osamu Ochiai, Mariko Harada, Yuko Nakamura, Akiko Noda, Ko Hamamoto, Japan Aerospace Exploration Agency

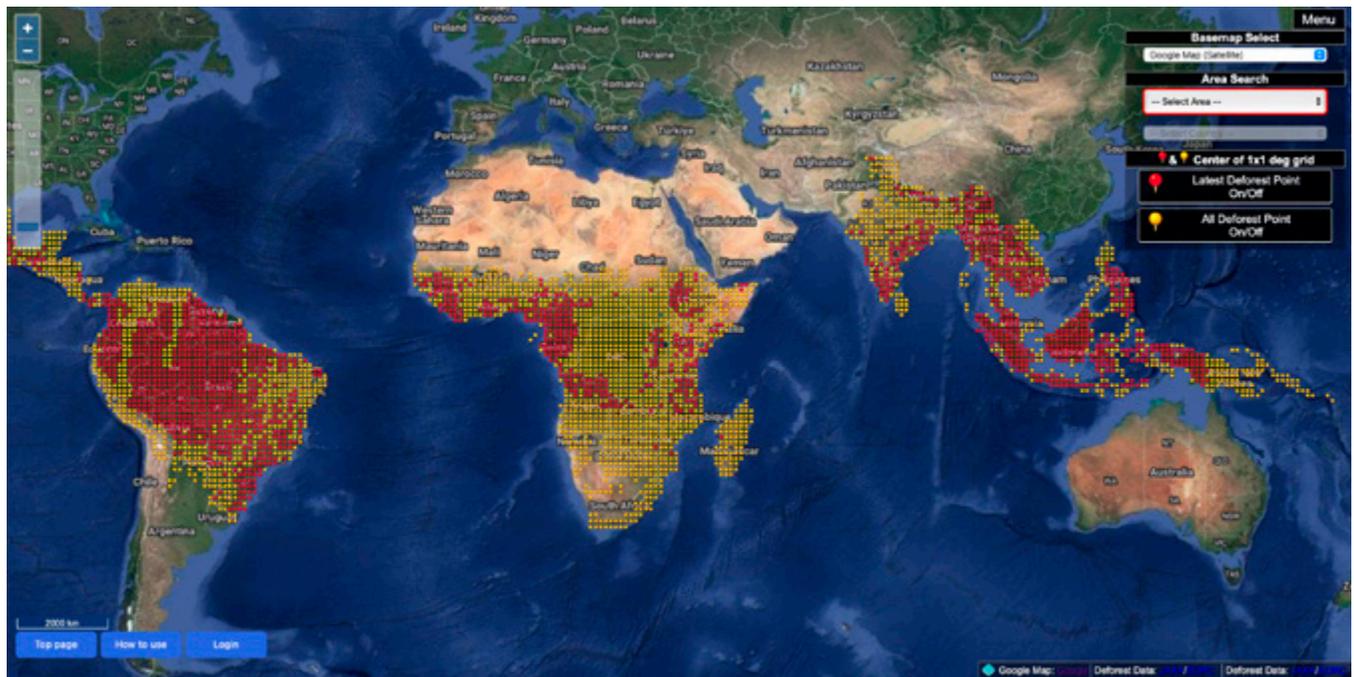
Humankind is facing a variety of global challenges and crises such as climate change, natural disaster and the consequent need to achieve the Sustainable Development Goals (SDGs). When tackling crises, humans have typically gained knowledge and capabilities through advancing science and technology. To that end, Earth observation by satellite provides a wide-angle view from space. This capability enables frequent and consistent monitoring and, in particular, highly effective observation of remote or sparsely populated locations where monitoring equipment is difficult to install on the ground.

Through international cooperation, space agencies and meteorological organizations have made efforts to deploy satellite observation over extended periods as well as to develop sensors with higher accuracy, resolution, coverage and various observation targets, through cutting-edge technologies. The result is a catalogue of observation records that play an indispensable role in understanding the status and progress of efforts, in projection of the future Earth and in providing scientific evidence for decision making in the pathways toward A Better World.

Contributions to SDGs as actions

In recent years, global-scale environmental shifts such as climate change have brought several issues to the fore including the prevalence of weather disasters and accelerated biodiversity loss. Earth observation is an indispensable tool for facilitating a better understanding of these issues and making effective countermeasures, and the Japan Aerospace Exploration Agency (JAXA) functions as one of the organizations contributing to the Global Earth Observation network by satellite, in collaboration with space agencies and meteorological organizations.

JAXA is a core performance agency set up to support the Japanese government's overall aerospace development and utilization, and has developed and operated various satellites to observe greenhouse gases and aerosols, land surface and forest change, water cycles and precipitation and natural disasters. In the hope of solving global issues, JAXA has also promoted research and utilization of Earth observation data including the development of user-friendly applications in addition to capacity building in those countries affected by consequent issues.



Forest Early Warning System in the Tropics (JJ-FAST) web interface

These applications address a variety of issues as well as suggesting actions toward achieving the relevant SDGs. Here are some examples of how they are contributing to SDGs concerned with deforestation, rainfall and disaster monitoring.

Deforestation

Deforestation is a global issue and, according to FAO reports, tropical forests are decreasing by about 6 million ha per year across the world. Tropical forests are particularly important in the context of climate change and biodiversity because of their large amount of carbon stock and unique and various ecological systems. Monitoring and early warning of deforestation in tropical forests are also important to the contribution to SDG 13: Climate Action and SDG 15: Life on Land.

Since 2009, the Japan International Cooperation Agency (JICA) and JAXA have cooperated to monitor illegal logging in the Amazon Basin of Brazil in near-real time using observation data from JAXA's Earth observation satellites, ALOS and ALOS-2. The ability of these satellites to penetrate clouds made it possible to constantly monitor tropical forests during the rainy season. By 2012, more than 2,000 incidents of illegal logging were detected by ALOS in Brazil, which greatly contributed to a 40 per cent reduction in the illegal logging in those areas.

In 2016, based on those achievements, JICA and JAXA developed the JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST), which provides the latest information on deforestation and forest changes in tropical regions globally, on an average of once every 45 days. JJ-FAST covers tropical forests over 78 countries and, by 2022, had detected a total of 4.6 million deforestation points. JJ-FAST can be accessed by anyone anywhere through internet, and has been utilized operationally in Kenya, Mozambique, Cameroon, Democratic Republic of the Congo, Brazil and Peru through JICA projects.

In 2022, JICA and JAXA, together with the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) and the Institute for Global Environmental Strategies (IGES) made a joint submission to the first Global Stocktake (GST) of the Paris Agreement, with JJ-FAST cited as a means of achieving good practice in contributing to solving global environmental issues related to the GST and for enhancing the implementation of the Paris Agreement.

Rainfall and disaster monitoring

According to recent UNESCAP reports, the Asia-Pacific region has the world's highest concentration of disaster-related damage, particularly due to water-related incidents such as flood, storm and drought. The trend of these disasters is affected by changes in rainfall patterns due to climate change, with water-related disasters having caused 70 per cent of all economic losses and affected 90 per cent of the population globally. Fortunately, however, deaths from water-related disasters are decreasing. Providing more advanced meteorological and hydrological information has proven to be effective and necessary to build resilience. It is therefore necessary to accelerate the improvement of the accuracy and dissemination of this information, including that for rainfall, in addition to infrastructure development and integrated water resources management. The necessary improvements will directly affect

JJ-FAST – stopping deforestation

On February 22, 2018, the JJ-FAST team, accompanied by IBAMA (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis), arrived at one site in Brazil at which JJ-FAST had detected deforestation in the form of a bulldozer mowing down trees. Two forest loggers were arrested and the bulldozer was legally seized on site by IBAMA. They seemed to wonder how this illegal deforestation was discovered under the cloud cover of the rainy season, unaware of the possibility of detection by optical satellite.



Image: JAXA

SDG 6: Clean Water and Sanitation, SDG 11: Sustainable Cities and Communities and SDG 13: Climate Action.

JAXA is disseminating its web-based Global Satellite Mapping of Precipitation (GSMaP), which provides hourly global rainfall information by integrating data from meteorological satellites in Japan, US and Europe. In the case of water-related disasters, GSMaP gives effective supplemental information for meteorological and disaster management organizations to improve their understanding of rainfall distribution in areas where observation by ground-based rain gauges and meteorological radar is difficult, the oceans included. GSMaP is used across 140 countries, including in Southeast Asia and the Pacific, for various purposes such as heavy rain and drought monitoring, and flood forecasting.

GSMaP supplies several types of information, for example rain-gauge calibrated, real-time or forecasted versions, as well as derivative indices concerning heavy rain and drought. Since 2018, the GSMaP heavy rainfall and drought indices has been used for WMO Space-based Weather and Climate Extremes Monitoring (SWCEM), facilitating better utilization and improvement of the monitoring of weather and climate extremes from space, with capacity-building activities having been carried out in East Asia and Western Pacific regions.

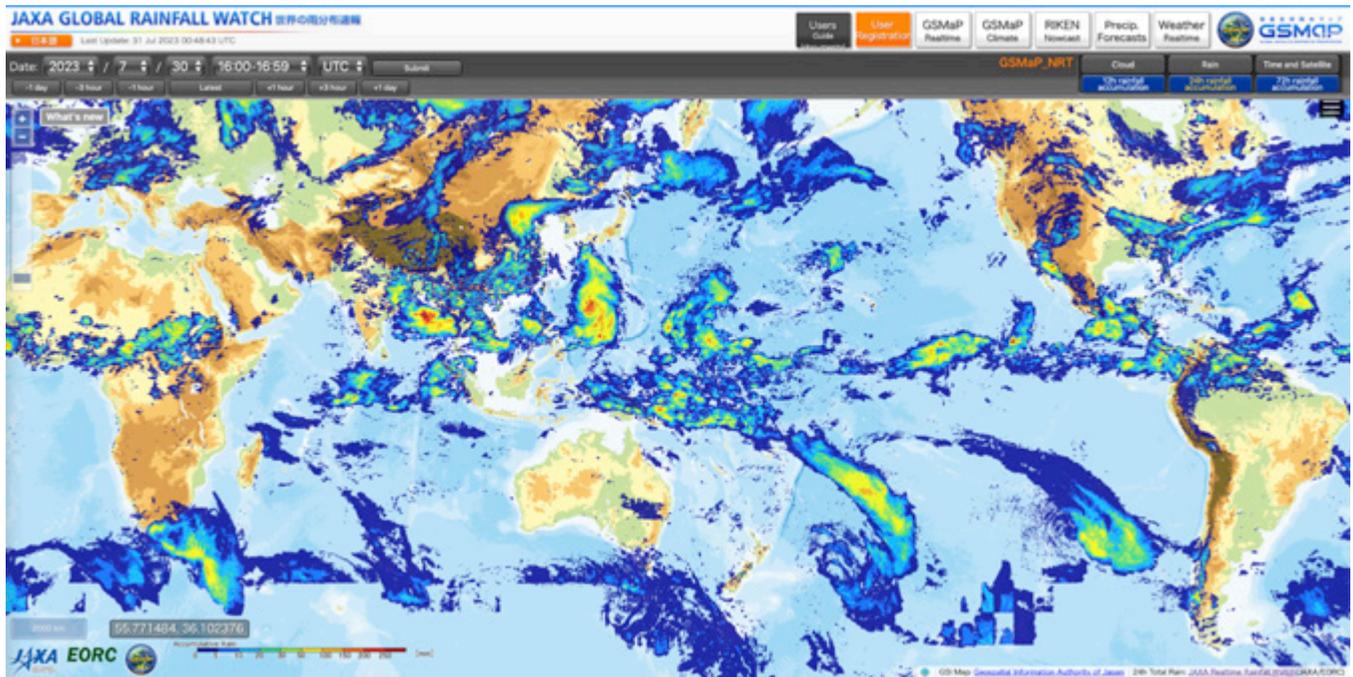


Image: JAXA

Global Satellite Mapping of Precipitation (GSMaP) is web-based, does not require a dedicated computer and is available at no cost, which makes it widely used for monitoring precipitation in Pacific Island countries that have limited ground-based rain gauges and radar

The disaster risk management cycle — response, recovery, mitigation, and preparedness — is an important process in improving resilience to natural disasters and in the achievement of SDG 11: Sustainable Cities and Communities. Earth observation is an effective tool for the management cycle as it is able to monitor the damaged area and recovery progress as well as to create hazard maps useful in covering wide areas and helpful in aiding rescue operations in damaged areas.

There are several initiatives for conducting disaster emergency observation, for example the International Disasters Charter and the Sentinel Asia. The Sentinel Asia is an initiative toward space-based international cooperation for disaster management in the Asia-Pacific region, established in 2006 under the Asia-Pacific Regional Space Agency Forum (APRSAP). The main activities of Sentinel Asia are to conduct emergency observation of disasters with satellites and to provide disaster assessment maps through the web GIS system. JAXA has led Sentinel Asia as its secretariat, with members comprising space agencies, disaster management authorities and international organizations, with a total of 114 Asia-Pacific member organizations registered as of May 2023.

Some of the Sentinel Asia members act as Data Provider Nodes (DPN), which voluntarily provides their own satellite imagery and/or data for Sentinel Asia on an emergency observation request. In 2022, a total of 28 emergency observations were conducted for floods, storms, landslides, earthquakes, and volcano eruptions, with various observation data and value-added products provided.

Contributions to SDGs as indicators

To track progress towards goals and targets, the global indicator framework must capture the multifaceted and ambitious aspirations for the continued development of nations and societies. Effective reporting of progress toward these indicators

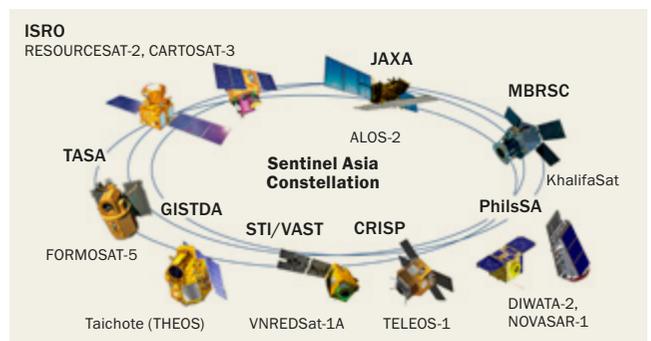


Image: JAXA

The Sentinel Asia DPN's earth observation satellites comprising the Sentinel Asia constellation

require the use of multiple types of data, both of which are in hand — traditional national accounts, household surveys and routine administrative data, and new sources of data outside national statistical systems, notably Earth observations and geospatial information, which include satellite, airborne, land- and marine-based data, as well as model outputs, with modern data processing techniques more appropriate to large volumes of Earth observation data.

The integration of these data can produce a quantum leap in how the advancement of the well-being of our societies is monitored and tracked. Since Earth observation and geospatial information have various scales in their spatial and temporal resolutions, their use in SDG monitoring can prove essential in capturing the sustainability of developments underpinning the SDG framework. Earth observation and geospatial information will expand monitoring capabilities at local, national, regional and global levels, and across sectors. Earth observation and geospatial information can significantly reduce the costs of monitoring the aspirations reflected in the goals and

targets, and make SDG monitoring and reporting viable within the limited resources available to governments.

A successful sustainable development agenda will require effective partnerships for implementation. As such, a potential role for Earth observation in supporting the global indicator framework for the SDGs has been developed through cooperation between the Group on Earth Observations (GEO) and the Committee on Earth Observation Satellites (CEOS), the prime body for coordinating the satellite Earth observation programmes of the world's civil space agencies. GEO, CEOS and space agencies are working with governments, academia, scientists, and the private sector in developing such partnerships for implementation of the SDGs.

An analysis by GEO has identified 30 specific indicators that can be supported by Earth observations. Out of those, CEOS has identified four that can be supported by Earth observation satellites — 6.6.1: Change in the extent of water-related ecosystems over time; 11.3.1: Ratio of land consumption rate to population growth rate; 14.1.1: (a) Index of coastal eutrophication; and (b) plastic debris density; and 15.3.1: Proportion of land that is degraded over total land area.

SDG target 6.6.1 states: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes. Indicators are: Change in the extent of water-related ecosystems over time; with several sub-indicators including the extent of change of mangrove forest. JAXA has been aware of the importance of monitoring mangroves by satellite, and has been working through an initiative, K&C Global Mangrove Watch (GMW), to prevent the loss and degradation of mangrove forests since 2011. GMW mapped

the extent of mangroves from 1996 to present using observation data by JERS-1, ALOS and ALOS-2, which have the advantage of being able to obtain data on the ground surface regardless of weather conditions.

In 2019, United Nations Environment Programme (UNEP), the custodian agency of Target 6.6, opted to use JAXA's GMW for indicator 6.6.1. UNEP developed and published a methodology document concerning how to use the GMW data in 2020, which allowed countries to independently calculate changes in their mangrove areas with freely available GMW data. In addition, UNEP released Freshwater Ecosystems Explorer in 2020, which provides geospatial information on SDG 6.6.1 indicators.

Lessons learned and looking forward

Earth observation data has contributed to solving various social issues such as climate change, biodiversity, and natural disasters, and these efforts are based on several types of cooperation. To contribute to the issues raised in the SDGs as actions, it is essential to collaborate with various stakeholders, especially those closely related to the issues, and to seek effective ways to utilize data. In addition, toward the continuous monitoring of diverse global information, such as SDGs indicators, using earth observation data, it is essential to coordinate satellite observations and the integration of multiple data through international cooperation among space and meteorological agencies around the world. JAXA will continue to contribute to the SDGs and to solutions for global issues with the science and technology of Earth observation in cooperation with relevant organizations around the world.



Global Mangrove Watch, mapping the extent of mangroves from 1996 to present using observation data by JERS-1, ALOS and ALOS-2, with the advantage of being able to obtain data on the ground surface regardless of weather conditions

Tackling risk, resilience, and adaptation — a new scientific approach garnering international attention

Chani Goering, Communications Manager, Pacific Disaster Center

The 2030 deadline is fast approaching for nations to reach their global targets under the United Nations Sustainable Development Goals (SDGs), the Sendai Framework for Disaster Risk Reduction, and the Paris Agreement. Now, more than ever, countries need a simplified roadmap to successful policy outcomes and a way to identify cross-cutting actions that provide a maximum return on investment. Evidence-based approaches must be employed to help nations translate international standards into sure-proof decisions that result in fewer disaster losses, reduced socio-economic vulnerability, and sustainable living conditions for all beings on Earth.

One such approach has recently emerged as a frontrunner in the movement to help countries realize their SDG targets and navigate the complexity of interwoven issues including sustainable economic growth, environmental degradation, poverty and marginalization, increased disaster risk, and climate change, among many others.

Recognized internationally in 2022 during the Global Platform for Disaster Risk Reduction and first-place recipient of

the United Nations Sasakawa Award, the Pacific Disaster Center (PDC) has created an advanced scientific program for operationalizing the Sendai Framework and accelerating the SDGs. More than 30 countries are engaged in the program — many from the most disaster-prone, climate-stressed regions of the world. Eleven are queued for completion in 2023, including seven island nations from the Eastern Caribbean as well as Colombia, Suriname, Ghana, Togo, and Benin.

As a University of Hawai'i applied science and research center, PDC developed the National Baseline Assessment program following decades of academic research and scientific collaboration in global disaster risk reduction (DRR). Unlike other assessments operating in the DRR space, PDC's approach is designed to fully operationalize the targets of the Sendai Framework and to provide a scalable and sustainable system for understanding, updating, and applying critical risk information in all areas of decision making and policy development.

For many countries, the National Baseline Assessment program is changing the information management and knowledge-sharing paradigm by building risk intelligence



Results of The Bahamas' National Baseline Assessment were shared during a nationally televised event in 2022 using PDC's DisasterAWARE — a free tool for reducing disaster risk and aiding response, planning, and policy decisions



Image: PDC

Diverse stakeholders from across sectors joined together to complete The Bahamas National Baseline Assessment, culminating in an accelerated plan of action to advance the SDGs, Sendai Framework, and Paris Agreement



Snapshot of PDC's Risk and Vulnerability Assessment framework used by The Bahamas to evaluate multiple dimensions of risk at a national and subnational level

across all sectors of government and civil society. Revolutionizing the older, linear model of assessment in which lengthy reports are read once by policymakers and then forgotten, the new model of sharing multi-dimensional, live assessment information is catalyzing risk-informed humanitarian action and development. It is deepening collaboration between multiple sectors of government and preserving the longevity and usefulness of risk information — making it easy to both access and update over time. Visualized risk information and analytics also have the dual benefit of supporting quick action during disaster response and promoting an evidence base for long-term planning and sustainable development.

The assessment is conducted at a subnational level and in collaboration with national agencies and institutions to facilitate greater understanding among decision makers of localized issues and buy-in for actions to be taken. It also provides a comprehensive analysis of the national disaster management capacity to mitigate disasters and adapt

to climate change pressures. Using a country-driven, and inclusive model of engagement, stakeholders come together from civil society, nongovernmental organizations (NGOs), the private sector, academia, and all levels of government to participate in the National Baseline Assessment.

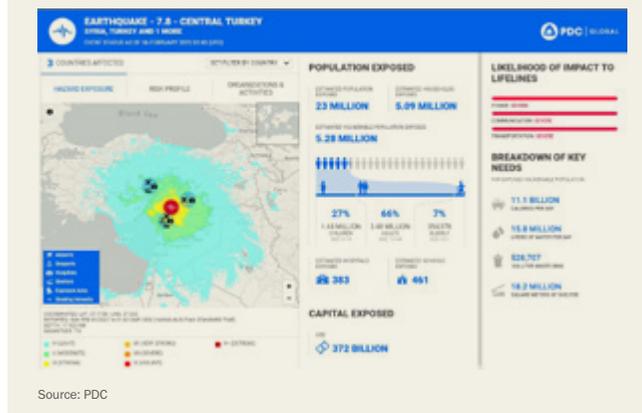
The program has two major components: a Risk and Vulnerability Assessment (RVA) and a Disaster Management Analysis (DMA). The RVA provides a composite index analysis of the drivers of multi-hazard risk including key socio-economic indicators. This improves national and local understanding of the multiple dimensions of risk that contribute to vulnerability and reduced coping capacity. The RVA also evaluates exposure to multiple hazards, providing a snapshot of the current hazard landscape including risk from climate-related hazards such as sea-level rise, drought, flash flooding, mega-cyclones, and other extreme weather events.

Providing further insight, the DMA contextualizes drivers of risk through a holistic examination of the national disaster management apparatus and policy framework. The disaster management analysis ensures more effective prioritization of risk-reduction initiatives and resilience-building by aligning actions to be taken with priority needs. The DMA institutes risk-informed decision making at all levels of government, inclusive of sustainable development and multi-sector cooperation. During the process, numerous intersecting targets of the SDGs, Sendai Framework, and Paris Agreement are identified for action, resulting in a five-year plan designed to reduce pre- and post-disaster risk, improve sustainable development, and support climate change adaptation.

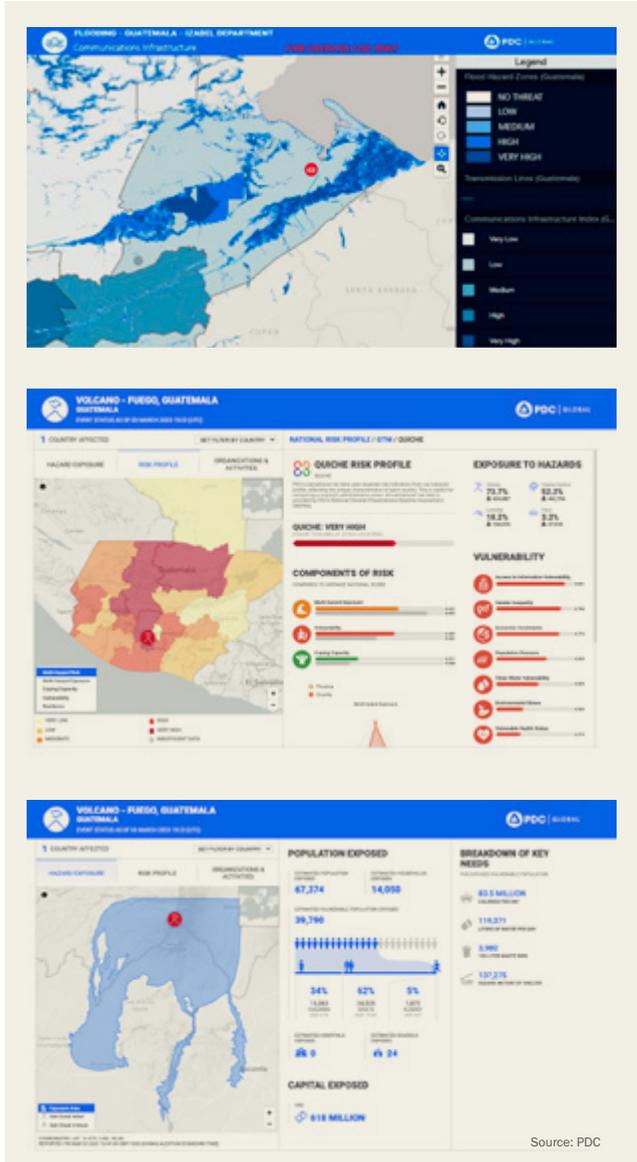
Event Brief

Event Brief improves coordination across the humanitarian spectrum, providing early estimates of exposure and likely humanitarian needs. Using subnational risk and vulnerability data, the early warning report helps decision makers anticipate hazard impacts, increase efficiency in response, and improve the deployment of life-saving aid.

Event Brief has become a global standard for international organizations like the ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management (AHA Centre), World Food Programme, the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), the International Federation of Red Cross and Red Crescent Societies (IFRC), and other organizations worldwide.



Source: PDC



Source: PDC

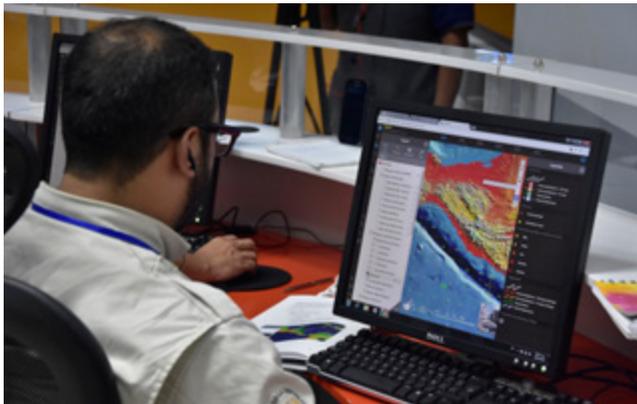


Image: PDC

Above: Since the completion of Guatemala's National Baseline Assessment in 2018, the country has leveraged risk and vulnerability information and critical data for decision making. Recent operational use cases of assessment information include Guatemala's major responses to hurricanes Eta and Iota in 2021, a multi-national preparedness exercise, Continuing Promise, sponsored by US SOUTHCOM in 2022, and recent responses to major volcanic eruptions in 2023 by the extremely dangerous Volcan de Fuego

Beyond the direct benefit to nations who participate in the program, the assessment fills critical gaps in national early warning capabilities and risk knowledge. Critical risk information from the National Baseline Assessment is integrated into PDC's DisasterAware platform to provide early warning insights and then shared with the entire global community for disaster response, preparation, and planning. Used by tens of thousands of practitioners, the platform's real-time early warning report, known as Event Brief, leverages assessment data in the estimation of hazard impacts and humanitarian aid likely to be required during a disaster response operation.

According to United Nations Secretary-General António Guterres, nearly one-third of the world's population lacks adequate early warning, particularly in developing and small island nations. Early warning systems are widely regarded as a proven, effective, and feasible climate adaptation measure that save lives and provide a tenfold return on investment.

Below: Philippines national and regional government stakeholders learn how to use a customized national version of DisasterAware to assess risk and to receive early warning alerts for 19 types of natural hazard



Image: PDC

ASSESSMENTS & ADVANCED ANALYTICS
PROMOTE RISK-INTELLIGENT SOCIETIES

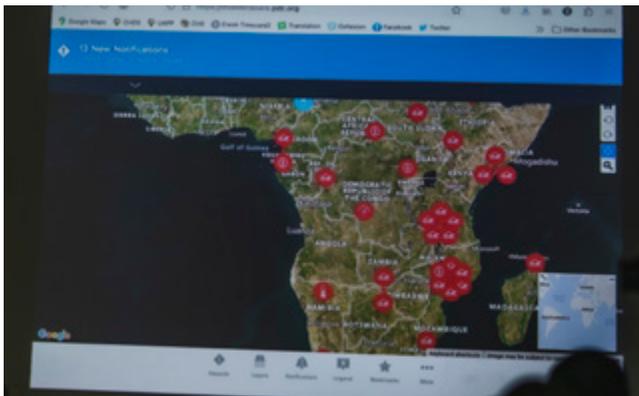
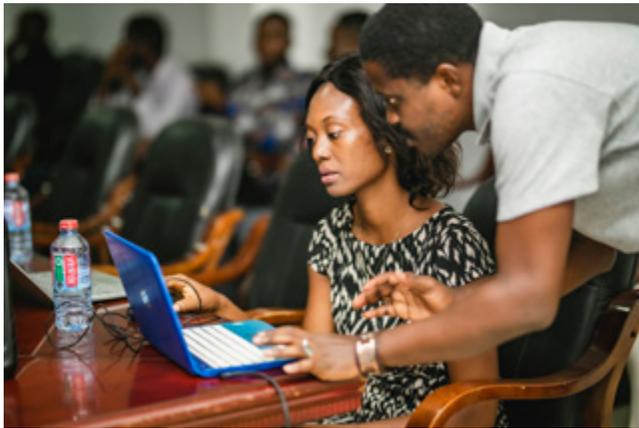
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NEW 2050 GLOBAL CLIMATE IMPACT ANALYSIS RELEASED BY PDC

PDC released a new detailed examination of climate change impacts into the year 2050—providing greater insight into the ability of countries to withstand destabilizing shocks from climate-influenced hazards.

Source: PDC



To help close the early warning gap, PDC's Event Brief, enabled by the Center's powerful all-hazards impact model, anticipates population exposure, impacts to vulnerable populations, critical infrastructure, and potential capital exposure to hazards as soon as a hazard is reported by a scientific authority. The system currently provides global early warning for 19 types of natural hazard. It also offers the only source of global flood and landslide early warning available in the world.

Virtualized assessment information in DisasterAWARE gives NGOs and governmental organizations insight into the key drivers of risk at a subnational level. This allows decision makers to quickly identify where vulnerability is the highest, coping capacity the lowest, and what makes certain geographies more, or less resilient to hazard impacts.

DisasterAWARE also helps decision makers locate critical infrastructure that may be directly impacted by hazards, and aids planning decisions related to evacuation, shelters, and where to establish safe zones for humanitarian relief workers and supplies. This real-time use of risk and assessment information underpins all decision making for practitioners using the DisasterAWARE system.

The program also supplements national data with PDC's global data catalogue — one of the largest in the world for disaster risk management. With more than 8,000 layers, the Center's expanded data library provides a wealth of scientifically vetted information ranging from population, infrastructure, and real-time hazard data to the Center's latest research on global climate change impacts by 2050, women, peace and security, national fragility, and more.

Beyond its utility in disaster response, easy-to-access, web-based risk information and analytics have strong scientific applications for building resilience to other shocks including global disease outbreaks, ecological diversity loss, overpopulation, resource scarcity, political instability, conflict, and migration, to name a few. Each of these complex issues, which are increasing in frequency and scale, call for more sophisticated tools that can readily inform plans, actions, policies, and investments.

Because climate change will not wait, programmatic recommendations resulting from the National Baseline Assessment are identified by nations for completion within a shortened timeline of one to five years. Leveraging PDC's expertise in DRR, nations are prioritizing actions with the greatest magnitude of impact on the international goals and targets of the Sendai Framework and SDGs. Knowledge gained from the assessment also helps qualify national disaster management capacity and a country's ability to mitigate risk and support adaptation. This provides a contextual basis for the prioritization of accelerated actions that save lives, reduce disaster risks, improve socio-economic vulnerability, and build a more sustainable and safer world for all.

Left: In April 2023, Ghana's National Baseline Assessment kick-off workshop included more than 60 stakeholders from multiple sectors who engaged in an introductory multi-hazard early warning and risk analysis training using PDC's DisasterAWARE platform. The system provides high-resolution all-hazards impact modeling and real-time advanced analytics reports powered by PDC's AI for Humanity technology

Fulfilling the SDGs in urban India — a multidimensional approach

*Hitesh Vaidya, Director; Samridhi Pandey, Data Lead, Urban Outcomes Framework,
National Institute of Urban Affairs, New Delhi*

The remarkable surge of urbanization in India sees an estimated 600 million people inhabiting the country's urban regions by 2030 — a populace boasting a youthful demographic, with an average age of 29. As India's ambitions span a wide array of areas, this intricate landscape propels the nation towards its aspirational path, targeting a US\$ 5 trillion economy by 2025, net zero by 2070 and championing 'vocal the local', thus bringing the three crucial elements of economy, sustainability and inclusiveness within an overarching journey of transformation. Central to this trajectory is India's belief that a changing mindset sparks beginnings for sustainable transitions. And sustainable transitions cannot happen without a bottom-up, localized approach.



Image: Arjun KM

CITIIS photography contest entry on Public Open Spaces

Beginning in early 2015, India embarked on economic and governance reforms to increase growth and improve the quality of life for all its citizens. Since then, India has undertaken numerous mission-mode flagship projects such as the Smart Cities Mission (SCM), the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Pradhan Mantri Awas Yojana (PMAY), and the National Urban Livelihood Mission (NULM) that have reshaped urban planning and development and also exemplified the government's commitment to urban revitalization. These initiatives reflect India's predominant efforts and unwavering commitment towards achieving the United Nations' Sustainable Development Goals (SDGs) agenda of 2030 — 'Leave no one behind'.

Recently, under India's presidency of the G20 Nations, the Urban 20 group identified six target areas aligning with the SDGs on a global scale to convey the nuances in making the urban sustainable, resilient, economically sound and driven by data and digital technology. All of which is attainable with efficient knowledge transfer of successful practices from partner nations. This approach not only informs strategic planning but also shapes tangible projects that are then implemented on the ground, yielding positive outcomes.

As the think-tank division of the Ministry of Housing and Urban Affairs, Government of India, the National Institute of Urban Affairs (NIUA) is in a unique position to complete the loop in the flow of information from cities to the centre to support the design of urban missions and handhold the cities in planning, implementing and managing the delivery of urban services to citizens. This innovative initiative, propelled by central flagship missions not only provides an enabling environment to scale up but also facilitates direct feedback on policies from cities and citizens.

In a complex urban space such as India, NIUA has adopted a three-pronged approach that:

- Employs a consultative, participatory process to properly diagnose the ground reality and recommend an implementable way forward
- Works side-by-side with municipal, state and central government staff for consensus building
- Relies on building the professional capacity of local resources such as consultants, research and academic institutions and NGOs to support the three tiers of India's government in implementing the way forward.



Image: NIUA

Training in sewing at the Micro Skill Development Centre, Agra, Uttar Pradesh

This approach builds on reinventing the urban diaspora through extensive partnerships at both sub-national and national levels with the primary objective of taking India's urban forward,

In the cities, achieving SDG targets requires a change in rhetoric from 'what to do' to 'how to do'. NIUA understands that the major roadblock to achieving SDGs in cities is a lack of understanding of sustainable and inclusive development and the dearth of technical skills to overcome the challenges. NIUA endeavours to equip cities with appropriate tools, templates, technologies, training and capacity building, and transfer of knowledge for planning and efficient implementation of inclusive development programmes. The broad objective is to transform India's urban narrative by creating enabling conditions to create scalable results.

For the new urban India, the key to the SDG localization agenda is a multi-pronged collaborative approach, adopting data collection, strategic planning, demonstrative projects, knowledge management, capacity building and technological solutions for scaling up and aligning academia to create a niche for young students and researchers for fostering innovative ideas.

NIUA established its credibility through a hands-on approach and closes the loop between thought, strategy, and action through knowledge aggregation, research, analytics, and clear roadmaps designed to accelerate the transition to low-carbon, climate-ready, resource-efficient, and resilient urban futures. Some of NIUA's demonstrative initiatives having broader implications for the sector are listed below.

Local-level data collection in cities

This is indispensable for informed decision-making, efficient resource allocation and tailored interventions. As cities continue to grow and face evolving complexities, the importance of robust data collection at the local level becomes increasingly important. Given the need for an outcome-driven database, the Urban Outcomes Framework (UOF) initiative was launched, enabling first-hand data collection from urban local bodies and transforming it into consumable output, facilitating data-driven decision-making. NIUA, under the auspice of UOF, houses India's largest urban data bank, capturing more than 400 data points across 14 sectors for 200+ cities, potentially impacting over 50 per cent of India's total urban population. Not only has this initiative facilitated data collection, but has also built capacities within cities to store, process, and update data from time to time by carrying out extensive hands-on capacity-building workshops. The data thus generated becomes crucial as it feeds into the planning process enabling dynamic and flexible project designs that respond to local needs, i.e. city-specific interventions to address unique problems.

Evidence-based strategic planning

NIUA fosters 'disruptive' ideas for steering sustainable urban growth in the country through its innovative projects. It creates a new planning paradigm by reinventing planning frameworks as strategic, dynamic, and evidence-based. Comprehensive city planning is also essential to encourage an ecosystem approach to services, reducing redundancies and

converging the efforts of multiple service-providing agencies. Planning must ensure sustainable and inclusive development as well as respond to the need for robust economic growth and improved liveability. Additionally, plans have to address cross-cutting aspects such as climate change impacts and inclusive development. As the agency experimenting with new planning principles, NIUA is continuously redesigning the process to be more participatory and reinventing the plan as a strategic enabling instrument for the city's future development.

Demonstrating successful pilots to encourage buy-in and scaling
 NIUA has learned that there is no better way to gain support and build consensus for reform initiatives than through the successful execution of country-wide pilot projects. One such initiative is the CITIIS programme that involves over 100,000 stakeholders in project design, planning and execution, with over one million people expected to benefit from 12 CITIIS projects. The implementation of these projects accomplished in the initial phase has nurtured confidence among the stakeholders, enabling a second round of city listing under the initiative.

Institutionalizing change

What happens to the learning, post-implementation? Who disseminates it to the masses and enables peer-to-peer learning? What can be done to build the gap in skilling? The answer to those questions is the responsibility of the National Urban Learning Platform (NULP) which not only provides a platform for engagement but also serves as a comprehensive digital hub for fostering knowledge, collaboration and skills development in urban development and planning.

Research and academia also play an eminent part in shaping urban policies. One such collaboration is Smart Cities and Academia Towards Action and Research (SAAR), a compendium of over 75 urban infrastructure practices in India that are relevant to the dialogue concerning a sustainable urban future.

Innovation and technology to ensure data-driven governance and service

As the largest democracy in the world, comprising 11 per cent of the global urban population, India's ethos of "to the people, for the people, and by the people", ingrained in the preamble of the Indian Constitution, places citizens at the core of its approach. Thus there is a need for citizen-centric governance with effective evidence-based mechanisms and partnerships to achieve the targeted SDGs to reduce the incidence and intensity of complex urban issues. The primary objective of the National Urban Digital Mission (NUDM) is to facilitate the digitization of urban citizen services through a unified digital infrastructure. Central to this mission, the Urban Platform for delivery of Online Governance (UPYOG) developed by the NIUA, empowers urban practitioners, policymakers, and local authorities with tools, resources and data-driven insights, enabling well-informed decision making and effective urban management. Moreover, NUDM not only expedites the urban digitalization agenda but also actively engages youth through initiatives such the National Urban Digital Mission Fellowship programme in which urban youths assume pivotal roles in forming partnerships with nearly 28 states, encompassing 80 per cent of the country's urban population.

Citizen-centric governance cannot be achieved without metrics for assessing citizens' satisfaction with the city administration. The 'Yeh Mera Shehar hai' campaign under the Ease of Living Index initiative conducted by NIUA, which is India's largest citizen perception survey, captured more than 6.4 million responses from the citizens on the livability aspect of their respective cities. This has largely empowered citizens to actively participate in decision making processes and influence urban policies, where a large part of this survey was the nation's youth. This bottom-up approach not only increases transparency in governance but also ensures that urban projects align with the specific needs and aspirations of the residents.



Call centre complaints plotted on a map, facilitating data-driven decision making

Image: NIUA



Image: NIUA

Students of a school redeveloped under the CITIIS Programme

Summary

Fostering strategic alliances and partnerships are key to ensuring collaborative thinking, advocacy, and action. Working with local partners as well as with organizations from across the globe, NIUA is committed to the exchange of ideas and knowledge to amplify the urban dialogue, connect solutions to needs and spur innovation. NIUA's contribution keeps the dialogue alive, relevant, and continuous to ensure impactful outcomes and achieve more from less.

With a focus on evidence-based strategies, data-driven governance, multi-lateral partnerships, and the empowering role of youth leadership, India is steadily turning its urban areas into sustainable hubs of growth and inclusivity. While the triumphs inspire reflection, they underscore a fundamental lesson in the execution of initiatives — that all efforts must revolve around the citizens. Every facet, from gathering data for policymaking to aligning projects with citizens' needs and engaging practitioners in informed learning to shape policies, centres on serving the citizens. This is the key to building a sustainable and inclusive urban future.

With the tools of evidence-based strategies, data-driven governance, and strong multi-lateral partnerships, the nation is making significant strides in transforming its urban landscape and leapfrogging towards sustainable urban development to remain at the forefront of India's growth story.



Image: NIUA

Integrated Command and Control Centre, Agra Smart City Ltd



Image: NIUA

Promoting Inclusivity via technology

Contributions of the Arab Fund for Economic and Social Development in satisfying Arab development needs and achieving SDGs

Operations Department, Arab Fund for Economic and Social Development

For nearly fifty years, the Arab Fund has been devoting its efforts to meeting the economic and social development needs of its member countries. Its activities have catalyzed the progress of Arab countries in achieving several Sustainable Development Goals (SDGs) for more than four decades, well before the arrival of the United Nations document in 2015, specifying the 17 SDGs to be met by the year 2030. The Fund has contributed both directly and indirectly to achieving these goals by financing public and private development investment projects through concessional loans, covering various economic and social activities and providing grants and institutional support to member states.

Since the start of its financing operations in 1974 until the end of March 2023, the Arab Fund has granted 710 loans, amounting to approximately US\$ 36,983m. The Fund also

provided grants amounting to about US\$ 852.7m, in addition to grants and aid for the Urgent Programme to Support the Palestinian People or general grants amounting to approximately US\$ 720m. Arab Fund grants were made to all Arab countries, either directly or through joint projects, and comprised public sector grants, joint Arab action grants, and grants directed to non-government organizations.

People and society

The Arab Fund has been actively helping Arab countries to achieve the goals and objectives of the first six SDGs. To combat poverty, the Fund has financed 90 loans, amounting to around US\$ 3.05 bn, that were concentrated in social development projects, rural development, public works, small and micro projects that generate job opportunities, social welfare programmes, integrated and inclusive development,



Merowe Dam on the River Nile in northern Sudan

Image: ESCWA website

The Merowe Dam project in northern Sudan

Among the most important of the Arab Fund's projects is the Merowe Dam on the River Nile in northern Sudan. Storing approximately 12.5 billion m³ of water, the dam was built to irrigate about 300,000 ha of agricultural land and to protect the surrounding areas from the danger of flood. Financed with around US\$ 339m, this project supported the reclamation and delivery of water to large agricultural areas and enabled the establishment of a hydroelectric station with a capacity of 1,250 MW annually, producing about 5,500 GWh of power.

Another significant project which targeted several SDG objectives including ending hunger, creating employment opportunities and supporting climate action, is the integrated agricultural development project in the south of the Kasserine governorate in the Republic of Tunisia. Funded during 2022, the project aims to create balanced regional development and improve the living conditions of approximately 192,000 residents through improved and sustainable use of land, development of agricultural and natural resources and better infrastructure, as well as the establishment of income generating projects and support for women in rural areas.

and social housing projects. Among the most important projects, is the integrated development project in Tunisia, whereby the Fund's contribution was directed to finance small projects to combat unemployment, alleviate poverty, and provide job opportunities and services. The number of these projects, both private and public reached about 20,000 distributed over more than 200 delegations, starting with the poorest, the most unemployed, and the least developed. The projects included private individual projects for small farmers, engineers, craftsmen, holders of higher degrees as well as vocational training, to provide them with job and income opportunities, in addition to public service projects, which amounted to about 1,200, including various sectors such as drinking water, sanitation, public lighting, roads, industrial zones, health, and cultural and sports facilities.

The Fund has also actively engaged in efforts to eliminate hunger by focusing on the agricultural sector, which serves as the main source of food and employment for the population in most Arab countries, and has offered 102 loans — representing about 11 per cent of the total number of loans — contributing to the financing of 35 dams in six Arab countries, making it possible to regulate surface water resources, recharge groundwater basins and irrigate about 3 million ha of land. The Fund also contributed to financing the rehabilitation of old irrigated agricultural areas and providing new agricultural areas with regular irrigation systems, resulting in the addition of 400,000 ha to the areas covered by regular irrigation and the rehabilitation of irrigated lands estimated at 800,000 ha.

Serving health and education goals, the Fund granted 18 loans worth around US\$ 970m to finance the construction of hospitals for treatment and educational purposes and centres to combat infectious diseases, and to support efforts to combat COVID-19, as well as providing 17 loans worth around US\$ 769m, which contributed to covering the costs of establishing and equipping colleges and universities

and supporting the development of basic and secondary education by building schools, developing curricula, and enhancing educational services in many Arab countries¹.

The Fund has also supported gender equality by providing 33 grants amounting to around US\$ 7.2m, directed to empowering women and girls by financing the activities of organizations aimed at rehabilitating and training women for work in handicrafts and laboratories as well as providing funding for orphanages, care of blind women, elderly women, providing educational facilities for girls, maternal health centres and dormitories for female students.

Ensuring the availability and sustainable management of water and sanitation has also been a major focal point of the Fund's development interventions, especially given the location of most Arab countries, classified among the most water-poor in the world, within the arid and semi-arid desert regions. The Fund has provided 157 loans, which constituted about 16 per cent of the total number of loans and contributed effectively to financing drinking water and sanitation projects in the Arab countries. Projects included financing water storage dams, with a total capacity of about 32 billion m³, providing about 2 billion m³ of water annually for drinking, industry, and services, and drilling wells and platforms for pumping, transporting and storing water in countries such as Egypt, Sudan, Morocco, Tunisia, Mauritania, Djibouti and Lebanon².

Prosperity and economic development

Achieving prosperity and encouraging economic development in the Arab region is a focal area of the Arab Fund's objectives, relating to SDGs 8 to 12. The Fund granted member states 47 loans worth around US\$ 2.1 bn to finance small and medium enterprises, investment activities of the private sector and the activities of the manufacturing and service public sectors, achieving growth and providing job opportunities. This includes the agricultural credit project in Morocco that contributed to improving the conditions and elements of agricultural work and providing job and income opportunities in rural Morocco, the rural roads and water project in Yemen, and the rural development project in Idlib governorate, Syria. The Fund also contributes with 18 Arab countries to the capital of the "Special Account for Financing Small and Medium Projects", which is managed by the Fund, with 49 total loans provided as of the close of 2022, with a

The Primary Education project, Tunisia

The Arab Fund contributed to financing the Primary Education project in Tunisia, with around US\$ 163m, which supported the construction of some 50 new schools in various parts of the country, and the expansion of about 2,000 existing schools through the construction of additional classrooms and offices for principals and other facilities. In a drive to support inclusive, high-quality educational opportunities, the project also funded the maintenance and rehabilitation of classrooms and facilities in about 800 schools, as well as the provision of furniture, school equipment, computers, digital equipment and accessories for about 500 schools.



Images: Tunisian Ministry of Education



Project supporting primary education in Tunisia

total value of US\$ 1,591m, which financed 100,000 projects in 12 Arab countries that contributed to providing or maintaining about 480,000 job opportunities.

Furthermore, the Arab Fund financed the industry, innovation and infrastructure sector in the Arab countries with about 100 loans with a total value of around US\$ 2.1 bn, which included the construction of new factories and the rehabilitation of existing factories for the public and private sectors, the financing of infrastructure for new industrial zones and cities, and financing the establishment and development of telecommunications and fibre optic networks in the Arab countries³.

To reduce inequalities within and between Arab countries, the Arab Fund provided 24 direct and indirect loans amounting to around US\$ 1.6 bn that financed rural development projects, integrated development programmes, social development funds, and social housing projects, including the housing project in Lebanon, a project in Djibouti, two projects in Oman, and a housing project in Algeria, all aimed at improving the living conditions of the vulnerable social groups and finding sources of income for them. Furthermore, to serve the goal of promoting sustainable cities and communities, the Fund provided 170 loans to member states, including financing the construction and paving of roads, building bridges, ports, airports, railways, and urban development projects, at a total cost of around US\$ 1 bn. Among

the most important projects are those for urban development in Yemen, such as financing the new Sana'a airport, developing the basic infrastructure of the city of Sana'a, and another to expand the roads linking the city to Hodeidah, in addition to financing the Sana'a-Taiz road. Accordingly, the Arab Fund had the largest role in the development of Sana'a as a capital that is populated by about 3 million people.

To promote sustainable, safe consumption and production systems in the Arab countries, the Arab Fund contributed to providing 25 loans worth around US\$ 987, allocated to finance projects for establishing and developing commodity warehouses, fish preservation and processing markets and ports to facilitate the import and export of consumer goods and marine fishing, as well as storage projects such as that in the Abu Rawash industrial area in Egypt, which aims to increase refrigerated storage of foodstuffs.

The planet and the environment

Covering SDGs 7, 13, 14 and 15, the promotion of environmental sustainability in the Arab region serves as one of the Arab Fund's main objectives. The Fund launched its Green Projects Programme in 2022 to support the efforts of Arab countries in facing environmentally-induced challenges and to transform them into green economies by stimulating projects that limit environmental degradation and carbon emissions, encouraging the establishment of new green projects as well

as supporting existing ones. This is achieved through providing loans at reduced interest rates, offering grants for the preparation of studies and designs, supporting institutional capacities and financing innovative small green projects for which an amount of around US\$ 3.26m has been allocated for the first pilot phase (2023–2024). This renewed programme is part of the Fund's developmental interventions, within the framework of continuing to implement its medium-term strategy for 2021–2024, which approved the encouragement and adoption of green and environmentally friendly projects in member states, to contribute to preserving the environment and reducing carbon emissions and thus limiting the effects of climate change. The Fund aims to increase its financing of green projects from 20 to 30 per cent by 2030.

The Bahr El Baqar project, Egypt

The Bahr El Baqar Project is one of the largest and most important of its kind, with the Arab Fund's contribution amounting to around US\$ 473m. The aim is to develop the Sinai Peninsula by transporting the polluted waters of Bahr El Baqar from west to east of the Suez Canal and treating it to provide 5 million m³ per day of treated water suitable for irrigating 300,000 feddans* for the production of agricultural crops and livestock breeding.

Another initiative is the sewage project at the Al-Rahawi Drain, west of Giza, with a contribution from the Arab Fund amounting to around US\$ 147m, and serving approximately 3.5m citizens.

*1 feddan is equal to 4,200m²



Bahr El Baqar Project, Egypt

Overall, the Arab Fund provided 18 loans amounting to around US\$ 919m to contribute to taking the necessary measures to combat climate change and its devastating effects on life by regulating gas emissions and promoting developments in the field of renewable energy. It also provided 17 grants supporting climate action, amounting to around US\$ 8.5m. These loans and grants were directed to contribute to the reduction of heat emissions, the atmospheric monitoring of climate change, support for the definition of climate, financing of conferences discussing environmental issues and the impact of climate change in member states, and contributing to funding adaptation programmes for climate change in marginal areas, combating drought and desertification, and supporting seismic monitoring stations and crops in saline regions. The Fund also contributed to financing projects that mitigate global warming levels, such as for power plants using renewable sources and environmental sanitation projects. Among such projects is the seismic risk mitigation project, which aims to monitor and follow-up seismic activities, to the benefit of Algeria, Iraq, Jordan, Morocco, Syria, Tunisia and Yemen.

The Arab Fund has financed projects for the generation, transmission and distribution of electric power by providing 168 loans for the energy and electricity sector, and contributed to financing the construction of some 53 generation stations using various types of fuel, in 17 Arab countries, with a continuous increase in the financing of power generation in the combined cycle system that operates mainly on natural gas and hydroelectric power plants, in addition to the power plants that use renewable energy sources such as wind farms, solar plants and power plants that use geothermal



Images: Arab Republic of Egypt Presidency website

water. Specifically, the Fund contributed to the financing of several stations that use renewable energies, including a solar power plant in Mauritania's capital, Nouakchott, as well as two loans to establish wind power plants, one in the Bulanwar region and the other in Nouakchott. Additionally, a loan was given to Djibouti to construct a power generation plant benefiting from geothermal water, and a loan to finance a pumping and storage station in Morocco which is able to store and use electric energy during peak hours — the first of

Transport infrastructure projects in Morocco and Tunisia

The Tunis-Jelma Highway project was set up to develop land transport services on the main axes of the road network in Tunisia, absorb the increasing traffic on them, reduce traffic accidents, and contribute to supporting economic and social development in the country's interior states. Additionally, the Tangier-Casablanca high-speed train project contributed to improving the connection of urban areas and supporting economic and social development in the regions northwest of Morocco, developing land transport services, and meeting the growing demand for passenger rail transport.

In the field of maritime transport, the Tangier Med II port project in the Kingdom of Morocco, funded by the Arab Fund with two loans amounting to about US\$ 326m, is one of the most important projects to have contributed to meeting the growing demand for maritime transport and making the Tangier Med port the largest for the movement of containers, goods and people in the region.

its kind in the Arab region. Furthermore, the Fund provided 34 loans to support and develop transmission and distribution networks, control centres and rural electricity at a cost of about US\$ 2.7 bn, as well as financing electrical interconnection projects between Arab countries at a cost of around US\$ 839m, which contributed to the electrical connection between most of the Arab countries, and constituted about 7.4 per cent of the Fund's total financing for the electrical network sector in the Arab countries.

To preserve marine life as well as wildlife, the Fund granted 10 loans at a value of around US\$ 1.6bn, allocated for developing fisheries and marine fishing, supporting fish farming, and developing several berths and ports for marine fishing, including the fishing port project in the Wilayat of Dibba, Oman. Moreover, the Fund financed 7 projects with loans amounting to about US\$ 163m, dedicated to combating the effects of drought and agricultural pests, developing oases, supporting agricultural research in dry areas, establishing public gardens and parks, improving agricultural production systems and preserving agricultural resources. This project aims to combat the effects of drought in Morocco and mitigate the impact on living conditions by providing water and agricultural production facilities and medicines and fodder for livestock.

Peace and partnerships

The Arab Fund has always actively engaged in promoting peace and partnerships in the Arab region — SDGs 16, and 17. Specifically, the Fund has provided six loans at a value of around US\$ 386.6m, along with 72 grants worth about US\$ 65.9m directed towards supporting education, health,



Tangier Med II port project, Kingdom of Morocco

Image: Meier.com

water, shelter in refugee camps, emergency relief, demining programmes, institutional activities, community peace, combating corruption and violence, and meeting the urgent need for the reconstruction of infrastructure damaged by conflict. In 2006, to mitigate the effects of conflict damage in Lebanon, the Fund granted a loan for reconstruction, especially in the water, sanitation, transportation, electricity and other infrastructure sectors, as well as a loan to assist the same sectors for damages outside the capital.

Arab and international partnership in sustainable development issues remains an integral component of the Arab Fund's development agenda, which welcomes cooperation and partnership with regional and international financing and development institutions in co-financing large investment projects in Arab countries. The Arab Fund's commitment will remain strong in mobilising resources and expertise for member states. The Fund is keen to strengthen national, regional and international development partnerships and to bolster the partnership between Arab countries collectively or within the framework of regional organizations, as evidenced by the financing of joint projects in electric power, roads, communications and others. The Fund also undertakes coordination among 11 Arab funds for financing development in the Arab countries, and coordinates with international financing institutions to contribute to meeting the financing needs of large development projects in the Arab region. Among the joint Arab projects to which

The Urgent Programme for the Support of the People in Palestine

The Fund manages the “Urgent Programme for the Support of the Palestinian People” with a cumulative total of the Fund's contributions. This includes supporting the infrastructure of Jerusalem, amounting to around US\$ 711m, which has left tangible effects, through paving about 1,500 km of modern roads including those in rural agricultural areas; the rehabilitation and operation of 175 artesian wells; the reconstruction of about 8,000 private and public buildings; the reclamation of about 9,000 dunums of agricultural land to protect it from confiscation; the repair and reconstruction of 12,000 houses damaged by ongoing conflict; the construction of 155 km of potable water networks in poorer areas; and connecting 32 village councils to electric and solar power networks. Additionally, the Programme has helped renovate some 55 schools accommodating 22,000 male and female students, as well as to build and equip 18 university buildings and support lending programmes for about 50,000 university students.

The Programme also included the establishment of industrial areas for small craftsmen, the provision of support for about 400 industrial workshops that have been rehabilitated and equipped, and the provision of soft loans to approximately 2,600 farmers to develop agricultural projects. Moreover, the Programme has contributed to the construction, equipment and provision of medicines and medical devices to about 120 governmental and private medical centres, in addition to the reconstruction and rehabilitation of historical buildings to preserve cultural heritage, the restoration work covering about 600 buildings in Jerusalem, Nablus, Hebron and the country's rural centre.

Distribution of the Arab Fund loans and projects by SDG

Note that certain projects have been classified into more than one goal because of their contribution to several SDGs

		Distribution of Arab Fund Loans by SDGs	Distribution of Arab Fund Grants by SDGs
	No Poverty	90	57
	Zero Hunger	102	101
	Good Health and Well-Being	18	127
	Quality Education	17	277
	Gender Equality	—	34
	Clean Water and Sanitation	157	64
	Affordable and Clean Energy	168	62
	Decent Work and Economic Growth	47	137
	Industry, Innovation and Infrastructure	100	77
	Reduced Inequalities	24	87
	Sustainable Cities and Communities	170	90
	Responsible Consumption and Production	25	21
	Climate Action	18	19
	Life Below Water	10	11
	Life on Land	7	87
	Peace, Justice and Strong Institutions	6	73
	Partnerships for the Goals	5	117

the Fund contributed financing is the Arab telecommunications project and electrical interconnection projects between the Arab countries, forging major partnership links.

Looking forward

Consistent with the SDGs, the Arab Fund's interventions over the past five decades, whether through loans or grants, have contributed to supporting economic and social development in various Arab countries, covering all sectors and benefiting many residents of the region. Since 2015, the Fund has taken on the responsibility of supporting the Arab countries in their efforts to achieve the SDGs, considering them the compass upon which its 2021–2024 strategic plan is based, and by giving priority to projects that contribute to achieving the goals. The Fund looks forward to the concerted efforts of all parties to achieve the SDGs at the national, regional, and international levels, and it will remain a positive and active partner in this path.

Successes in ALECSO's mission to achieve sustainable development

*His Excellency Prof. Dr. Mohamed Ould Amar, Director General,
Arab League Educational, Cultural and Scientific Organization (ALECSO)*

Proceeding from its Vision 2030, its educational, cultural and scientific mandate and founding charter, and in line with its goals and objectives pursued in vital sectors, especially education, research, innovation and entrepreneurship, the Arab League Educational, Cultural and Scientific Organization (ALECSO) has grown into a leading player at Arab, regional and global levels, helping Arab Member States to create a stimulating, future-oriented educational environment.

ALECSO has been serving as an Arab house of expertise in terms of research, production and development, helping Arab countries to achieve many of their goals, most notably:

- Establishing a system of research, development and innovation linked to key drivers of socio-economic development
- Involving the private sector in financing scientific research, development and innovation
- Developing effective mechanisms for cooperation among Arab and international institutions active in research, development and innovation
- Creating a stimulating environment for intellectual property, and promoting patent registration, protection and investment
- Providing an adequate environment to retain the Arab brains
- Participation in achieving food security and global environmental sustainability.

Scientific research plays a key role in the progress of societies and the prosperity of nations. However, a careful look at the current state of scientific research policies and institutions in the Arab world reveals a wide gap between the Arab and global levels in terms of scientific research.

Whatever the reasons underlying its backwardness in this field, it is no longer acceptable for the Arab world to lag behind in terms of scientific and technological progress. The development of coherent policies and plans is, therefore, necessary to bring about real and sustainable change in the field of scientific research. Despite awareness that this research plays a crucial role in building advanced societies, and is closely associated with increased production and sustainable development, it is still not effective in overcoming many of the problems facing the Arab world. In spite of their

wealth of resources, Arab countries still lack a solid base in science and technology, and their scientific research systems show poor performance in terms of knowledge production.

It has therefore become necessary to enhance and upgrade scientific research policies, by increasing the funding allocated to this field, encouraging creativity and innovation, protecting intellectual and industrial property rights, and leveraging the expertise of Arab migrant brains, the Arab brain-drain being a waste of capacities and competencies that can help bring about the desired change in Arab societies. It is also necessary to support scientific research centres and institutions in the Arab countries, especially amid the great challenges facing the region in all fields of socio-economic development. Through its multiple applications, scientific research can help address these challenges and thus promote the advancement of Arab societies.

ALECSO is well aware of the vital importance of its civilizational mission to promote the future of scientific research in the Arab countries. The impacts of the Fourth Industrial Revolution, with its remarkable technological innovations and endless flows of information, inform the current choices of the Organization. They strengthen shared convictions about future prospects offered by science and knowledge and their impact on society in the educational, cultural and scientific arenas. ALECSO is, therefore, called on to best leverage the digital technologies that are now available as well as those expected to appear in future. To that end, it is necessary to consider a new model for capacity development that would ensure the optimal use of digital technologies, which has now become a civilizational challenge of utmost importance. The new model will also confirm the interconnectedness of the Organization's activities and programmes in the fields of education, culture, science and scientific research. In line with these choices, this article covers the following points:

- Current regional and international orientations: looking ahead
- Digital transformation: challenges and opportunities
- Arab experiences including the role of governmental and non-governmental institutions as well as the role of youth.

ALECSO has launched a number of bilateral and joint programmes in the fields of education (at all levels), innovation and entrepreneurship. It has also expanded the scope of



ALECSO Olympiad for Arab Child Capacity Building in Scientific Research Approach, Tunisia, September 2022

its scientific partnerships with the aim of increasing awareness of the key role of scientific research, and integrating the research- and inquiry-based approach into professional practices, thereby building qualitative Arab competencies that can meet the requirements of the global labour market. In so doing, ALECSO is keen to remain a beacon of thought, science, development and contribution.

Aware of the importance of scientific and technological development in the progress of nations, and as part of its support for joint Arab action in the field of science and scientific research, ALECSO has undertaken, since the early 1980s, jointly with other Arab organizations, institutions and bodies, to implement Arab strategies in various fields of science and technology, in pursuit of the 2030 Agenda for Sustainable Development.

ALECSO's contribution to achieving the SDGs

— *SDG 1: End poverty in all its forms everywhere*

— *SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture*

ALECSO has implemented various workshops on the integrated and sustainable management of water resources and the promotion of water security. It has called on Arab States to work on developing policies, strategies and master plans for promoting the use of non-conventional water resources (treated wastewater, agricultural wastewater and desalinated water), ensuring water sustainability, and building resilience to climate change.

ALECSO has also called for promoting and encouraging scientific research and innovation, building local skills and knowledge in the field of water resources and localizing the related industries, sharing relevant experiences, success stories, and lessons learned, and establishing an Arab regional policy initiative — financial, legal and technical support — to meet water security challenges.

— *SDG 3: Ensure healthy lives and promote well-being for all at all ages*

ALECSO launched the ALECSO-Mada Apps Award, granted to the best Arab mobile applications developed for users

with special needs. It has also developed mobile applications designed to facilitate the daily life of persons with disabilities and ensure equal opportunities in society.

— *SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*

ALECSO has worked to produce easily accessible open educational resources (OERs), to promote inclusive and fair access to Arab quality OERs, to enrich and support the Arab OER Hub, and to enhance the culture of programming, innovation, digital creativity, and entrepreneurship among Arab youth. It has also launched the ALECSO Olympiad to Enhance Scientific Awareness among Arab Children, and held a series of training courses in the field of robotics and artificial intelligence for Arab countries.

Believing that knowledge shared is knowledge multiplied, and as part of its efforts to strengthen cooperation and open channels of communication among academics, researchers and postgraduate students as well as among universities and scientific research centres and institutions, ALECSO has launched the ALECSO Science Gate:

<https://alecso-science-gate.org/Science-Gate>

It is designed to enable academics, researchers, universities, and research centres and institutions to create web pages and to link them with pages on other science gateways such as ResearchGate, Google Scholar, ORCID and Scopus, as well as on social media websites such as Facebook, Twitter and LinkedIn. Through this initiative, ALECSO seeks to build bridges of communication within the Arab world and beyond, and to select experts, referees and participants for its projects, conferences and specialized events.

— *SDG 4 Target 7: Promote a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development*

ALECSO took part in the Council of Europe Conference of Ministers of Culture, held under the theme of Creating Our Future: Creativity and Cultural Heritage as Strategic Resources for a Diverse and Democratic Europe. The Conference emphasized the importance of cultural heritage

as a source of creativity, especially in the field of cultural industries and digital cultural economy. On the other hand, ALECSO developed an Arab strategy to protect women and children with special needs against all forms of violence and exploitation. It also launched an awareness programme on mechanisms and policies for the protection of women and children against violence in the Arab countries.

— *SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all*

ALECSO conducted nine studies on the Moroccan experience in the use of new and renewable energies in rural areas. It also produced a unified dictionary of renewable energy terms (1,180 terms in Arabic, English and French), as well as an interactive dictionary of renewable energy terms (7,289 terms in Arabic, English, French and German) as part of the ARABTERM interactive technical dictionary available online for free.

— *SDG 8: Promote inclusive and sustainable economic growth, employment and decent work for all*

ALECSO convened the Fourth Conference of Arab Ministers and Officials in charge of Technical and Vocational Education and Training (TVET). It also held training workshops to discuss ways of improving the competitive advantage of TVET systems and enhancing employment opportunities for Arab youth, to showcase and disseminate successful Arab national experiences, and to explore a number of relevant issues in depth.

— *SDG 9: Build resilient infrastructure, promote sustainable industrialization, and foster innovation*

ALECSO launched the Technology Innovation Award for Young Researchers, and the Arab Forum for Scientific Research and Sustainable Development. It also developed the Arab Strategy for Scientific Research, Technology and Innovation, and followed up its implementation in order to meet the sustainable development goals in the field of scientific research.

Keen on strengthening cooperation for the promotion of science, scientific research and knowledge, ALECSO implemented a high-level workshop aimed at enhancing future cooperation between specialized institutions in serving the Red Sea region environmentally, scientifically and educationally, by preserving its environment and promoting sustainable investment in all sectors that serve individuals and societies in the Red Sea region, thereby making it a hub for tourism and global trade. Through this workshop, ALECSO sought to highlight the vital economic importance of the Red Sea, with its attractive geographic location, its significant contribution to the economies of the red sea riparian countries, and its important role in the global movement of trade, including oil and gas, especially with the advent of the Blue Economy concept.

Based on the Arab Strategy for Scientific Research, Technology and Innovation, and in order to activate one of its mechanisms designed to enhance scientific research, entrepreneurship and innovation in the Arab world, and promote the relevant culture among Arab youth of all ages, ALECSO

launched the project of establishing the ALECSO Fund for Scientific Research, Entrepreneurship and Innovation. The project is designed to achieve the following goals:

- Stimulate the industrial and economic sectors, both public and private, and attract them to finance the Fund
- Attract international scientific organizations, bodies and funds to partner with the Fund through various mechanisms
- Identify current and future scientific research priorities, collectively for the Arab world and individually for each country
- Launch research projects by Arab research teams to address the priorities of the Arab World and globe
- Align research priorities with the needs of the Arab industrial, economic and societal sectors
- Develop and implement a coherent programme to enhance the Arab and global scientific mobility, while drawing on successful international experiences.

This is an opportunity to call on all those concerned with scientific research, whether they are countries, institutions or bodies, to support this fund as a means of encouraging entrepreneurship and innovation in the Arab world.

In this regard, ALECSO implemented workshops on Methods for Building Sustainable Development Indicators and Monitoring, Evaluation and Utilization Systems, on The Integrated and Sustainable Management of Water Resources toward Achieving Sustainable Development Goals in the Arab World, as well as on Smart Sustainable Cities. These workshops were designed to explore the concept of sustainable development and the related goals and indicators, to master scientific methods so as to produce the needed indicators, and to build capacities in SDG reporting at country level. They also aimed at scaling up Arab capacities in water resources conservation, sharing Arab experience and expertise in water resources protection, and providing opportunities for officials from public sector institutions including relevant departments and ministries, government bodies, research centres, universities and cities, as well as from private sector companies, to share the knowledge gained about Smart Sustainable Cities through the research and projects implemented in this regard. Training focused on the key components of Smart Cities — concept, governance, data collection and analysis, smart services — with focus on three specific sectors, namely water, energy and urban mobility.

— *SDG 10: Reduce inequality within and among countries*

ALECSO developed a matrix of knowledge, skills and attitudes to strengthen social cohesion and promote diversity in schools. It also convened a regional forum on follow-up to the implementation of the Arab Decade for the Cultural Right (2018–2027) in the Arab countries, and ways of supporting mechanisms to enhance citizen engagement in cultural life and foster the role of civil society institutions in providing cultural services to all.

ALECSO also implemented a regional workshop on Geological Heritage Conservation and Designation of UNESCO Global Geoparks. The workshop aimed at spreading awareness about the Geopark concept and the significant



Workshop On Protection of Global Natural Heritage and Developing Geoparks, Iraq, May 2023

and positive effects of Geoparks on the environment and the economy. It was also designed to support Arab countries in inscribing Geoparks on the list of UNESCO Global Geoparks, raise awareness of geological hazards, and help decisionmakers to enhance the value of Geoparks and make best use of the opportunities they offer to protect the environment and advance national economies, while involving local communities and making them aware of the relevant economic and development benefits.

— *SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable*

ALECSO began implementing the Arab Strategy for Disaster Risk Reduction, and launched the Arab Network for Disaster Risk Reduction. It also began implementing the Arab Architectural Heritage Register, provided for in the Charter for the Preservation of Architectural and Urban Heritage in the Arab Countries. This project is aimed at preserving the Arab cultural memory and providing the needed care to all cultural assets, both tangible and intangible. It involves documenting these assets using the latest technological and digital methods, and leveraging them to serve sustainable development. In the same context, ALECSO formed the Arab Working Group on Culture, Urban Future and Local Cultural Policies.

— *SDG 13: Take urgent action to combat climate change and its impacts*

One of the main goals of ALECSO is to promote the key drivers of environmental development in the Arab countries, which enables them to preserve their natural resources and use them in a scientific and balanced manner to meet their current and future needs.

ALECSO's approach in this regard rests on the following premises:

- Protecting the Arab environment in relation with the global environment
- Reconciling the requirements of environment protection and of development
- Establishing environmental relations based on rights, duties and social solidarity at all levels.

The Sustainable Development Goals are among the permanent benchmarks that inform the work of the Organization, as is clear in the Action Plan set out for the period 2023–2028.

As part of its efforts to support Arab States' capacity to adapt to climate change, ALECSO continues to support the Arab Network for Natural Disaster Risks Reduction, which it has nurtured since 2013. In the same context, it held workshops on monitoring climate change and its impacts on green belts and green areas in the Arab countries.

— *SDG 14: Conserve and sustainably use the oceans, seas and marine resources*

ALECSO held dozens of scientific conferences and seminars which offered opportunities to share information among Arab experts in various environmental fields. It also produced a unified dictionary of marine terms (3,913 terms in Arabic, English and French).

— *SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development*

Since 2013, ALECSO has launched the Arab Forum for Scientific Research and Sustainable Development, as a contribution to strengthening partnership among Arab countries



Arab Forum for Scientific Research and Sustainable Development – The Arab Women Researchers for Achieving Sustainable Development – 9th session, January 2023, Muscat, Oman

and regional groupings to further enhance scientific research in the countries of the region. The Forum brings together a large number of researchers, academics and business people to develop a joint vision on ways of linking industry, economy and technology with scientific research and promoting wide access to knowledge.

The ninth session of the Forum was devoted to highlighting the role of women in scientific research, development and education in the Arab countries. It emphasized the significant role of Arab female researchers in achieving sustainable development in Arab societies, in enhancing scientific publishing, as well as in addressing issues pertaining to the environment, climate change, and desertification. It also highlighted their contributions to the health and medical sector, to agricultural research in relation to sustainable food security, as well as to the field of engineering and entrepreneurship.

What ALECSO is looking forward to doing

ALECSO is seeking to pool the efforts of its technical departments and subsidiary institutions for the implementation of the activities and programmes set out in its Action Plan for the period 2023–2028. It continues to support Member States' efforts to implement the 2030 Agenda for Sustainable Development. More efforts will be devoted to advancing and enhancing scientific research, supporting the related policies and systems, and harnessing research to serve Arab peoples and help meet hazards and natural disasters. More work will also be done toward further strengthening the culture of scientific research in Arab societies.

As part of its Strategic Plan for the period 2023–2028,

ALECSO has developed a package of priority programmes and projects designed to contribute to enabling Arab countries to achieve the Sustainable Development Goals 2030. The implementation of these goals in the Arab world will be given special priority and will be the primary focus of ALECSO's work during the coming period.

On the other hand, ALECSO is open for continued and sustainable cooperation with all international institutions and organizations, toward achieving the Sustainable Development Goals in the scientific, cultural and educational fields for the benefit of all humanity. In this regard, it has already initiated the establishment of the ALECSO Fund to Support Scientific Research, Innovation and Entrepreneurship, with a seed capital amounting to US\$ 2m. It invites institutions and donors to contribute to this Fund, designed to support scientific research, innovation and entrepreneurship in the Arab world, and to encourage young and women researchers to embrace sciences as a means of facing challenges, especially those related to climate change, food security, and the promotion of green economy. The Fund will also work on implementing the scientific mobility project between Arab researchers and their counterparts in international academic and research institutions.

In addition, ALECSO looks forward to cooperating with all Arab and international institutions and organizations to safeguard world heritage, to enhance scientific and ecological tourism, to promote a culture of scientific research among youth, and to network Arab youth with their counterparts all over the world, thereby promoting a mixing of cultures and building friendships in the service of humankind.

Serving China-Africa cooperation and promoting common high-quality development

Ms. Chunlei Yang, Assistant Director, Marketing Development and Consulting Services Department, China-Africa Development Fund

The establishment of the China-Africa Development Fund is one of eight measures of practical cooperation with Africa announced by the Chinese government at the Beijing Summit Forum on China-Africa Cooperation (FOCAC) in 2006. The purpose of the Fund is to support and encourage Chinese enterprises to invest in Africa. CADFund initiated operations in June 2007 with an initial designed capital of US\$ 5 billion. In 2015, Chinese President Xi announced at the FOCAC Johannesburg Summit that the Fund capital would be increased by US\$ 5 billion. So far, the total amount stands at US\$ 10 billion.

The Fund is headquartered in Beijing and has established five representative offices in Johannesburg, South Africa; Addis Ababa, Ethiopia; Lusaka, Zambia; Accra, Ghana; and Nairobi, Kenya, respectively responsible for the corresponding countries. As of Q2 2023, CADFund has committed investment to 39 African countries amounting to more than US\$ 6.6 billion as well as leveraging Chinese enterprises to invest and finance the African continent amounting to a total of US\$ 31 billion.

Investment philosophy

CADFund focuses on the implementation of FOCAC initiatives such as the Ten Major Cooperation Plans, Eight Major Initiatives and the Nine Programmes. It adheres to the principles proposed by Chinese President Xi of sincerity, tangible

results, amity, good faith and the pursuit of greater good and shared interests. It also adheres to the principle of green and low-carbon development as well as responsible investment.

CADFund looks forward to building a sustainable, high-level Sino-Africa community with a shared future by focusing on supporting projects that both meet Africa's local development needs and contribute to its sustainable development, involving traditional fields such as infrastructure, production capacity cooperation, agriculture and livelihoods as well as popular and emerging fields such as digital innovation, green development, and health. CADFund is committed to providing investment and financing support for projects with controllable risk, economic feasibility and predictable returns as well as those capable of increasing local exports, taxes and employment.

Investment methods

CADFund invests and manages in a market-oriented manner, employing the cooperation model of equity investment funds. Its specific investment methods include equity investment, quasi-equity investment, debt investment and fund investment. The Fund usually plays the role of financial investor in a project and, in principle, neither holds a controlling stake nor will become the largest shareholder and will not participate in a project's day-to-day operations.

Enterprises or other partners with project opportunities are encouraged to contact the market development department,



Suez Economic and Trade Cooperation Zone, Egypt



Sisal planting project, Tanzania

industrial investment departments and representative offices in Africa. The analysis and review process can be initiated on receipt of relevant documents such as business plans, feasibility studies, relevant certificates and permits. After investment analysis, due diligence and investment decision-making, the Fund will sign legal documents and complete investment procedures for the project.

CADFund investment cases

CADFund consistently supports investment in areas such as industrialization, infrastructure and agriculture, all of which can improve livelihoods in Africa. Meanwhile, the Fund is increasing innovation investment in digital economy, health-care and green energy.

Industrialization

In the field of industrial manufacturing, CADFund assists in China-Africa’s production capacity cooperation and Africa’s industrial upgrade as well as in accelerating Africa’s industrialization process through investing and supporting Chinese enterprises’ initiatives to ‘go global’ on manufacturing, development experience, and technology. One example is a previous investment by CADFund, the Sino-African Hisense Home Appliance Project. This project in South Africa has reached an annual production capacity of 540,000 refrigerators and 390,000 televisions, generating employment for 2,000 local people and effectively improving the status of local manufacturing by 2020.

The Suez Industrial Park project in Egypt co-invested with Tianjin Teda, has attracted 136 enterprises to settle in the Park, attracting a total of nearly US\$ 1.5 billion in investment and generating close to 4,000 jobs.

As of September 2022, the Lekki Free Zone, also known as the China-Nigeria Economic and Trade Cooperation Zone, has signed investment agreements with 110 enterprises and paid approximately US\$ 96 million in taxes and fees to the host country of Nigeria for a cooperation project with China Railway Construction, creating over 2,400 local jobs.

Infrastructure

CADFund provides comprehensive financial services in urgently needed infrastructure fields such as electricity, ports, and aviation to break the bottleneck of industrialization and development in Africa. In a collaboration with Shenzhen Energy, the Ghana Gas Power Plant project has a total installed capacity of 560MW, which can provide approximately 20 per cent of Ghana’s electricity supply and effectively alleviate the local power shortage. Also, the TICT port project in Nigeria, was jointly invested in by CADFund and China Merchants Group and is designed with an annual throughput of 400,000 TEUs, which can effectively alleviate local import and export transportation bottlenecks.

Agriculture and livelihoods

In the field of agriculture and livelihoods, the Mozambique Agricultural Park project invested in by CADFund has passed on Chinese rice planting technology to local farmers through cooperative planting, scaling up the local rice planting area and improving production and processing capacity. The yield per mu has doubled, benefiting approximately 500 households annually. The project has also participated multiple times in procurement by the World Food Programme (WFP) and donation of disaster relief food in the local area. Under multi-lateral cooperation mechanisms with the United Nations, CADFund

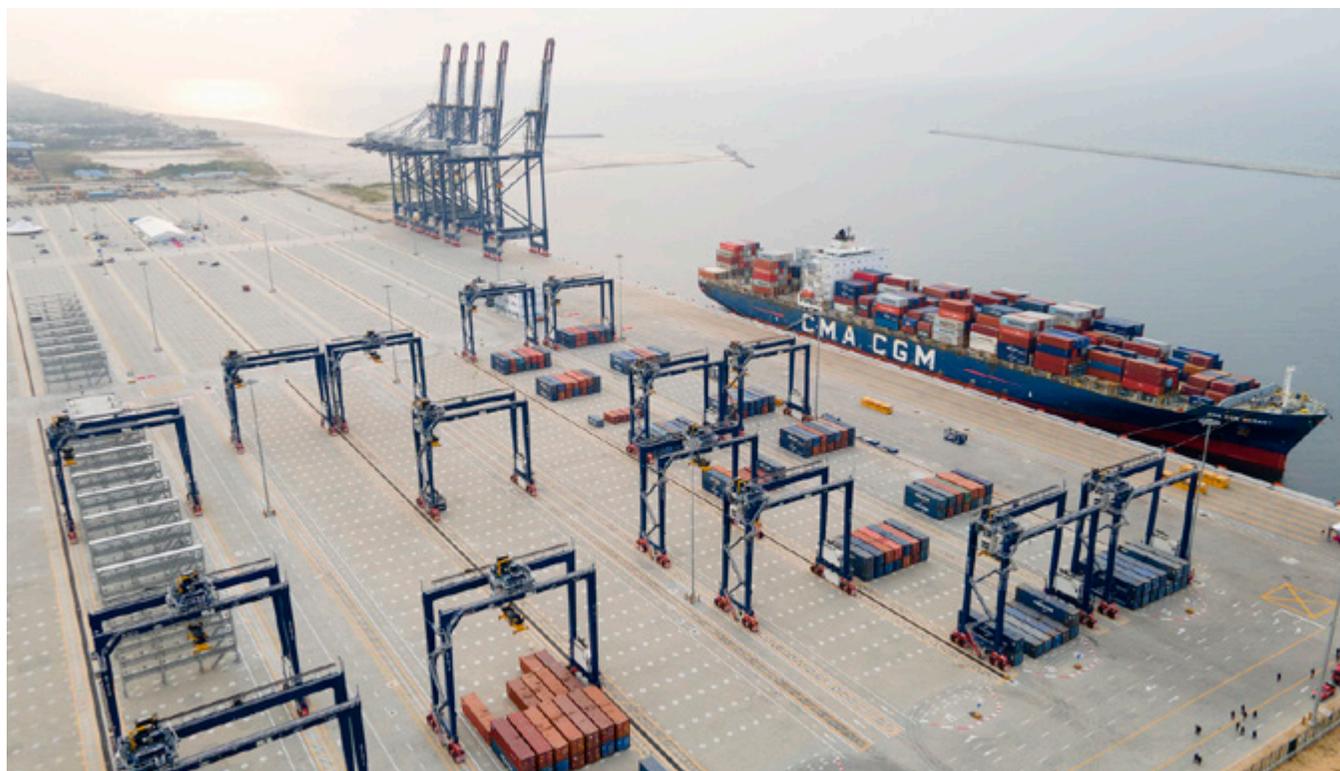


Image: CADFund

Lekki Free Zone, Nigeria

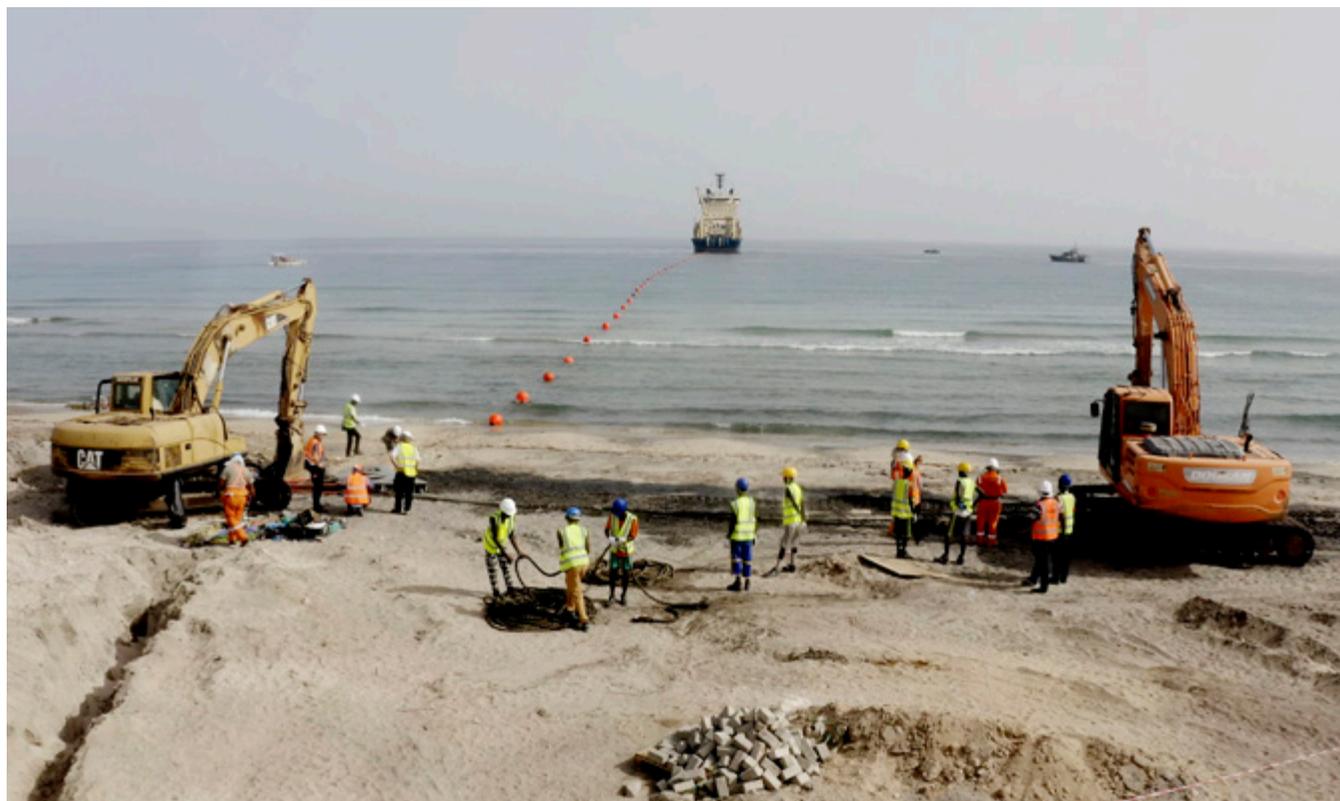


Image: CADFund

Work underway on the China Mobile 2Africa project

planned with its invested projects of Hisense factory and Mozambique Agricultural Park, for the donation of lighting and rice to local youth, fulfilling their social responsibilities through building local youth capacity.

The pharmaceutical factory project in Mali jointly invested in by Humanwell Pharmaceutical, is currently the most modernized factory of its kind in West Africa with an annual output of 30 million bottles of syrup and 40 million bottles of large infusion fluids. The project has passed GMP certification by drug regulatory authorities in multiple West African countries such as Benin, Togo, Ghana and Senegal and has become a major supplier to pharmaceutical companies in seven French speaking countries in West Africa, allowing Mali to produce drugs that cover the West African community. It has also trained a large number of industrial technical workers and management talents for the local community.

Digital innovation

The Fund actively implements the Nine Programmes' digital innovation initiative, guides and supports Chinese enterprises to increase investment in digital infrastructure in Africa and assists in the development of Africa's digital economy. China Telecom, which CADFund invested in and supports, has cooperated with over a hundred mainstream operators in Africa to achieve almost full coverage of telecommunications services in Africa, promoting digital epidemic prevention, online education and community connectivity. China Mobile, which the Fund has invested in, participated in the 2Africa submarine cable project, which is the first of its kind designed for the entire continent and connects over 20 landing points from 16 countries in the eastern and western coastal regions of Africa.

Green investment

The Fund practices the concept of green investment and accelerates the green and low-carbonized transformation of traditional industries. The Huaxin Tanzania Mavini Cement Plant project adopts the most advanced technologies, achieving a dust collection rate of 99.9 per cent. Over 50 per cent of the factory's production electricity demand is supplied by utilizing the waste heat generated by kiln calcination, which effectively generates electricity through saving energy.

CADFund has been actively following up on clean energy projects such as wind and solar energy in multiple African countries for many years. In the operation of the GCL-Poly South Africa photovoltaic project, the average annual online electricity consumption has remained stable — in the range of 280 million to 300 million kWh — making significant contributions to the development of renewable energy in South Africa. In addition, the Fund has also supported new energy vehicle companies to move towards Africa and promote the continent's transition to a green economy.

Multi-lateral cooperation for common development Value integration, collaboration among multi-parties and shared benefits

CADFund acts as bridge and link in supporting Chinese enterprises' investment and trade in Africa. It plays a role in investment promotion through cooperation with third parties to expand cooperation areas and supports project cooperation in areas such as green development, agriculture and capacity development in African countries. The concept of "project + social responsibility + multi-lateral investment platform" in Africa benefits a greater number of African countries.



Image: CADFund

GCL-Poly photovoltaic project, South Africa

For example, the United Nations and other international organizations act as bridge and link between governments involved in organization, coordination and policy promotion. African countries' governments develop their investment policy and business environment, propose a local demand for development and facilitate investment and trade, while the supporting countries' governments provide markets for products made in Africa, build platforms and make policies for trade promotion. Chinese investors then learn and understand Africa, conduct trade in commodities and implement projects with environmental, social and governance investment.

Case studies

Partnership for Investment and Growth in Africa (PIGA) 2015–2021: UK Aid (DFID, now under FCDO) provided monetary support and guidance for investment service standards. The Chinese parties of CADFund and the China Council for the Promotion of International Trade (CCPIT) were responsible for connecting with the Chinese government and encouraging enterprises to actively participate. The International Trade Centre (ITC) executed the programme and connected with the African partnership countries of Ethiopia, Kenya, Mozambique and Zambia. Investment promotion agents of the partnership countries received training. As a result, US\$ 115 million of Chinese foreign investment has been made, with 14,500 jobs created in the agro-processing and manufacturing sectors, with seven deals brought to financial closure over four years.

Partnership for Enhancing Export Capacity of Africa to China (PEECAC) 2021–: ITC implements agriculture trade promotion to African countries such as Ethiopia, Kenya, Madagascar, Mauritius, Mozambique, Rwanda, Uganda and Zambia. Chinese Hunan Province provides monetary support, policy formulation and a trade platform of China-Africa Economic and Trade Expo (CAETE) and African Non-Resource Products Distributed Trading and Processing Center (DTPC). The Chinese government, through its Ministry of Commerce (MOFCOM) and General Customs Administration has expanded the list of imports to Africa and signed import and export inspection and quarantine agreements with African countries.

Youth Capability Development: invested in by CADFund, the Hisense South Africa Industrial Park donated smart conference machines to Gambian youth for achieving greater efficiency in education and training for the purpose of improving professional skills and promoting capabilities in employment and entrepreneurship. This event on October 27, 2022 was attended by the Commercial Counsellor from the Chinese Embassy in Gambia; the mayor of Banjul city; Vice President, International Marketing, Hisense Group; and the Chairman of CADFund. The *People's Daily* published a special report titled "Focusing on Capability Building to Promote Autonomous Development".

On May 19, 2023, the China-Africa Love Donation Ceremony, "Light of Hope", jointly initiated by CADFund, Hisense South Africa and Mozambique Wanbao Agricultural Park, was held



Image: CADFund

Sino-African Hisense home appliance project, South Africa

in Cape Town, South Africa. Among other guests attending the ceremony were the Chinese Consul General in Cape Town, a Cape Town councillor, and the vice president, international marketing of Hisense Group. The CADFund chairman and director of the China South-South Industrial Cooperation Center of UNIDO delivered speeches. Local community school teachers and student representatives participated in the activities. The event was reported by China Global Television Network.

CADFund to integrate various forces, increase multi-party models, and play a guiding role

The United Nations Office for South-South Cooperation and CADFund jointly released The China-Africa Development Fund Case special issue of *South-South in Action*, promoting the sustainable development of Africa through South-South investment — the first instance of United Nations publishing a special issue for a separate organization.

Conclusion

The Fund will further build a community with a shared future for mankind through multi-party cooperation. It will create a model for international cooperation and promote win-win development while adhering to practical efficiency, commercial feasibility and project sustainability.

The Fund will continue to support industrialization, infrastructure, agriculture, livelihoods, the digital economy, healthcare and clean energy in Africa, assisting the high-quality development of the China-Africa cooperation.



Image: CADFund

Vehicle assembly factory, South Africa

Singapore — food, water and energy resilience for a city-state

Government of Singapore

A small and densely populated island city-state, Singapore is heavily reliant on trade and disproportionately affected by global supply chain disruptions. Singapore imports about 95 per cent of its energy for electricity generation, over 90 per cent of food, and much of its water. Global food supply disruptions, triggered by the COVID-19 pandemic and exacerbated by climate change, have clearly demonstrated the vulnerability of small states. Singapore takes these risks seriously and has been building resilience against external shocks in its sustainable development journey.

Feeding a nation

Rapid urbanization and industrialization globally have exacerbated the impact of climate change and heightened the vulnerability of global agri-food production. Rising sea levels, changing rainfall patterns and wind speeds, and warmer climates have affected the productivity and yield of farming and food production, and could lead to the proliferation of various foodborne hazards. In line with Sustainable Development Goal (SDG) 2 on zero hunger, Singapore uses various strategies, such as import source diversification and local production, to strengthen food resilience and overcome the impact of potential disruption.

During the COVID-19 pandemic, in 2020, Singapore signed the Joint Ministerial Statement on Ensuring Supply Chain Connectivity with like-minded countries, which called for the unimpeded flow of essential goods including food and agricultural products.

To overcome its lack of natural resources and to strengthen food security, Singapore has set an ambitious “30 by 30” goal to build up the local agri-food industry’s capability and capacity to sustainably produce 30 per cent of nutritional needs locally by 2030. Efforts include:

- Making available the space and infrastructure for agriculture and aquaculture
- Facilitating regulatory reviews to further enable farm development
- Driving research on sustainable urban food production methods and future foods
- Encouraging ecosystem growth by incentivizing farms to adopt sustainable farming technologies and developing a local pipeline of skilled agri-food workers
- Encouraging offtake for local produce.

Water for all

Singapore is among the most water-stressed countries in the world. With achieving water sustainability an imperative and as part of its commitment towards SDG 6 on clean water and sanitation, Singapore takes an integrated and long-term approach toward water management to ensure a resilient and sustainable supply. The supply has been diversified through four national taps:

- Water from local catchments
- Imported water
- High-grade reclaimed water known as NEWater
- Desalinated water.

Operations of Singapore’s fourth and fifth desalination plants — the Keppel Marina East Desalination Plant and Jurong Island Desalination Plant — commenced in July 2020 and April 2022 respectively. These new plants feature innovative designs and are more energy-efficient than conventional desalination plants. In addition, technologies such as biomimetic membranes, which mimic the way plants and animals extract freshwater from seawater, are also being validated and scaled up to further lower the energy required for desalination. Singapore has also been exploring technologies to improve its used water recovery rate. A third NEWater factory in Changi is expected to be commissioned in 2025 and could enable the recovery of up to 90 per cent of treated used water, higher than the existing rate of about 75 per cent.

By 2065, Singapore’s total water demand is expected to nearly double, with the non-domestic sector accounting for about 60 per cent. Steps have been taken to actively manage the increasing demand. For instance, since 2018, amendments have been made to the Mandatory Water Efficiency Labelling Scheme to cover a wider range of household appliances. Under the Climate Friendly Households Programme introduced in 2020, households are provided with vouchers to encourage switching to more water-efficient shower fittings. For the non-domestic sector, large water users are required to monitor their water efficiency and submit a mandatory Water Efficiency Management Plan (WEMP) annually. The PUB, Singapore’s National Water Agency, has developed water efficiency benchmarks and best practices guidelines for the various sectors using data collected from WEMPs. Singapore also launched the Singapore Green Labelling Scheme in 2019 for commercial washing appliances, with further minimum



Image: Sustenir

Local production is a key prong of Singapore's food security strategy as it helps to mitigate the impact of supply disruptions. Located in an industrial building, urban farm Sustenir grows temperate produce such as arugula, kale, lettuce and spinach, within a tightly controlled environment that ensures optimal plant growth and year-round harvests

water efficiency requirements introduced in 2022. In addition, the Water Efficiency Fund was enhanced in 2020 to expand funding for water efficiency projects in businesses. From 2024, water recycling will be made mandatory for new projects in the water-intensive wafer fabrication, electronics, and biomedical industries.

Powering Singapore's sustainable development

Notwithstanding its alternative-energy disadvantaged status, Singapore is working towards a vision of a clean, secure, and efficient energy future in line with SDG 7 on affordable and clean energy. The city-state has transitioned from oil to natural gas since the early 2000s for cleaner power generation, and enjoys high system reliability, all while keeping energy costs competitive. Under the Singapore Green Plan 2030, the plan is to diversify the energy supply by accelerating solar deployment, facilitating the development of regional power grids, and leveraging emerging low-carbon alternatives, such as hydrogen and carbon capture, utiliza-

tion and storage (CCUS). Singapore is also promoting energy demand measures, such as demand response and energy efficiency initiatives targeted at households and businesses.

Today, about 95 per cent of Singapore's electricity is generated using natural gas, the cleanest fossil fuel. Natural gas will remain an important part of the energy mix until electricity imports and low-carbon options can be scaled up significantly. In the meantime, Singapore will continue to tap on and invest in natural gas infrastructure, and diversify the country's import sources to safeguard energy security. Singapore has also implemented policies to encourage companies to invest in equipment and technologies that can improve generation efficiency and reduce carbon emissions. At the same time, Singapore is introducing new emission standards for power generation units in 2023, which will require all new generation units to be at least 30 per cent by volume hydrogen compatible, with the potential to be retrofitted to become 100 per cent hydrogen compatible in the future to the extent possible.



Image: Singapore Aquaculture Technologies

Fish farm Singapore Aquaculture Technologies (SAT) is a closed-containment farm that comes with high-tech features including artificial intelligence, sensors and camera sensors. It partnered global technology company Siemens to enhance its aquaculture operations with automation and digital technology

Solar energy remains Singapore's most viable renewable energy source. Despite land constraints and a highly urbanized environment, Singapore has adopted innovative ways to deploy solar photovoltaic systems at locations such as water bodies, or temporary vacant land. As of end-2022, Singapore has over 800 megawatt-peak (MWp) of installed solar capacity. The country aims to reach at least 2 gigawatt-peak (GWp) by 2030, although this will only meet around 3 per cent of the total projected electricity demand. Singapore has also deployed energy storage systems (ESS) to address solar intermittency and enhance grid resilience. In December 2022, Singapore commissioned a 285MWh ESS facility, the largest in Southeast Asia. These investments have made Singapore one of the most solar-dense cities in the world.

Singapore is working with regional partners to develop regional power grids and import up to 4GW of low-carbon electricity by 2035, which will make up around 30 per cent of Singapore's electricity supply. To pave the way for these electricity imports, Singapore has been working with various partners on pathfinder projects to co-create the relevant technical and regulatory frameworks.

The Lao PDR-Thailand-Malaysia-Singapore Power Integration Project (LTMS PIP), which imports up to 100MW of renewable hydropower from Lao PDR to Singapore via Thailand and Malaysia, commenced on 23 June 2022. This marked a historic milestone as the first multilateral cross-border electricity trade involving four ASEAN Member States, and the first project to import renewable energy into Singapore.

On 16 March 2023, Singapore's Energy Market Authority (EMA) issued a conditional approval for the country's Keppel Energy to import 1 GW of hydropower, solar, and potentially wind power from Cambodia's Royal Group Power Company.

Singapore has also recently signed an MOU with Indonesia to facilitate investments in the development of renewable energy manufacturing industries in Indonesia and cross-border electricity trading projects between the two countries.

To reduce its carbon footprint in the longer term, Singapore is exploring emerging low-carbon technologies such as advanced geothermal, hydrogen, and CCUS. In October 2022, the Singapore Government announced the National Hydrogen Strategy to develop hydrogen as a major decarbonization pathway, with the potential to meet up to 50 per cent of projected electricity demand by 2050. Singapore also initiated an Expression of Interest process in December 2022 to assess the feasibility of developing an end-to-end low or zero-carbon ammonia power generation and bunkering solution. The Singapore Government has also committed to investing US\$ 130m in R&D under the Low-Carbon Energy Research Funding Initiative to support the development of low-carbon technologies including hydrogen.

International engagement and collaboration

Singapore remains a steadfast supporter of global efforts to advance the SDGs. On clean water, a Singapore Water Exchange has been developed as a global marketplace of innovative water companies that collaborate and co-create solutions. This helps to bring discoveries made in the laboratory to industrial application as quickly as possible.

Singapore also joined other United Nations Member States in submitting voluntary contributions to the Water Action Agenda, where a pledge was made to implement smart water meters, conduct R&D to improve the energy efficiency of desalination and used water treatment processes, and build expertise on coastal protection and flood management. Singapore has worked with UN-Water on an SDG 6 Acceleration

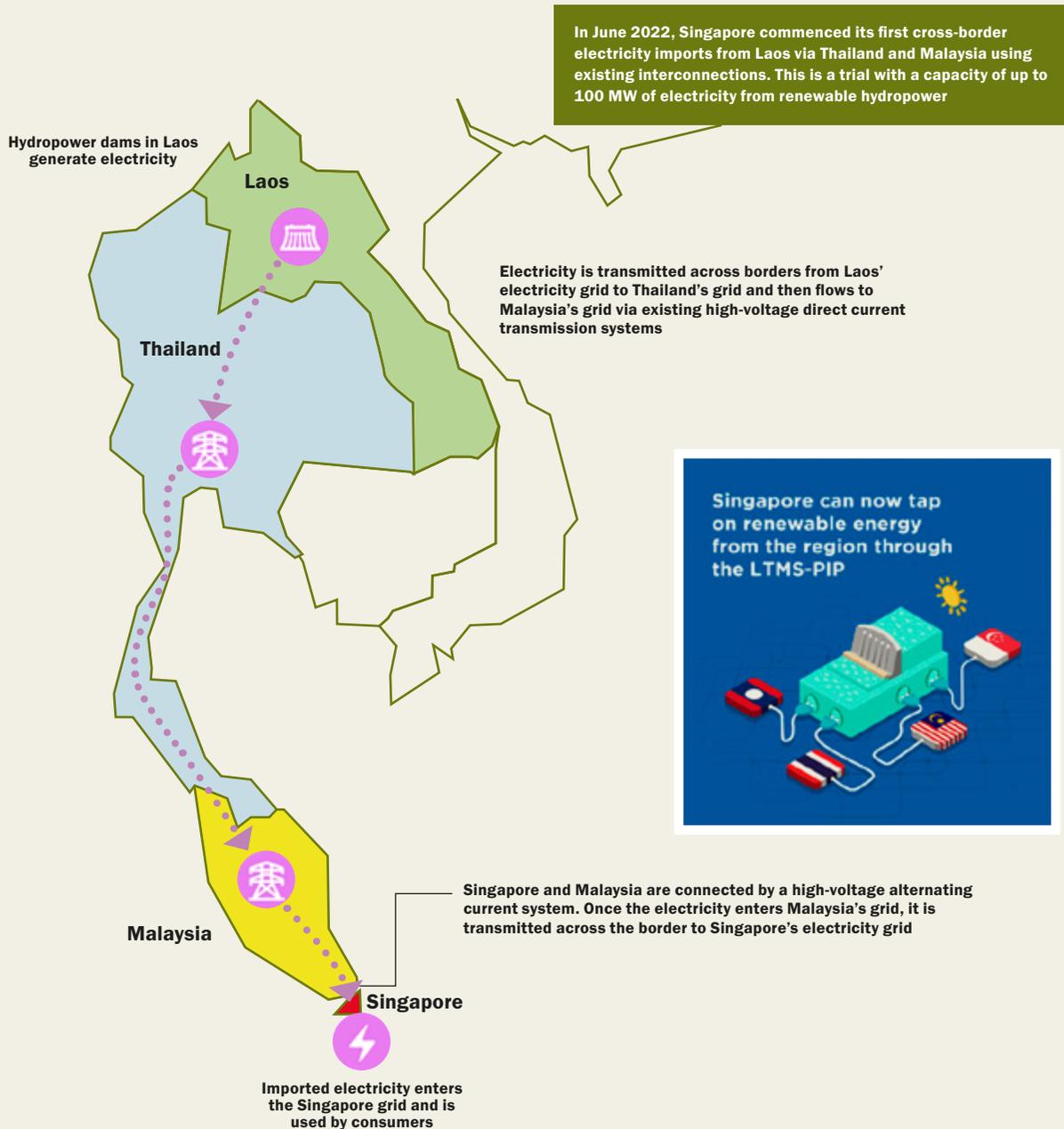
Case Study, which outlined best practices and lessons learned from Singapore's journey in building water sustainability. Furthermore, the Make Every Drop Count water conservation campaign and Singapore World Water Day celebrations held every year in conjunction with the United Nations World Water Day on 22 March serve to raise awareness of Singapore's water challenges in the face of climate change and to educate people on the need to conserve water.

Singapore also engages stakeholders and shares experiences on energy management through technical assistance and capacity-building programmes for fellow developing countries. In 2022, Singapore worked with the US to conduct

the Singapore-US Third Country Training Programme on renewable energy for more than 30 ASEAN participants. The Singapore-International Energy Agency (IEA) Regional Training Hub has also conducted six programmes since 2018, including a 2023 programme on Seizing Opportunities with Regional Power Grids, attended by more than 160 participants from Southeast Asia.

In addition to the Training Hub, discussions are ongoing with the IEA to establish a regional office in Singapore to support the IEA's collaborations in the Asia-Pacific region. Singapore welcomes closer collaboration with more countries and partners in these challenging areas.

How electricity is imported from Laos to Singapore



Sustainable agenda for future youth

Sustainable Development Goals Unit, Wawasan (Vision) Brunei Office, Prime Minister's Office; Green Brunei; and MY Action for SDG

Delivered at the United Nations Summit for the Adoption of the Post-2015 Development Agenda, New York, the message from His Majesty the Sultan and Yang Di-Pertuan of Brunei Darussalam was that “the Sustainable Development Goals (SDGs) are people-centred, inclusive and comprehensive. They focus on people, planet, prosperity, peace and partnership. To implement them, we have to enhance our individual and collective actions. Furthermore, we have to work in partnership through capacity building, learning from each other’s experiences, and sharing best practices.”

This message remains pertinent to today’s global conditions and endures as a strategic steer in driving national efforts to achieving the 2030 Agenda for Sustainable Development, complementing Brunei’s aspiration of realising its national

vision, Wawasan Brunei 2035. Brunei’s expectation for the future is that, by 2035, people will have progressed in their education, have become highly skilled and accomplished, will enjoy a high quality of life, and that the economy will have grown to become dynamic and sustainable.

The overarching ambition for the SDGs in Brunei Darussalam has been communicated through the Prime Minister’s office, specifically the Special National Coordination Committee on SDGs (SNCC). The SNCC functions as the national coordination centre for the implementation of SDGs in the country, with ongoing efforts to ensure that the SDG ecosystem supports progress and ensures the participation of all stakeholders, individuals and institutions.

In 2023, the SNCC led the preparations for Brunei Darussalam’s submission of its second Voluntary National Review (VNR) which was successfully presented at the 2023



His Majesty Sultan Haji Hassanal Bolkiah Mu'izzadin Waddaulah ibni Al-Marhum Sultan Haji Omar 'Ali Saifuddien Sa'adul Khairi Waddien, Sultan and Yang Di-Pertuan of Brunei Darussalam with the award winners of BIBD Sustainability Youth Leadership Award



Image: Government of Brunei Darussalam

Minister at the Prime Minister's Office and Minister of Finance and Economy II, Honourable Dato Seri Setia Dr Haji Mohd Amin Liew bin Abdullah, presented the Second Voluntary National Review 2023 of Brunei Darussalam at the 2023 High-Level Political Forum on Sustainable Development on 18 July 2023

High-Level Political Forum on Sustainable Development on 18 July 2023 in New York. Building on the country's first VNR of 2020, the second presented a more comprehensive and in-depth view of the efforts towards progress, achievements and challenges. One of several improvements was the meaningful inclusion of youth in the VNR process, thus upholding the principle of leaving no one behind.

Engagement and participation of youth in the SDGs

Brunei Darussalam has a close-knit society and the principle of leaving no one behind is culturally embedded and woven by the national philosophy of the Melayu Islam Beraja (Malay Islamic Monarchy). Partnership has always been seen as a solution to intensify more comprehensive actions towards SDG achievement. This was the drive for the strategic approach adopted by the SNCC through an SDG partner initiative with the vision of creating an extensive network of SDG advocates and supporters from all stakeholders, youth in particular.

Investing in future SDG partners is also an approach pursued by the SNCC, particularly by engaging youth. The role of youths as agents of change in sustainable development is well-established and universally recognized. And, over the years, the country has witnessed a rise of youth-led movements within the government, NGOs and businesses that are anchored by values of sustainability and inclusivity. They have their own inspiring stories demonstrating their confidence, devotion and resilience in driving the sustainable agenda.

Promoting youth SDG action

Experiences shared by the two prominent SDG advocates that the participation of youth in achieving the SDGs needs to be activated, nurtured and empowered. Recognizing this, the Prime Minister's office organized an inaugural SDG youth dialogue initiative with cooperation from the SNCCC, the Ministry of Youth, Culture and Sport and Bank Islam Brunei Darussalam (BIBD). Youth-led programmes and activities were run by the youth-led NGOs, namely the Brunei Youth Council, Green Brunei, and My Action for SDGs with the support of the United Nations resident coordinator office for Brunei Darussalam, Malaysia and Singapore and UNESCAP.

The dialogue was aimed at fostering the development and empowerment of future sustainability leaders and serves as a testament to Brunei Darussalam's commitment to harness the potential of its youth by nurturing a generation of visionary and innovative change agents who will shape a more sustainable future for all.

The SDG youth dialogue initiative brought together young people aged 15 to 25 to debate the importance of youth in achieving the SDGs and aimed to identify specific opportunities to move young people closer to supporting the SDGs

Perspectives and experience from Green Brunei

Green Brunei's humble beginnings began when a group of friends came together with one goal in mind; to educate and raise awareness of environmental issues and introduce sustainable practices in Brunei Darussalam. The group of friends initially began with organizing educational workshops, which eventually evolved to include tree-planting events and beach clean ups that are still being run to this day. Officially established in August 2012, Green Brunei is among one of the longest running social enterprises in Brunei Darussalam.

The SDGs play a vital role in shaping a sustainable future. It's important to recognize their interconnectedness; progress in one SDG influences others. As such, there is a need for active participation from all layers of society, as the future of the Earth is secured by collective endeavour. For this reason, Green Brunei aims to serve as a focal point between key stakeholders – government, private sector, educational institutions and the general public— in order to facilitate this collaboration.

Green Brunei's primary objectives align closely with SDG 13 (Climate Action), especially within Brunei's context. Its activities not only address climate change's impact on the environment, but also work to prevent it through education and awareness. These efforts support national policies such as the Brunei Vision 2035 (Wawasan Brunei 2035) and the Brunei Darussalam National Climate Change Policy (BNCCP).

As of August 2023, Green Brunei has successfully organized over 300 activities in line with the SDGs. For SDG 14 (Life Below Water) and SDG 15 (Life on Land), the beach and river clean-ups have collectively removed over 20,000 kg of waste. Additionally, recycling initiatives have processed approximately 180,000 kg of discarded trash that would have otherwise ended up in landfills. Furthermore, Green Brunei, often in collaboration with governmental and private entities, has planted a total of 13,490 trees across Brunei Darussalam through its flagship tree-planting events.

Additionally, Green Brunei organizes various community development programmes aimed at enhancing the confidence and skills of the community, with particular focus on youth empowerment. These initiatives include up-skilling programmes and educational tours, which also provide the opportunity to educate and raise awareness about environmental preservation. These endeavours specifically align with SDG 4 (Quality Education), SDG 5 (Gender Equality), SDG 10 (Reduced Inequality) and more. Over the years, Green Brunei has successfully engaged with approximately 27,000 individuals from diverse backgrounds as participants or volunteers during its events.

by promoting inclusiveness and meaningful youth engagement in SDG implementation, monitoring and review as well as identifying solutions and creating avenues for learning and collaboration, including partnership building. Participants recognized their role in addressing critical issues and identified matters of particular concern to them, namely environmental sustainability, social inclusion, economic growth and quality education. The programme offered a space to talk about their concerns and invited them to develop long-term, inclusive and creative solutions. At the end of the programme, the input and findings led to the development of the SDG Youth Statement.

SDG youth statement

The SDG youth statement was presented to the chair of the SNCCC and, on a separate occasion at the Prime Minister’s Office, to the Minister and Second Minister of Defence as a pledge from youth to play an active part in SDG progress in Brunei. The statement presented young people’s understanding of the SDGs as well as their sense of urgency to address barriers to youth development which primarily focused on issues related to deepening poverty, widening inequality, climate change, rising unemployment and mental health. Answering the call to accelerate SDG implementation, the youth group recognized potential methods of tackling those issues and pledged to make more contributions to the sustainable agenda through various means including volunteerism.

The key message from the statement is youth’s readiness to play an active role as future SDG partners. Young people are not only beneficiaries of SDG achievement but also contributors to transforming greater SDG actions in their own way. With further support, the Brunei Darussalam youth will be empowered with more partnerships to accelerate efforts towards the 2030 Agenda. The SDGs can only be truly achieved when all stakeholders are engaged and the youth recognized as an invaluable resource to ensure a meaningful society-wide effort.



Image: Government of Brunei Darussalam

The SDG Youth Statement was read out by the SDG Youth Dialogue’s participants

Perspective and experience from MY Actions for SDGs

MY Actions for SDGs has always been about believing in youth’s ability to create positive change in the local community. It began with the realization that, although the SDGs were introduced in 2012, much talk of the sustainability agenda was still missing from public discourse in 2018. As an advocate under the ASEAN MY World 2030 programme, Nurul Hadina Haji Alias (Dina) founded MY Actions For SDGs and was empowered to push the conversation and unify existing efforts that contribute to the SDGs.

Being the only advocate in Brunei Darussalam proved to be a challenge because of the limited manpower and resources. Despite that, Brunei’s unwavering spirit of volunteerism and social values drove the campaign forward. This is one example of collective action in which one individual, when collaborating with like-minded youths, could create meaningful impact to further the agenda. By recruiting a team of passionate youths and a network of youth organizations and strategic partnerships, the SDGs slowly became a point of public discussion.

In just two months, this culminated in the mobilization of 150 youth volunteers who conducted a survey among children, adults and the elderly in Bandar Seri Begawan as to which six of the SDGs are were most concerned about. Through highlighting the role of youth during talks and engagements and providing the necessary skills and knowledge to take action through workshops such as Theory of Change, Critical Thinking, and Becoming A Climate Change Citizen, as well as advocacy programmes in schools and leveraging partnerships for the goals, the country has seen a large shift in community norms where the youth has increased belief in its own power to create change towards becoming a more sustainable nation. Not only has the conversation surrounding the SDGs started, it has transformed into action. Today, the growing organization has engaged with more than 1,000 youths locally and will continue to educate, empower and engage with children and young people in order to build a sustainable future.



Image: Government of Brunei Darussalam

A member of the Climate Project, one of the award winners of the BIBD Sustainability Youth Leadership Award



Image: Government of Brunei Darussalam

Minister of Culture, Youth and Sports, Honourable Dato Seri Setia Awang Haji Nazmi bin Haji Mohammad in a group photo with award winners of the BIBD Sustainability Youth Leadership Award and event participants

SDG Sustainability Youth Leadership Award

In support of further developing the country's youth, BIBD announced its support through the BIBD Sustainability Youth Leadership Award, which aims to empower and inspire the next generation to take bold steps towards addressing environmental, social and economic challenges, forging a path towards a more sustainable and resilient society. In August 2023, in conjunction with the 18th National Youth Day Celebration, the BIBD Youth Leadership Award Ceremony was held, where four groups of young people were provided with awards of up to US\$ 2,220 to implement their sustainability projects, facilitating a valuable opportunity to translate the SDG Youth Statement into action. The four winning groups were as follows:

Climate project

This project aims at driving responsible climate action by equipping Bruneians aged 15–40 with a climate change toolkit, engaging with relevant stakeholders to curate the toolkit and educating them with concise and accessible information on issues related to global climate change, equipping them with the necessary tools and skills to act as agents of change.

Project upskilling Tutong

This project focuses on bringing capacity-building workshops to communities in rural Tutong. The workshop will focus on digital literacy, marketing and networking, to provide the communities with marketable skills and make them more employable.

Project Pink Box

The project aims at providing sanitary care products to young girls and women while promoting open discussions on women's health, hygiene and wellness through educational talks and community programmes. Its main goal is to ensure access to vital sanitary care products and necessities to promote sustainable living and raise awareness about health and wellness.

Project Hayaa

This project aims at raising awareness and educating youth, women and individuals concerning social health through workshops. This is to promote social responsibility by encouraging abstinence and spiritual enhancements while respecting religious aspects and Malay Islamic Monarchy¹ values to address issues related to reproductive health.

Conclusion — enabling a sustainable future for youth

The actions described here are just the beginning. There is a deep desire to contribute the work from a whole-of-government to a whole-of-nation approach, as envisioned by His Majesty the Sultan and Yang Di-Pertuan of Brunei Darussalam. Youth has a crucial role to play in the realization of the SDGs, both in contributing to solutions and aspirations and as agents of change. The country's youth has the potential to shape and frame SDG issues that matter most to them and can provide perspectives that are fresh, insightful, and progressive. Brunei Darussalam will continue to explore suitable and practical tools for improvement that strengthen the meaningful inclusion of the country's youth.

Park City — a new paradigm for living in harmony with nature

Chengdu Practice

Located at the foot of the Xiling Snow Mountain, Chengdu ranks as China's fourth megacity, with a resident population of over 20 million and GDP of over RMB 2 trillion. Managing sustainable, ecological well-being, cultural heritage and the provision of leisure during rapid urbanization is a huge challenge for overcoming the city's industrial legacy.

Park City¹ is an urban revolution initiated by Chengdu to overcome the bottleneck of industrial urbanization. Its core ethic is to re-establish public ownership of the city and redefine people's role at its centre; to restore the harmonious coexistence between man and nature through integrating parks into urban spaces for a sharing environmental wellness; to reshape the city's structural, functional configuration through integrating multiple parks into one and to stimulate urban vitality through allocating resources efficiently with an intelligently managed market mechanism. The completion of "A Park City under Snow Mountain and happy Chengdu in hustle and bustle" has provided a new paradigm for creating an urban community, where humanity and nature are in harmony. It also explores reproducible strategies and paths for the development of megacities.

Chengdu advocates equal access to basic, people-oriented urban services, coordinated development of regional urban

and rural areas, and people's participation in co-construction and co-governance as well as the sharing of well-being.

Dwelling

During the 14th Five-Year-Plan (2021–2025), Chengdu has increased its supply of affordable houses to 250,000, with a focus on addressing the housing needs of new citizens, young adults, and low-income groups. The goal is not only to provide shelter but also to ensure comfortable, safe, and convenient living conditions for people of all ages, occupations, and social classes.

Transportation

To prioritize safe walking, Chengdu is upgrading its people-centred transportation system to meet the leisure and lifestyle needs of citizens, which accounts for over 60 per cent of non-commuting trips. Distribution spaces, urban accessibility, and transportation connections are designed to gradually shift travel from vehicle-based to low carbon modes.

Public services

The municipal government of Chengdu has created a 15-minute living circle, which gathers multiple types of community services within a 15-minute walking distance, satisfying residents' daily needs quickly and easily. The city

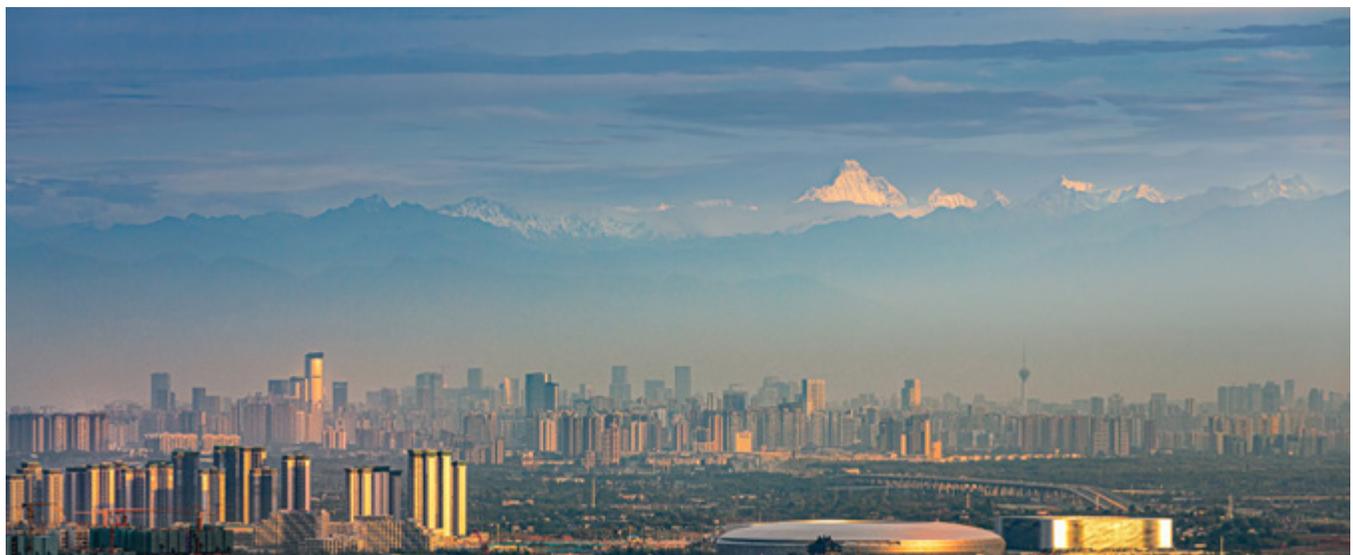


Image: Shen Jun

The main stadium of the 31st World University Games foregrounding Mount Siguniang's Yaomei Peak



Image: Zhang Sheng

Taikoo Li, situated in the commercial district of Chengdu, where the thousand-year-old Daci Temple coexists with the International Finance Centre

is promoting urban renewal and upgrading its infrastructure to decrease spatial differentiation and increase the accessibility of public services for the elderly and children, creating “all-age-friendly” communities. These efforts will promote the transformation of Chengdu into a suitable place for office workers, the elderly, the young, and the disabled.

Social governance

The municipal government of Chengdu has built a network of government, private enterprise, society and individuals. Smart Rongcheng, an online public service platform has been established to achieve one network for all public affairs, one linkage for risk prevention and control, one-click response to social demands, one screen for data of all kinds and from all sources, and one code for all residents to access basic public services. Park City governance demonstrates the spirit of the new era such that everyone shares responsibility and welfare.

Regional collaboration

Chengdu strives to break the traditional boundaries of regional rights and responsibilities and to promote the transformation from exclusive resources to resource sharing. By accelerating the urban integration development of Chengdu and its neighbouring cities, including Deyang, Meishan, and Ziyang, the municipal government of Chengdu aims at building a Chengdu Metropolitan Area, and then integrating it to

the Chengdu-Chongqing twin city economic circle to create a new paradigm of regional coordinated development.

Park City’s paradigm of innovation is to harmoniously reshape the urban space of humans and nature through the construction of parks, so that the relationship between humans and nature shifts from nature depletion in the industrial age to adding value to nature in the new era. In terms of space construction, it eliminates municipal boundaries divided by social and industrial functions and shapes the urban area into an organic complex of ecological parks, living-circles, industrial parks, business districts, cultural and educational venues, and transportation hubs.

Chengdu uses the logic of building the environment > gathering people > operating the city > promoting industry in order to innovatively lead the development of the city through up-front investment in parks, green ways, public service facilities and infrastructure. It attracts talent by facilitating a desirable environment and improving ancillary facilities. It also promotes a transformation from a production-dominated industrial city to a life-oriented Park City with an ethos of “parks before cities; life before production.”

General governance

Chengdu has issued guidelines for the design of Park City, formulated construction guiding standards tailored to different types of spatial characteristics, and refined urban



Image: Zhu Jianguo

Danjing Terrace is situated at the highest point of the Danjing Mountain ridge on Longquan Mountain. Its design is inspired by the thousand-year-old Bashu culture, symbolized by the mythical Sun Bird

spatial management through classified guidance and hierarchical management. All have increased urban safety resilience, enhanced residential aesthetic experience, and created diversified aspects of a safe, resilient, and beautiful city. Since Chengdu's transformation into a Park City, the per capita negative environmental impact has continuously decreased, the concentration of particulate matter (PM2.5) has decreased by 58 per cent over the past decade, water quality in urban areas has increased from 71.1 per cent to 100 per cent, and the forest coverage rate has reached 40.2 per cent. Urban safety resilience has been improved and an infrastructure network has been preliminarily established, enhancing the defence and capability of recovery from risks in megacities. Green lifestyle in the city is gaining popularity and the transformation to low-carbon lifestyle is accelerating, with the construction of green buildings, the integration of railways, buses, and sidewalks, efficient linkage of various means of transport, and the wide employment of a WeChat mini program — Low-Carbon Benefits Tianfu — that deploys a green consumption incentive mechanism.

Cultural inheritance

Chengdu has integrated its ecological resources with its historical and cultural heritage. The municipal government is building a demonstration modal for the protection of giant pandas and of biodiversity in general, protecting and promoting the cultural heritage of Bashu, as demonstrated by the Jinsha Museum through immersive experience, scene crea-

tion, and other sensory experiences. The construction of Chengdu Park City pays special attention to preserving the local flavour and atmosphere of its traditional urban lifestyle. On the basis of the 135 reconstructed streets and alleys, the cultural charm of traditional street and alley life is reproduced, enabling an interaction between old landmarks and modern sensibilities.

Urban-rural development balance

Chengdu reshapes the regional economic and geographical patterns compatible with its natural resources and promotes balanced development between urban and rural areas. Respecting geographical features and differences in industrial structures, Chengdu aims at providing a more ecological and livable environment for indigenous people with distinctive architecture and rural sentiment, while revitalizing the characteristics of rural industrial resources, promoting ecological value transformation, and achieving a rural expression in the Park City.

Park City is a paradigm of innovation within an urban development model, that is, a fundamentally logical transformation from a traditional urban development model based on technology and economics to a nature-based solution. In the former model, ecological protection is contradictory to economic development in a zero-sum game; while in the latter, Park City can create, transform, and unify the value of ecological protection and economic development: economic growth contributes to ecological protection, and ecological value promotes economic

development in turn. Therefore, in the new paradigm of Park City, the role of the city is extended beyond its traditional sense to achieve multi-dimensional security, low-carbon, efficient, and sustainable development in industry, energy, infrastructure, social services, and other areas.

Industry

Chengdu has cultivated many application scenarios, provided new opportunities for industrial development, promoted the recreation of industrial chains; thus, forming an industrial matrix that supports the development of Park City. Priority has been given to support the development of the value-adding industries to nature, such as photovoltaic, energy storage, hydrogen energy, and new energy vehicles. During the 14th Five-Year Plan period, the municipal government of Chengdu aims at integrating and developing strategic emerging industrial clusters, with goals of increasing lithium battery production by 5.1 times, and production of new energy vehicles and urban rail vehicles by 47.2 per cent and 65.4 per cent, respectively. This will promote the construction of ecological value conversion mechanisms in advantageous industries and accumulate the driving forces for high-quality development of the Park City.

Energy

Chengdu is promoting low-carbon energy transformation with the goal of increasing the proportion of non-fossil energy consumption to more than 50 per cent by the end of the 14th Five-Year Plan period. Taking the carbon neutrality goals as an opportunity to build Park City's energy structure, Chengdu will improve energy utilization efficiency and vigorously develop green energy technology.

Infrastructure

Chengdu is reshaping its production methods and spatial layout, promoting the integration of the industrial and social city, and integrating the workplace and housing to improve the convenience of the daily commute. The city is also ensuring the density and quality of urban services such as transportation, architecture, education, and healthcare, improving urban livelihoods and upgrading urban functions, providing new opportunities for industrial development, and increasing the quality of city lives.

The market

The vitality of Park City comes from the market. A vibrant market will improve residents' income, the society's prosperity and openness, and barrier-free internal and external exchanges, creating a vivid, prosperous, and leisurely city. Chengdu's characterization of Park City is unique in terms of improving market efficiency. Firstly, it updates the market ecology, cultivates market drivers that adapt to the city, innovates with diversified public service investment mechanisms, and promotes the vitality and efficiency of a Park City through the establishment of a new market ecology, enabling the free flow of market factors. Secondly, it establishes an ecological market, where the value of ecological products and services are redeemed through market methods. It builds an ecological product trading centre and implements GEP accounting in

order to achieve ecological value conversion and appreciation, create a virtuous cycle for ecological value to feed back to Park City's construction, and effectively enhance the endogenous driving forces and sustainability of transformation and development. Thirdly, it innovatively integrates the design of the city with the foundation of a Smart City, and comprehensively utilizes modern technologies such as the Internet of Things, big data, and artificial intelligence to promote a technological leap, for example, building the urban brain and a "Smart Rongcheng" to drive the accelerated circulation and application of data resources and market elements, and to enable urban life to learn and evolve in both physical and virtual environments and urban activity, increasing hyperbolically. Finally, with laws and regulations, the municipal government of Chengdu promotes the formation of an efficient, standardized and fair competitive unified market so that the market and the rule of law, fairness and efficiency, are harmoniously unified.

Taking the commercial operation in community as an example, Chengdu encourages the participation of multiple market entities to build a government-society collaborative work mechanism of management committee + industrial bureau + street + platform company. Community operators apply commercial logic in daily operation, promote efficient conversion of ecological value, build an intelligent information-sharing platform for management, refine replicable models and form institutional standards based on the practical results of similar cases. Ultimately, a virtuous loop for continuously improving Park City community services and maintaining urban vitality will be formed.

Summary

Park City is a systematic introspection into industrial civilization reflected in cities. In a megacity such as Chengdu, with a history of 4,500 years of urban civilization, over 2,300 years of urban construction and a large population and economic output value, it is remarkable that a city has been built that balances production, livelihood, and environment, integrates environment and socio-economics and unifies human, urbanization, environment, and industries. Chengdu has become a replicable practice model for path exploration and the establishment of standards.



Image: Meng Bei

The Twin Towers of Chengdu's Financial Centre represent progress and ambition, reflecting the city's dynamic and vibrant spirit

Fighting the loneliness pandemic — one public space at a time

Dr. Hila Oren, CEO, Tel Aviv Foundation

The global loneliness pandemic is costing us. That is according to an article by US Surgeon General, Dr. Vivek H. Murthy, published in *The New York Times* in May 2023: “When people are socially disconnected, their risk of anxiety and depression increases. So does their risk of heart disease (29 per cent), dementia (50 per cent), and stroke (32 per cent). The increased risk of premature death associated with social disconnection is comparable to smoking daily — and may be even greater than the risk associated with obesity. Loneliness and isolation hurt whole communities. Social disconnection is associated with reduced productivity in the workplace, worse performance in school, and diminished civic engagement. When we are less invested in one another, we are more susceptible to polarization and less able to pull together to face the challenges that we cannot solve.”

This is where the development of innovative, multipurpose public spaces is pertinent — creating a sphere in which we can meet and connect as an integral part of our day-to-day lives, thus providing solutions to one of our shared basic needs — connectivity; being a part of a group, a community, a culture.

Why do our public spaces matter?

Navigating through any metropolis in the world can be a somewhat polarizing experience — whether taking a stroll through town or commuting, picking children up from school or visiting as a tourist and exploring with fresh eyes, it is possible to witness several scenarios. On the one hand, there are islands of solitude floating in concrete jungles, people enclosed in their cars or on the subway, hypnotized by their phones and disconnected from the



Image: Guy Yecheliy

Different sitting areas in Bonaparte Park, Rothschild Boulevard, Tel Aviv-Yafo, where people meet, relax, and study

Rothschild Boulevard, Tel Aviv-Yafo



Image: Niri Gatmon

Park Hamesila, Tel Aviv-Yafo, designed for all genders and communities

environment by soundproofed headphones, and a labyrinth of main streets that seem detached, hostile, and uninviting. But it is also possible to imagine the opportunity for strengthening communities, dissipating the loneliness pandemic and bringing nature back into the environment harmoniously, thus fostering a thriving, communal city. The Tel Aviv Foundation vividly imagines the latter.

What makes our cities innovative? The residents themselves. Every city has its own DNA and guiding core values leading its path. But they all share one thing — cities are only as strong as their residents, as the diversity of their communities, and as the well-being of those who live in the city itself. If one listens to what the residents want and need, the answer is obvious — well-built, multifunctional, green, communal public spaces that provide for basic needs: safe, welcoming spheres where anyone and everyone can meet, work, and study, equally.

In 2018, the Tel Aviv-Yafo Municipality rebuilt Dizengoff Square — an elevated public space, neglected and often empty, removed from the streets' vibrant urban natural flow by various sets of stairs. Today, back on street level, bustling with energy, it is a symbol of thriving city life. It took the simple action of “levelling” to make everyone realize that the space belongs to all equally — residents, and visitors alike, regardless of their background, religion, gender or income. The Square became a pocket of well-being — an “equalizing outdoor community centre” bettering the well-being of both visitors and residents alike, embodying the urban values of pluralism, equality, freedom, and quality living for all.



Image: Guy Yecheliy

The renovated Dizengoff Square, Tel Aviv-Yafo

How do we revolutionize our public spaces?

- We listen to residents — what do they need, want and envision? What location is right for them? Their needs are the base from which city planning must begin.
- We envision connectivity — redesign and transform main roads, streets, and squares creating a seamless connection between all, maintaining the constant flow of pedestrians across the city.
- We look through the gender lens, widening it beyond gender, creating an inclusive design — what do teenage



Image: Shani Nachmias

Different seating areas, Ben Gurion Boulevard, Tel Aviv-Yafo, where people can meet, work and study

girls need to feel safe? How does the world look from the height of a nine-year-old? Which are the common uses of workout facilities for all genders? What is the measurement for an outdoor accessible workspace? What is the distance an elderly person can easily walk? How many people need to use a public toilet at any given hour?

- We bring nature in — weaving nature and local greenery, supporting the ecosystem by providing natural shade, clean air and a hospitable bio-environment.
- We look at the city and local neighbourhoods as a whole — how can public spaces work seamlessly with the hustle and bustle of city life? How can they be distinguished both as pockets of well-being and as an inseparable part of the streets?
- We take action — creating must-have facilities to ensure welcoming and safe public spaces, including: shade during the day, strong lighting at night, security cameras, distress buttons, available Wi-Fi and electricity outlets, an array of sitting areas adjusted for different ages, genders, and group sizes, sustainable outdoor furniture that can function as a classroom and a shared office space, clean and accessible public restrooms, water fountains and plentiful greenery.

How do we measure success?

Usage

- Direct observation and surveys: observing the number of people using a public space, for how long and for what purpose. Asking about frequency of use and reasons for visiting.
- Sensors: tracking the number of visitors.

Diversity

- Demographics: analyzing the age, gender, ethnicity, and socio-economic status of visitors.
- Accessibility: measuring accessibility for people with disabilities or mobility issues.
- Inclusivity: assessing the degree to which a public space is welcoming to people from all backgrounds.

Safety

- Crime rates: analyzing crime rates in and around a public space.
- Perception surveys: asking visitors about their perception of safety and security.
- Lighting: assessing the quality and coverage of lighting in a public space.

Economic impact

- Foot traffic: measuring the number of people that visit a public space and the frequency of their visits.
- Sales tax revenue: analyzing the amount of sales tax revenue generated by businesses in and around a public space.
- Property values: assessing the impact on nearby property values.

Environmental impact

- Sustainability: assessing the use of renewable energy, recycling programmes, etc.
- Greenery: analyzing the amount and quality of greenery.
- Carbon footprint: measuring the carbon footprint and its impact on the environment.

Community engagement

- Community events: measuring how many events take place in a public space and the number of people attending.
- Partnerships: measuring the collaboration between local organizations and businesses.
- Feedback: soliciting comment from community members on what is working well and what could be improved.

Health and well-being

- Physical activity: measuring the amount and type of physical activity that takes place in a public space.
- Mental health: assessing the impact on mental health, using surveys or interviews.
- Access to nature: analyzing the degree to which a public space provides access to nature.

Social impact

- Social connections: measuring the number and quality of social connections that are facilitated or strengthened by a public space.
- Civic engagement: analyzing the degree to which a public space fosters civic engagement, through voting drives, community meetings or public art installations.
- Sense of place: assessing the degree to which a public space contributes to the overall sense of place and identity in a community.

Innovation

- Design awards: evaluating the number and quality of design awards that a public space has received.
- Unique programming: assessing the creativity and uniqueness of the programming offered in a public space.
- Community partnerships: analyzing the degree to which a public space has collaborated with other organizations or businesses to create innovative programming.

Long-term sustainability

- Maintenance: analyzing the quality and frequency of maintenance.
- Funding: assessing the stability and diversity of funding sources for a public space.
- Adaptability: evaluating the degree to which a public space can adapt to changing conditions, such as climate change or shifting community needs.

Why we need to rethink our shared urban spaces

Well-developed public spaces are not a luxury, but a fundamental human right.

Innovative public spaces that bring people together not only create stronger communities but also better, sustainable, prosperous, and resilient cities. Communal outdoor areas aid in:

- Reducing pollution — more pedestrians mean fewer cars, more time spent outside means less time spent using electricity inside
- Supporting a balanced ecosystem — public spaces require greenery, trees, and ecological pools
- Developing sustainable shared economies with shared bikes, cars and communal vegetable gardens
- Supporting local business that become an inseparable part of walkable streets and squares
- Increasing real estate value, where housing is measured by the quality of its outdoor surrounding, whether that is to a 9- or a 90-year-old.

There are many examples of cities around the world celebrating the power of innovative public spaces to drive social change, creating out- and in-door places that can be seen as part of our homes. Examples include:

- Bryant Park, New York City, attracting over 12 million people per year and offering free classes, workshops, outdoor concerts and movie nights
- The Seoul Innovation Park, an abandoned railway transformed into a community hub for start-ups
- The Stravos Niachos Cultural Centre, Athens, a multi-functional, environmentally sustainable centre of education, art, sports and recreation, with a green roof that functions as a park
- The Tenri Railway Station, Japan, with outdoor areas serving the whole community
- The Malón Urbano National Holiday, Chile.

Urban designers must shift from urban to social planning, treating streets as extensions of schools, offices and living rooms by creating well-planned public spaces that cater to the needs of every resident. The Mayor of London, Sadik Khan, has said: “If you can change the street, you can change the world.” So, providing safe, welcoming public spaces that function as green outdoor community centres not only better the day-to-day lives of residents, but creates safer, more equal, and just societies based on communal life, where loneliness can be eradicated, bettering the world, one public space at a time.



Image: the Tel-Aviv-Yafo Municipality

The Tel Aviv-Yafo Municipality lobby is used as a space for free weekly activities for all ages

CTI-CFF — Toward the SDGs in the Coral Triangle

Mohd Kushairi Bin Mohd Rajuddin; Christovel R.S. Rotinsulu; Md Anjum Islam; Dewi Satriani

The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) is a partnership between six countries in Southeast Asia and the Pacific that aims to promote the conservation and sustainable management of coral reefs and associated ecosystems of the coral triangle.

The CTI-CFF recognizes the importance of these ecosystems in supporting the livelihood of millions of people and toward achieving the Sustainable Development Goals (SDGs) related to Gender Equality, Climate Action, Life Below Water, and Partnerships for Sustainable Development. With the launch of the CTI-CFF Regional Plan of Action 2.0 (RPOA 2.0), the initiative has laid out its plan for 2020–2030.

This article provides an overview of the key initiatives within the plan, portraying the CTI-CFF's programmes related to SDGs 5, 13, 14, and 17. It will also highlight some inspiring work by the CTI-CFF on marine protected areas (MPAs), seascapes, conservation of threatened species and the Women Leaders' Forum. Additionally, we discuss the establishment of the Coral Triangle Conservation Fund in supporting the implementation of RPOA 2.0 and the challenges faced by

member countries in implementing the plan at both national and regional levels.

The inspiring work of CTI-CFF

CTI-CFF is working to promote the establishment of new MPAs and the effective management of existing ones. In the first decade of CTI-CFF's existence, it developed the Coral Triangle MPA System (CTMPAS) for the assessment of the management effectiveness of MPAs. The measures placed MPAs in categories from 1 to 4, with 4 the most effective. To date, CTI-CFF has achieved the placement of a total area of 2.8 million ha of MPAs in category 4.

In Indonesia, the Wakatobi National Park and Raja Ampat District Protected Area represent a total of 2.4 million ha. Malaysia has Pulau Tioman and Turtle Islands State Park covering an area of 26,855 ha. In the Philippines, the Tubbataha Reef National Park, Turtle Islands Wildlife Sanctuary, and Apo Reef Marine Reserve, cover 367,466 ha.

The seascapes strategy is used to achieve at least two objectives: establishing connectivity between protected areas to strengthen its effective management as CTI-CFF contribution



Image: CTI-CFF, M. Kushairi

Small scale fisherman at Atauro Island, a marine protected area, Timor-Leste

to the 30x30 target, providing protection to species such as turtles and marine mammals.

CTI-CFF is supporting large-scale, multi-use marine areas that are providing a range of benefits, including conservation, sustainable use, and tourism, with work focused on three priority seascapes:

Sulu-Sulawesi Seascape spans three countries, Indonesia, Malaysia and the Philippines and covers 900,000 km² of marine and coastal habitats. Sulu-Sulawesi seas serve as migratory pathways for cetaceans and sea turtles, connecting ecologically important turtle habitats of nesting, feeding and mating grounds. The partnership among the three countries includes monitoring of habitats, protection of nesting beaches, data exchange and various studies of turtle including genetic studies.

Lesser Sunda Seascape covers 358,020 km² of Indonesia and Timor-Leste, between Bali, Nusa Tenggara, Southwest Moluccas, and Timor island. These areas are important for the migration of marine megafauna. They connect the southern and northern hemisphere through its narrow and deep straits which are rich in nutrients due to the strong current and upwelling. This strait is also the migration route for whales. CTI-CFF is also strengthening the seascape approach toward sustainable fisheries practices in ensuring the protection of marine megafauna.

Bismarck-Solomon Seas Ecoregion spans 2 million km² along the northern part of Papua, from Raja Ampat in Indonesia to Papua New Guinea and the Solomon Islands, connecting habitats of rare leatherback turtles and whale sharks. In this area, CTI-CFF is supporting to strengthen the partnership of the three countries in establishing a network of MPAs, including Locally Managed Marine Areas (LMMA) and Other Effective Area-based Conservation Measures (OECM) to ensure the survival of the turtles and whale sharks.

On the threatened species conservation effort, the CTI-CFF's sharks and rays conservation initiative is crucial in maintaining the roles of the Elasmobranch in keeping healthy marine ecosystems despite being highly vulnerable to overfishing and habitat loss. CTI-CFF has been working with its member countries and partners to run various studies on the sharks, such as monitoring migration with Radio Frequency Identification (RFID) in Bali and Bintuni-West Papua, monitoring shark bycatch incidents through an onboard observer programme, and the monitoring of sharks landing and consumption with volunteer enumerators.

The whale sharks conservation programme focuses on learning more about this enigmatic species. Little is known of its behaviour, population distribution and important habitats, but increasingly more whale sharks are being found stranded in shallow waters such as in the Java Sea and the southern part of the Philippines. CTI-CFF is also supporting a whale shark satellite monitoring programme — it is found that they are migrating as far as the Solomon Islands and the Philippines from the Bird's Head area of Papua. Indirectly, these studies are also strengthening collaboration among member countries that are sharing the same resources.

Stock replenishment for the zebra shark (*Stegostoma tigrinum*) is carried out in Raja Ampat, an area dedicated as shark and manta ray sanctuaries, through an international collaboration on shark nurseries. This initiative aims to contribute to the improvement of the global population of threatened shark species.



Fishermen with their catch on arrival at Manado Fish Market, Indonesia

Turtle conservation is the biggest portfolio in species conservation of the CTI-CFF member countries. CTI-CFF regularly supported an international turtle symposium, an opportunity to continue exchanging data and strengthening further collaboration among the countries. A strong campaign to stop poaching and consumption of turtle eggs and meat was one of the messages highlighted in the Coral Triangle Day, celebrated each year on June 9.

CTI-CFF promotes innovation on fishing gear in the effort to reduce bycatch of sea turtles and sharks in the industrial pelagic fishing practices. The use of modified hooks for longline fishery is proven to effectively reduce turtles' bycatch to almost zero, while also increasing the number of commercial fish catches. Thus, the uses of LED lamps and light sticks on gillnet is effective in preventing the bycatch of turtles. CTI-CFF continues to support the smart gear competition carried out to invite more inventions of sustainable fishing methods.

In the implementation of the electronic Catch and Documentation System (e-CDTS) for Tuna Fisheries from 2017 to 2019 under the Strengthening Organisational and Administrative Capacity for Improved Fisheries Management (SOACAP-IFM), CTI-CFF collaborated with the US Department of Interior and the USAID Oceans and Fisheries Partnership. The e-CDTS is software developed by the USAID Oceans and Fisheries Partnership that will record, among other things, the fishing ground location and size of tuna catch. This will be useful data to be used in combating Illegal, Unregulated and Unreported (IUU) fishing in the three priority seascapes.



Image: CTI-CFF, M. Kusthairi

Land based activity runoff can be detrimental to corals as shown here. Effective coastal management can help minimize or remove such threats

CTI-CFF and the Sustainable Development Goals

The CTI-CFF's programme is closely aligned with SDGs 5, 13, 14, and 17. SDG 13 calls for urgent action to combat climate change and its impacts. Coral reefs are highly vulnerable to the effects of climate change, including ocean warming and acidification. CTI-CFF is working to reduce the impact of climate change on coral reefs by promoting the use of sustainable fishing practices and the establishment of MPAs that protect coral reefs from overfishing and other harmful activities.

SDG 14 focuses on the conservation and sustainable use of the oceans, seas, and marine resources. The CTI-CFF's programme is designed to promote the conservation and sustainable use of coral reefs and associated ecosystems, including seagrass beds, mangroves, and other coastal habitats. The CTI-CFF is also promoting the establishment of MPAs and seascapes, and ensuring a network of those MPAs and seascapes are established for the effectiveness of marine resources conservation.

SDG 17 calls for partnerships for sustainable development. The CTI-CFF is a partnership between six countries in Southeast Asia and the Pacific, and the programme is designed to promote collaboration and cooperation between these countries. CTI-CFF is also working with a range of partners, including NGOs, private sector organizations, and academic institutions, to promote the conservation and sustainable use of coral reef areas and associated ecosystems.

SDG 5 calls for gender equality and the empowerment of women and girls, and the CTI-CFF recognizes the important role that women can play in the sustainable management of

marine resources. The Women Leaders' Forum, established in 2009, provides a platform for women from different sectors and countries to share their experiences and ideas on how to promote gender equality in the CTI-CFF's activities.

Implementation of the Regional Plan of Action

CTI-CFF has set ambitious goals indicated in the RPOA 2.0: that, firstly, by 2025, coastal communities and coastal and marine ecosystems are enabled to cope with the impacts of climate change, natural and anthropogenic threats, in the Coral Triangle region; secondly, by 2030, coastal communities and coastal and marine ecosystems in the CT region are more resilient/able to adapt to impacts of climate change and natural and anthropogenic threats, by improving food security, sustainable fisheries and coastal livelihoods. At the national level, the member countries are developing the National Plan of Actions (NPOA) for the implementation of their national priority actions, to contribute to the achievement of the regional goals.

Strengthening governance and management

One of the key focus areas of RPOA 2.0 is strengthening governance and management of the marine resources in the Coral Triangle. This involves improving the capacity of local governments and communities to manage their marine resources effectively. To achieve this, the CTI-CFF envisions establishing a regional centre of excellence for marine governance and management. The centre will provide training and technical assistance to local governments and communities on best practices for marine

resource management. CTI-CFF will build the capacity of CT6 member countries to strengthen the governance and regional policy framework for effective and efficient implementation of regional transboundary and national policies on sustainable management of marine and fisheries resources.

The centre of excellence will serve as a data source for the CT6 governments in developing sustainable policies in marine and fisheries management. At present, the Coral Triangle Atlas (CT Atlas) serves as a knowledge management system for regional sources of information/data for tracking the implementation of RPOA 2.0.

Marine Protected Areas

In the RPOA 2.0, CTI-CFF aims to improve the governance of MPAs in the effort to achieve effective management to the level of categories in accordance with IUCN standards by 2030. There are a total of 1,268 MPAs and among these, 24 are considered CTMPAS category 3 and 4 (7 are in category 4 and 17 in category 3). In terms of hectareage, the current MPAs cover an area of around 21 million ha, with categories 3 and 4 covering an area of approximately 7.8 million ha.

OECM is being considered by CTI Member countries as one of the factors taken into account in fulfilling the Convention of Biological Diversity (CBD) Aichi Target 11 obligations, and the 30x30 target. The Regional Secretariat assists the CT6 in identifying and nominating CTMPAS in prioritizing individual MPAs and networks of MPAs that are connected, resilient and sustainably financed and designed in ways that generate significant income, livelihood and food security and that are benefiting the coastal communities in conserving the region's rich biological diversity.

The Regional Secretariat is supporting the exchange of data and knowledge among MPA managers to strengthen the networking and related capacity building programmes. The exchange of knowledge also includes stakeholders outside of the CT region such as the Mediterranean and Atlantic MPA managers.

Sustainable fisheries

The Coral Triangle region is home to marine mega biodiversity and 130 million people who are living along the coastlines and are dependent on marine resources for their survival. Sustainable fisheries is another key area of focus under RPOA 2.0. The CTI-CFF continues to implement measures to reduce overfishing and promote sustainable fishing practices for artisanal and industrial fisheries. These include implementing a traceability system for seafood products, promoting alternative livelihoods for fishing communities, and establishing a regional network of fishery observers to monitor fishing activities.

In partnership with USAID RDMA, CTI-CFF envisions building the capacity of the CT6 member countries to combat IUU Fishing including establishing a robust data centre for decision makers as a source of credible information to develop efficient and effective policies to reduce IUU Fishing.

Climate change adaptation

CTI-CFF continues to support the implementation of the Region-wide Early Action Plan (REAP) and Local Early Action Plan (LEAP) for climate change adaptation and miti-

gation solutions in support of efforts to protect key coastal and marine ecosystems done at the country level. CTI-CFF is collaborating with Allen Coral Atlas to capture the coral bleaching incidents within the region as a precautionary approach for adaptation actions taken by the government.

Climate change is a major threat to the marine ecosystems in the Coral Triangle. RPOA 2.0 recognizes this and includes plans to implement measures to help communities adapt to the impacts of change. The CTI-CFF also plans to conduct research on the impacts of climate change on the marine ecosystem and develop adaptation strategies accordingly. Further, CTI-CFF commits to improve strategies and policies of the CT6 member countries to govern and formulate integrated marine and fishery resource management with climate adaptation policies. In facing the severe climate change impact, CTI-CFF will also focus on building the capacity of women and youth leaders across the CT6 to increase knowledge and their capacity to participate in coastal and marine conservation as well as entrepreneurship for climate resilience.

Partnership and collaboration are essential to the success of RPOA 2.0. The CTI-CFF will continue to work closely with various stakeholders including governments, civil society organizations, and the private sector to achieve its goals. The initiative also plans to establish a regional knowledge management system to share best practices and lessons learned with other countries and regions facing similar challenges. Further, the CTI-CFF is actively seeking to engage more countries as well as partners to join the organization.

CTI-CFF recognizes that regional cooperation and collaboration are critical to the success of its initiatives and programmes. CTI-CFF is working closely with USAID RDMA through the Sustainable Fish Asia (SUFIA) Project, and some other development agencies, NGO partners and regional initiatives. Through collaborative efforts, CTI-CFF is bringing together governments, non-governmental organizations, research institutions, and local communities, fostering a multidisciplinary approach to address the complex challenges facing the region.

Coral Triangle Conservation Fund

The Regional Secretariat of the CTI-CFF is now in the process of establishing the Coral Triangle Conservation Fund (CTCF). Learning from the successful trust fund initiatives such as the Caribbean and Mediterranean, this Fund is dedicated to providing an independent and transparent source of funding to help achieve the targets laid down in the RPOA 2.0.

The CTCF is designed to support components of CTI-CFF's Regional Plan of Action 2.0. The proposed mission of the CTCF is to support sustainable and effective management of a regional network of Marine Protected and Conserved Areas benefiting nature and communities in the Coral Triangle. It will seek to complement existing national public, multilateral, bilateral and private sources of financing and to ensure sufficient institutional capacity and human capital to protect the coastal and marine waters in the Coral Triangle region.

The development of CTCF is being assisted by KfW Germany, Wildlife Conservation Society (WCS), Conservation Finance Alliance (CFA) and USAID. The CTCF is expected to be in operation by Q1 of 2024.

Transforming tribal communities in Telangana, India, into strategic business enterprises — a paradigm for inclusive growth

Saikat Datta Mazumdar, Aravazhi Selvaraj, Priyanka Durgalla, Harshvardhan Mane, Tamilselvi Nedumaran, Divya Nancy and Victor Afari-Sefa,
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Global food systems are failing both people and the planet due to overarching interconnected challenges, including climate change, natural resource depletion, biodiversity loss, malnutrition, food insecurity, gender inequality and preventable ill-health, all of which are exacerbated by the fragmentation of food systems and policy incoherence. Here, we present innovative interventions that have addressed critical bottlenecks in the transformation of food systems, with a case study on linking entrepreneurship with agriculture and nutrition/health via a convergence model in a select tribal locale of India.

NFHS-5¹ data of ITDA — Bhadrachalam, Utnoor, Mannanur and Eturunagaram, Telangana State, India

	Children under 5 years who are stunted (height-for-age) (%)	Bhadrachalam: 28.4 Utnoor: 35.4 Mannanur: 35.9 Eturunagaram: 32.5
	Children under 5 years who are underweight (weight-for-age) (%)	Bhadrachalam: 25.3 Utnoor: 38.5 Mannanur: 31.7 Eturunagaram: 36.7
	Children under 5 years who are wasted (weight-for-height) (%)	Bhadrachalam: 21.8 Utnoor: 26.4 Mannanur: 21.8 Eturunagaram: 31.8
	Children age 6–59 months who are anaemic (<11.0 g/dl) (%)	Bhadrachalam: 69.3 Utnoor: 67.8 Mannanur: 75.6 Eturunagaram: 67.9
	All women age 15–49 years who are anaemic (<12.0 g/dl) (%)	Bhadrachalam: 68.7 Utnoor: 60.7 Mannanur: 55.4 Eturunagaram: 65.9

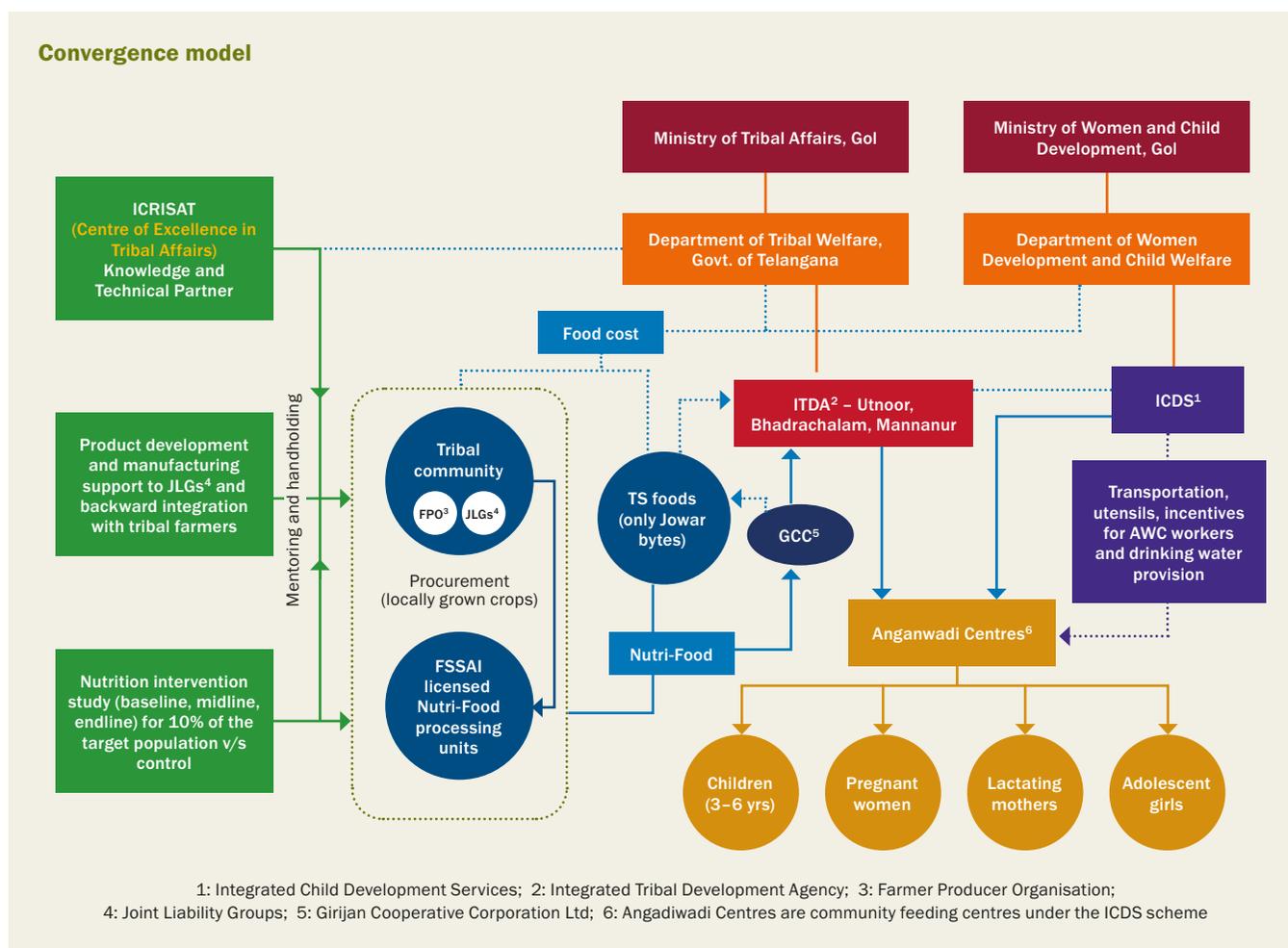
The Problem: Tribal diets have limited dietary diversity leading to malnutrition

NFHS-5 is the National Family Health Survey-5 (2019–21). ITDA Bhadrachalam (data of Bhadradi-kothagudem district); ITDA Utnoor (average data of Adilabad, Asifabad, Nirmal & Mancherial districts); ITDA Mannanur (average data of Mahabubnagar, Nagarkurnool, Nalgonda, Rangareddy & Vikarabad districts); ITDA Eturunagaram (data of Jayashankar Bhupalapally district)

Based on the convergence model, the resilience of vulnerable tribal community groups is built through the introduction of strategic business enterprises for enhancing inclusive growth among target tribal populations of India. Due to outdated indigenous agricultural practices, poverty, illiteracy and poor hygienic practices, India's tribal population is at a high risk of malnutrition. Further, tribal diets across India have limited dietary diversity^{2,3} and hence high prevalence of malnutrition/anaemia among the tribal population, including those in Telangana State, India. To address this and related health challenges, the Agribusiness and Innovation Platform (AIP) of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in collaboration with the Government of Telangana, India launched the “Giri Poshana Nutri-Food Basket”, ICRISAT's branded “Smart Food” intervention project with the aim of supplementing diets of target tribal populations to address malnutrition among 3–6 year-old children, adolescent girls, pregnant women and lactating mothers in the Integrated Tribal Development Agency (ITDA) areas of Utnoor, Bhadrachalam, Eturunagaram and Mannanur, located in the Telangana State of India.

The project was implemented in three phases. Phase I, titled Nutri-Food Basket, was initiated in 2017 as a 9-month pilot with the aim of providing nutritional support to 5,500 beneficiaries in ITDA Utnoor⁴. The pilot positively impacted and improved nutrition and health outcomes of the target beneficiaries. Enthused by the positive outcomes observed from Phase I, Phase II titled Giri Poshana, was initiated in 2019 involving 13,000 beneficiaries in ITDA areas of Utnoor, Bhadrachalam and Eturunagaram, through the convergence model involving multiple stakeholders⁵. Phase III, titled Giri Poshana for Particularly Vulnerable Tribal Groups (PVTGs), involved 16,500 beneficiaries, covering additional areas in the ITDAs of Utnoor, Bhadrachalam and Mannanur⁶. From the project's inception in 2017, as many as 35,000 beneficiaries have been sensitized to the initiative and were provided with nutritious millet-pulse-groundnut-based food formulations.

These food products were made available in the form of ready-to-cook (RTC) and ready-to-eat (RTE) formats developed by ICRISAT. The project proved to be a critical boon in



terms of resilience during the peak of the COVID-19 pandemic in 2020–2021, when food was delivered to beneficiaries' doorsteps. Reduction in stunting, wasting and underweightness in children as well as an increase in haemoglobin levels in women and children were observed after a 12-month feeding period. By the beginning of Phase III, the project, which now involved a 16,500 PVTG population, had converged with local Food Safety and Standards Authority of India (FSSAI)-licensed Micro-Small and Medium Enterprise (MSME) units established by ICRISAT and operated by women-led joint liability groups (JLGs), to produce and source nutritious millet-pulse-groundnut based food products required for the intervention.

The ICRISAT approach entails a ground-breaking transformative Convergence Model, which is an innovative approach for improved nutrition, linking Agriculture-Nutrition-Entrepreneurship with the goal of fostering sustainable food and nutritional security among tribals, through various interventions as follows:

1: Convergence of ministries

The following official bodies converged to work together in putting various activities into practice related to the intervention: Ministry of Tribal Affairs (MoTA), Ministry of Women and Child Development (WCD), Government of India; Department of Tribal Welfare (TWD), Department of Women Development and Child Welfare (WDCW), Scheduled

Tribes Cooperative Finance Corporation Limited (TRICOR), Integrated Child Development Services (ICDS) scheme, Integrated Tribal Development Agency (ITDA), Telangana Foods (for production of sorghum bytes), Girijan Cooperative Corporation (GCC), Government of Telangana.

2: Introduction of nutrient-rich food products

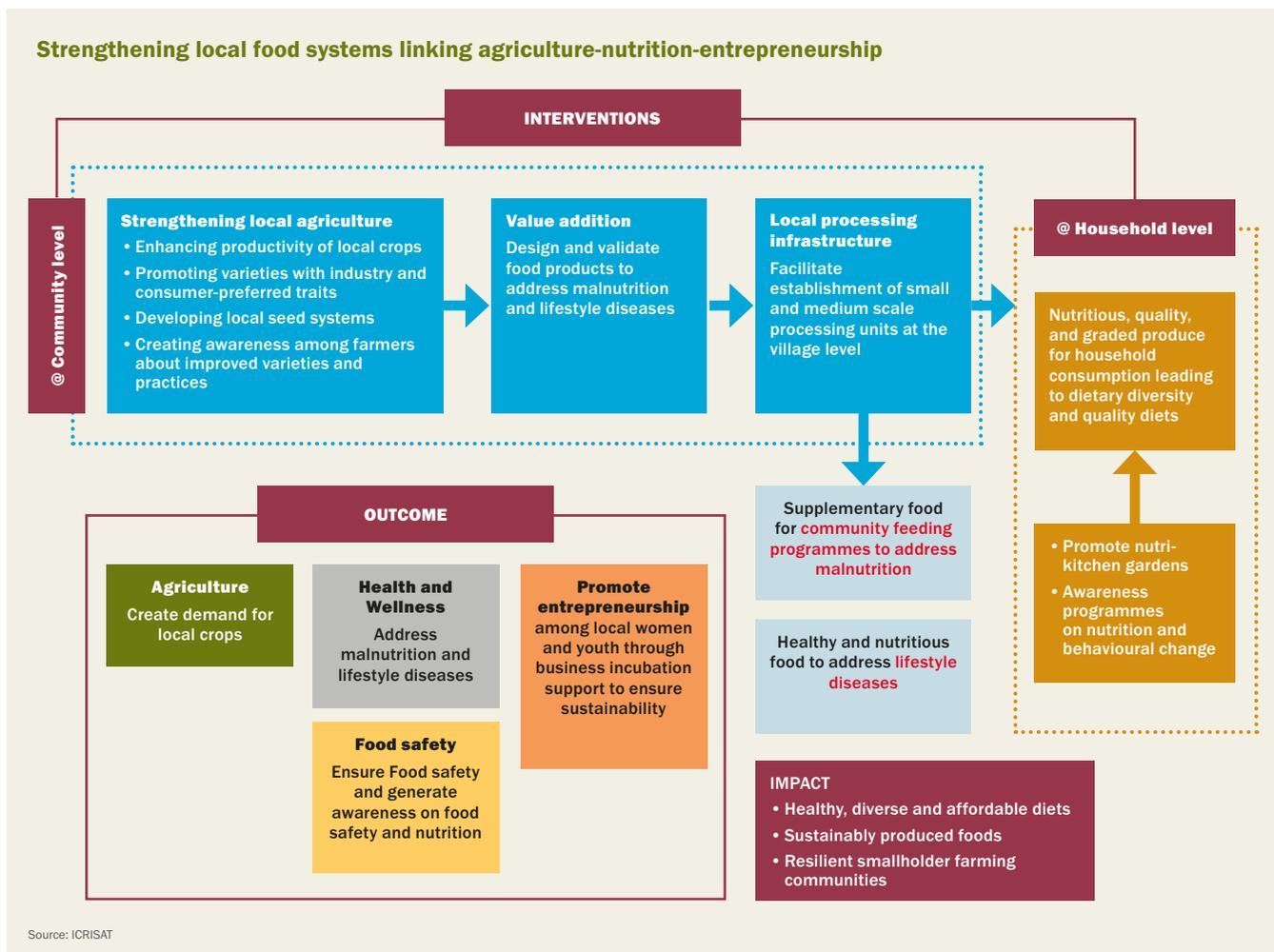
Developed from local crops such as millets, pulses and groundnuts, formulated in convenient RTC (sorghum meal, multigrain meal and multigrain sweet meal) and RTE (peanut-sesame brittle bar (chikki), peanut-friedgram brittle bar (chikki), sorghum bytes) formats, to meet the taste preferences of the local tribal population.

3: Successful promotion of local production capacities

90 local tribal women and youth were empowered to operate FSSAI-licensed food processing units. ICRISAT facilitated the setting up of 9 MSME units that processed these nutritional food products in selected ITDAs of Telangana.

4: Capacity building of tribal women

Capacity building was carried out in the areas of business management, food processing operations, food safety management systems including concepts such as Hazard Analysis Critical Control Point (HACCP), thus ensuring the sustainability of women-led MSME units.



5: Collectivization and capacity building of tribal farmers
 Organizing tribal farmers into sustainable Farmer Producer Organizations (FPOs), thus facilitating the integration of tribal farmers into the value chain and specifically with the local women-led MSME units. Further, ensuring training of tribal farmers, in the areas of pre and post harvest management, awareness on market related quality traits, business management and marketing.

The convergence model is a unique nutrition-sensitive value chain model that enables the establishment of a local ecosystem to promote local production, local processing and local consumption. The model involves key stakeholders and links farmer collectives (FPOs, JLGs), women and youth-led food processing business enterprises, by promoting backward and forward linkages, through effective integration initiatives. With inclusion and support from local government and school feeding programmes, it makes the intervention an integral part of the local food system-thus ensuring long-term sustainability and impact on food and nutritional security.

Thus, as part of the larger initiative, Giri Poshana, ICRISAT implemented a unique sustainable enterprise model to organize the tribal women into JLGs, providing self-employment to the tribal communities, enhancing their economic status and transforming them into sustainable market-oriented communities.

List of MSME processing units, their location and tribal communities involved

Location	Processing unit	Tribal communities involved
ITDA Uttoor	Peanut Brittle bar (Chikki)	Kolam, Naikpod, Gond, Lambada and Pradhan
	Ready-to-cook composite mixes	Pradhan
	Split pulses	Gond
ITDA Bhadrachalam	Brittle (Chikki)	Koya
	Ready-to-cook composite mixes	Koya
	Split pulses	Koya
	Moringa leaf powder	Koya
ITDA Eturnagaram	Ready-to-cook composite mixes	Koya and Naikpod
	Split pulses	Koya

This in turn helped to generate further employment within their own social system. The MSME processing units were established under a public-private partnership funding arrangement, comprising 60 per cent subsidy from the Tribal Welfare Department (TWD), 30 per cent funding through bank loans, with the remaining 10 per cent coming as contributions from the respective JLGs. Further, ICRISAT facilitated the preparation and submission of detailed project investment plan reports of all the MSME units, to enable JLGs to access the bank loan at a minimal interest rate.

These food processing units are equipped to manufacture FSSAI-licensed nutritious RTC products such as multigrain meal, multigrain sweet meal and sorghum meal along with RTE food products such as peanut-sesame brittle bars and peanut-friedgram brittle bars, made from local crops like sorghum, millets, groundnut and pulses. One of the units is also established to process dehydrated moringa leaf powder, a rich source of vitamins and minerals. To ensure sustainability of the processing units, ICRISAT handholds the enterprises through continuous capacity building of personnel as well as mentoring to empower the JLGs to independently handle the units.

ICRISAT provided a total of five technical and business training sessions to over 100 tribal women and youth in the areas of business management, quality control and food safety and financial management of the units. These formed part of skill development to create sustainable JLGs consisting of tribal women with enhanced entrepreneurial skills, in order to transform them into business leaders. The team achieved this through classroom sessions, live demonstrations at the pilot food processing facility at ICRISAT and exposure visits to similar processing units. During the COVID-19 pandemic-induced lockdown, virtual training sessions on nutritional awareness, food safety, hygiene and awareness on FSSAI regulations were provided to the members involved in management and operations of the MSME units.

These enterprises are expected to increase the value of local produce by creating local-to-local business linkages and ownership. This involves local purchase of raw materials for the units from local farmers or local FPOs and further supply of the finished products to the local community feeding centres, involved in implementing the supplementary nutrition programme under the ICDS scheme of the Government of India⁷. This approach of linking key stakeholders at the local level has enabled the creation of successful, sustainable and inclusive business enterprises.

This business model enables each member JLG involved in the processing unit to earn an average profit of US\$ 130 per month. The profits accruing from the units will be equally shared among JLG members of the respective units who otherwise either relied on agriculture or were engaged as daily wage labourers.

Outcome of the millet-pulse-groundnut-based nutritional intervention

The impact of the study was assessed through baseline, midline and endline surveys which included the collection of anthropometry measurements such as height, weight and mid-upper arm circumference (MUAC) and haemoglobin, using a non-invasive haemoglobin device. The study confirms that nutritional intervention, using foods formulated from climate-

Beneficiary Testimonial

“My expectations from this unit are high. Within the next five years, we hope to supply our food products to all the Anganwadis (community feeding centres) in the state. The training at ICRISAT is helping us achieve sustainable livelihoods and income” says Ms. Leelavathi, a women entrepreneur from Kolam tribe, Utnoor who was a daily wage worker before taking up this initiative.



Image: ICRISAT

resilient crops, not only promotes dietary diversity but also improves the nutritional and health status of children. The project enhanced the nutritional status of 35,000 tribal beneficiaries and increased the monthly income of JLG members three-fold.

The outcome assessment surveys showed an overall improvement in the nutritional status of the target beneficiaries — a 16 per cent decrease in wasting, 39 per cent reduction in stunting, 37 per cent reduction in underweightness and 41 per cent decrease in anaemia was observed among 3–6 year-old children. Also a shift in a severely/moderately anaemic population to a mildly anaemic/normal population has been observed in pregnant and lactating women⁸.

Rice research in the development of livelihoods and sustainable food value chains in Africa

Manneh B, Jalloh A, Arouna A, Africa Rice Centre

Rice is the second most important crop after wheat in fighting undernutrition in Africa, with more than 100 million livelihoods depending on it. However, despite the 20 million smallholder farmers producing rice on the continent, Africa is still not self-sufficient. In 2022–2023, total rice imports were 17 million metric tons (MT) out of a total consumption of 38 million MT.

The Africa Rice Centre (AfricaRice) is a pan-African Centre of Excellence for rice research, development and capacity building, with a membership of 28 African countries. The vision of AfricaRice is to sustainably improve food and nutrition security for a healthy and prosperous Africa. It contributes to reducing poverty, achieving food and nutrition security and improving livelihoods of farmers and other rice value chain actors in Africa by increasing the productivity and profitability of rice-based agri-food systems, while ensuring the

sustainability of natural resources. Thanks to its partners and donors, AfricaRice invested a cumulative total of US\$ 373.66 m between 1998 and 2020. The majority of these investments were used to develop and disseminate innovative technologies and knowledge to boost local rice production and reduce the gap between domestic supply and demand. AfricaRice is committed to achieving the United Nations Sustainable Development Goals (SDGs). Within the framework of the One CGIAR, AfricaRice is addressing 9 of the 17 SDGs, namely SDG 1, 2, 3, 4, 5, 6, 8, 9, 12, 13, 15 and 17.

Increasing access to climate-resilient, productive and consumer-preferred rice

AfricaRice and its partners have developed and released about 570 high-yielding and climate-resilient varieties over the years. Since the first release in the early 2000s, New Rice for Africa (NERICA) varieties have revolutionized rice production



Image: Africa Rice Centre

A farmer manually harvesting one of AfricaRice's improved varieties

on the continent. NERICA varieties are the first large-scale successful use of a variety developed from the cross of the two cultivated rice species: *Oryza sativa*, known as Asian rice, and *O. glaberrima*, often called African rice and found only in Africa.

NERICAs are now the most widely adopted upland rice varieties in sub-Saharan Africa and are grown in more than 16 countries. The area under NERICA cultivation increased from 200,000 ha in 2008 to 1.4 m ha in 2013, and 2.1 m ha in 2021. The estimated yield gain is 0.32 MT/ha. By adopting improved rice varieties developed by AfricaRice and its partners, about 8m people in 16 countries in Africa have been lifted out of poverty (SDG 1) and about 7.2m people have been lifted out of food insecurity (SDG 2). The success of the NERICA varieties has now expanded beyond the African continent. The NERICAs are being used by farmers for rice production and by breeders in varietal improvement programmes in Bangladesh, China, India and several other countries around the world.

In 2022, two key projects led by AfricaRice also contributed to SDG 1 by increasing rice productivity through the scaling of seeds of improved varieties. Through the COVID-19 response rice seed (CORIS) project funded by the German Government, AfricaRice and national research institutes supplied 24.8 MT of breeder seed, from which the national research institutes and seed companies produced 934 MT of foundation seed. Seed companies and farmer cooperatives used the foundation seeds to deliver 28,167 MT of certified seed in 2022. The CORIS project has directly benefited 11,310 seed producers with 85.6 per cent being youth and 10 per cent being female (contributing to SDG 5 and SDG 8). In total, an estimated 845,494 seed producers, field workers and their families benefited from the production of seeds in Côte d'Ivoire, Benin, Nigeria, Burkina Faso and Mali. The indirect beneficiaries of the project were estimated at 72,000 value chain actors and 1.8 m farm workers and consumers. By extrapolation, the project should effectively deliver 475,200 MT of milled rice. Similarly, the Seed Scaling project funded by USAID supported consortium members in year 2021 to produce 5,574 MT of seed in Senegal. The project has increased private sector access to breeder and foundation seeds of new climate-smart varieties, empowered the private sector to increase market share of certified seeds and increased farmer access to quality seeds to improve yields. Overall, the project has reached 624 women in 6 women groups out of 1526 seed producers (41 per cent) during the last implementation period (contributing to SDG 5).

Enhancing productivity and incomes of farmers

Despite the significant progress made in producing and disseminating improved high yielding and market driven rice varieties, average rice yields in Africa are 2.1kg/ha. There is thus a growing need to ensure that the full potential of these varieties is realized in the various rice production systems on the continent. This need has become more urgent in the face of climate change and rapid population growth. Fortunately, AfricaRice and its partners have already identified some key technologies and innovations that have made an impact on increasing rice productivity and production on the continent.

Smart-valleys is a low-cost, participatory and sustainable approach to develop the bottoms of inland valleys for



Image: Africa Rice Centre

Farmers being shown a drainage mechanism associated with the smart valley innovation

rice-based systems. This innovation has been implemented in Benin, Burkina Faso, Liberia, Sierra Leone and Togo and has significantly reduced the constraints associated with lowland rice production. It increases the humidity of plots by 12 per cent (contributing to SDGs 6 and 15) throughout the growing cycle and enables farmers to increase their rice yield by 0.9 MT/ha which is 21 per cent of yields under farmers' normal practice. This translates to a net income gain of US\$ 267 per ha. Due to his work on the out-scaling of Smart valleys technology with farmers in West Africa, AfricaRice scientist, Dr Elliott Dossou-Yovo, received the Norman Borlaug Award for Field Research and Application in 2021.

RiceAdvice is a decision support tool developed by AfricaRice and partners. It is an Android-based application providing customized, field-level recommendations for fertilizer management, including which fertilizers to use, when and at what application rates. Farmers applying RiceAdvice recommendations were able to increase their yields by 20 per cent (730 kg/ha) over the control, achieving a 23 per cent increase in profit, i.e. US\$ 275/ha. In 2016 alone, 8,115 farmers benefited from RiceAdvice, generating an additional production of 7,625 MT of rice worth US\$ 3.7m (contributing to SDG 12).

Integrated Rice-Fish Farming Systems (IRFFS) function by integrating rice production and fish farming. The adoption of the system has increased annual fish production in Liberia by 16 MT in 2020 and by 39 MT in 2021. The project informed almost 3,200 farmers about the results of the integrated rice-fish farming systems. About 155 households, mostly comprising women and youth, are involved in the rice-fish system production practices, representing a 35 per cent increase in 2021 compared to 2020 (contributing to SDGs 5 and 8).

Developing and promoting efficient, labour-saving technologies and value addition

Threshing

Manual rice threshing is labour intensive and traditionally performed by women. Its inefficiency creates post-harvest losses of up to 35 per cent and, for that reason, AfricaRice and partners have developed an improved rice thresher (ASI). Farmers using the technology can achieve a high threshing capacity of 6–7 MT of paddy rice per day compared to one MT with manual threshing. Use of the thresher can also reduce

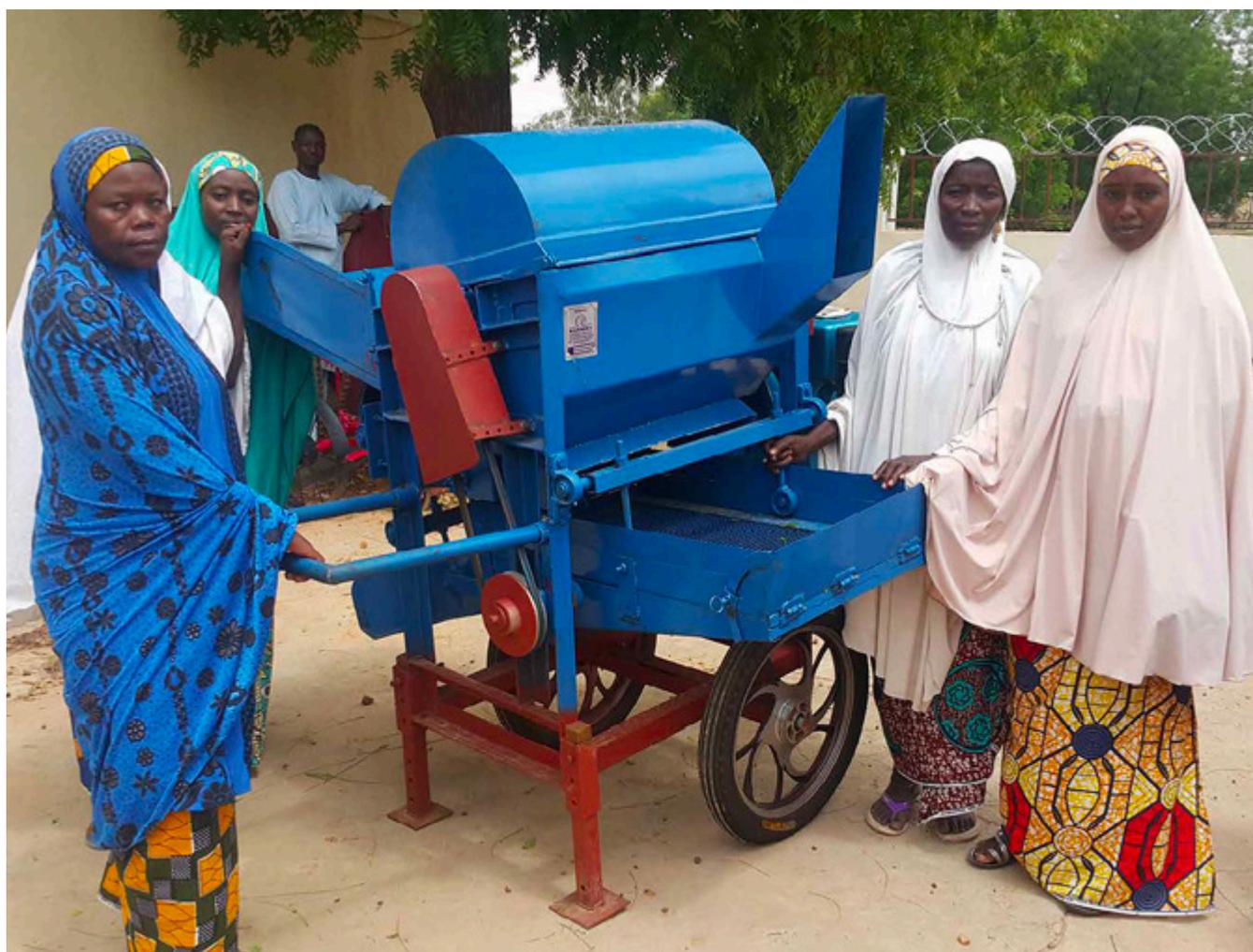
fuel costs and achieve a grain-straw separation rate of 99 per cent. It is now being used in 19 African countries. More than 50 per cent of the total paddy produced in Senegal is threshed with the ASI thresher. By replacing traditional threshing technologies producers can attain an average gain of US\$ 53 per ha. Since its first introduction in Senegal in 1997, the number of machines manufactured locally has increased steadily, reaching almost 3,000 in 2021. This represents an investment of about US\$ 12m. The area coverage (where farmers have access to the technology) was estimated at 31 per cent of the total in 2008, growing to 77 per cent in 2021, with the ASI machine threshing paddy over an estimated area of 1.8m ha (contributing to SDG 9).



Rice-Fish farming plot in Liberia

Parboiling

Parboiling improves the physicochemical and nutritional properties of rice, and hence provides an avenue for not only improving nutrition for households but also an income-generating opportunity for women, when sold on the market. However, the traditional parboiling process (conducted mostly by women) is laborious, time-consuming and unsafe, producing rice with impurities, broken and burnt grains, and an undesirable smell. It also requires large quantities of firewood and water, negatively impacting the environment.



Women proudly posing with a new ASI thresher



Image: Africa Rice Centre

A GEM parboiler being operated by women

AfricaRice and its partners have developed an improved rice parboiling technology called GEM and Mini-GEM. This produces better quality, more marketable rice and improves work safety for the parboilers. Women using GEM for parboiling gained an extra US\$ 72.5 per MT of parboiled rice relative to those using traditional approaches. GEM also significantly reduces or completely eliminates the need for firewood fuel, thereby saving US\$ 30/MT in the cost of firewood in the parboiling process (contributing to SDGs 13 and 15). Through the scaling of the Mini-GEM parboiling innovation package in Côte d'Ivoire, Mali, Madagascar, and Senegal about 1,000 MT of micronutrient-dense and lower glycemic index rice were produced and sold to 42,500 consumers (contributing to SDG 3). Through the ESA Parboil project, 5 women groups comprising 32 associations received parboiling units including 537 women in Madagascar who were directly trained in the process, with the benefits extending to over 3,400 women and men. In Mozambique, 3 women's associations received parboiling units and 432 women in 12 associations were directly trained and the benefits extended to over 2,300 women and men (contributing to SDGs 3, 4, 5 and 17).

Strengthening the capacity of stakeholders

AfricaRice views capacity building as a cornerstone of the process of developing and strengthening the skills, abilities, processes and resources of its national partners, including the private sector, to ensure a food-secure Africa. Between 1971 and 2019, AfricaRice and partners have provided group training and long-term degree training to a total of 43,264 people, thereby improving their skills and knowledge. This includes 1,319 next-generation rice scientists, who have been empowered through individual training between 1971 and 2020 (contributing to SDG 4).

As part of a project to promote youth entrepreneurship and job creation in West Africa's rice valley chain (RVC), from 2018 to 2020, some 310 young people from Mali and Senegal were sensitized on business opportunities in the RVC and about 215 of those were trained in entrepreneurship and technical skills, and information and communications technology (ICT) for agribusiness. Among these were 126 representatives of youth groups who reported back and passed on the training materials, reaching an additional 8,666 youth (contributing to SDG 8).

A total of 12,831 paddy growers, 65 community-based seed producers, 68 lead farmers and 115 agricultural extension agents were trained on good agricultural practices, seed production and farmer-to-farmer and extension-farmer services within the framework of the Zero Hunger Project in Nigeria (contributing to SDG 4).

The AfricaRice/IBP project (Enhancing institutional breeding capacity in Ghana, Senegal and Uganda to develop climate resilient crops for African smallholder farmers (EBCA) is a project funded by IFAD. The project has supported more than 990 participatory variety selection (PVS) trials. Engagement with seed companies and farmer associations has been remarkable, with 157 in total (22 private companies and 135 seed producer associations). The project has made significant achievements across its crops and geographies. The project has supported 7 PhD students (4 female, 3 male) and 16 MSc students (5 female, 11 male). Similarly, a total of more than 200 MSc students across the 3 countries have been exposed to, and are fluent with, the use of the BMS software as part of their curriculum. The project has also provided important ICT equipment and field infrastructure across those countries.

The tree of life — sustainable development from rural communities to the global economy

International Coconut Community

The coconut tree has been called the tree of life because of its versatility and capacity to provide food, shelter, medicine, cosmetics, and support the livelihoods of innumerable people around the world. As we seek to achieve the 17 SDGs, we should consider how the coconut tree may support sustainable development in a variety of ways because of its economic, social and environmental significance — the components of the coconut can be utilized to make more than 100 different food and non-food products.

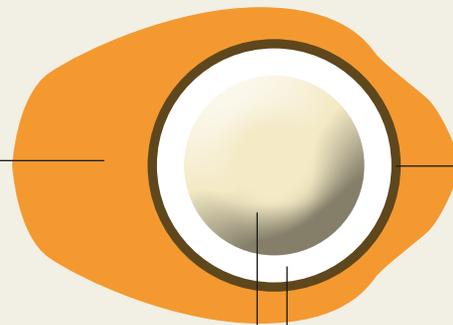
Economic and social impact of the coconut sector

The ability of the coconut sector to reduce hunger and poverty must be acknowledged. The sector has been improving the economic well-being of millions of people in those places that produce coconuts by promoting sustainable coconut cultivation. The coconut palm (*Cocos nucifera* L.) is cultivated on around 12.3 million ha in more than 90 countries. The 20 member countries of the international coconut community contributed over 92.7 per cent of this global production at 65.7 billion drupes per year. Taking into account only the significant domestic consumption in terms of value, the economic impact of coconuts was estimated, in 2022, to reach over US\$ 11.24 billion in exports, with consumers in over 110 importing countries, involving 30 million smallholder farmers and labourers, 100 million producers and workers in the industry. The coconut sector provides job opportunities and economic growth and 700 million people are engaged in the value chain, while 95 per cent of the global coconut palm population is owned by smallholder farmers.



Participants of the International 50th Cocotech Conference and Exhibition, Malaysia, 7–11 August 2022

The various uses of coconut



Coconut husk (mesocarp)

Coco pith, coco fibre
Biodegradable pots, geotextiles
Complex furniture
Floor mats, wall and door panels
Rope, string, brushes
Fishing nets
Automotive dashboards
Fuel, floor buffing, mosquito repellent

Coconut water

Refreshing drink
Nata de coco

Coconut inflorescence

Sugar
Wine
Candy
Syrup

Coconut leaves

Book covers
Brooms
Baskets and mats
Cooking skewers
Kindling
Roofing

Coconut shell (endocarp)

Charcoal: activated carbon
Charcoal briquettes for barbecues, shisha/hookah, alternative bioenergy
Mosquito repellent

Coconut meat (kernel)

Coconut oil: oleochemical
Virgin coconut oil (VCO)
Coconut milk
White and edible copra
Coconut flour
Desiccated coconut (DC)
Biscuits

Coconut trunk

Durable furniture
Houses
Drums
Containers
Canoes

Coconut root

Dyes
Mouthwash

Image: International Coconut Community



Image: International Coconut Community



Image: International Coconut Community



Image: International Coconut Community



Image: International Coconut Community

Participants and trainers of the International Course for Coconut Development Officers, ICC-Coconut Research Institute, Sri Lanka, June to August 2018 and June to July 2023

Realizing the economic impact of the sector, one of the International Coconut Community (ICC)'s main programmes is the Cocotech Conference and Exhibition, the largest international conference dedicated solely to coconut development. It discusses current technical development issues to find the best solution for all coconut stakeholders. So far, 50 conferences have been held by the community, with the 50th International Cocotech Conference and Exhibition running between August and November 2022, in collaboration with the Government of Malaysia.

Cocotech is a prime location for networking between coconut producers and buyers as well as a forum for researchers, processors, traders and policymakers to meet, exchange information and promote collective efforts for a sustainable and resilient coconut sector. With 39 speakers and 40 exhibitors from 7 countries and over 1,000 visitors from 52 countries, the direct economic impact contributes to local hotels, national airlines, transportation, restaurants, shopping centres and tourist spots. There is a long term impact of the shared technologies on innovative product development and improved production efficiency such that the participating businesses are achieving more profitable cooperation leading to market expansion.

The 50th Cocotech theme was Climate Change Adaptation and Mitigation Strategy for a Resilient and Sustainable Coconut Agroindustry. The vulnerability of agriculture, including the coconut sector, to the impact of climate change and the potential contribution of the sector in mitigating the impacts has prompted the ICC to promote the theme. The impacts of climate change, such as floods, longer droughts, landslides, increased pest populations and disease severity can lead to yield losses and therefore pose challenges for coconut farmers and other stakeholders, and could reduce crop yields by 1–2 per cent per decade over the next century. Therefore, effective adaptation and mitigation strategies are mandatory.

Considering the huge potential of the coconut sector, there is a general lack of knowledge of the technology available to create value-added coconut products. Therefore, the ICC has been conducting technology transfer and capacity-building programmes in local and global partnerships. Several training sessions, webinars, workshops and courses, together with



Image: International Coconut Community

Participants of the International Symposium and Training on Tissue and Embryo Culture, involving experts from Australia, Belgium, Mexico, Philippines, Sri Lanka and Vietnam



Image: International Coconut Community

Dr. Jelfina C. Alouw, Executive Director, ICC, and Mrs. Ernestine Kong, Oshin Organics founder, at the Oshin Organics booth at Cocotech 2022

technical assistance, have been conducted in collaboration with international organizations and coconut research institutes, industries, and universities. For instance, there have been an International Training Course for Coconut Development Officers (Coconut Research Institute, Sri Lanka); International Symposium on Integrated Pest Management (Philippines Coconut Authority); International Symposium and Workshop on Tissue and Embryo Culture (Australian Centre for Agricultural Research, Department of Foreign Affairs and Trade of Australia and Central Plantation Crops Research Institute, India); several online webinars on value-added coconut products and marketing, held with thousands of participants during the COVID-19 pandemic (Non-Align Movement Center for South-South Technical Cooperation, International Trade Centre/European Union); and a Good Agricultural Practices Workshop (Coconut Development Board of India). The programmes have impacted coconut development in the member countries.

One of the success stories is Oishin Organics, a high-value-added cosmetics product made from virgin coconut oil (VCO) in Papua New Guinea, one of the ICC member countries. Previously, the country was able to produce only copra but now, through increased capacity, other marketable and profitable products such as VCO and cosmetics can be produced domestically, and were showcased at Cocotech 2022.

Founded in 2015 by Mrs. Ernestine Kong, the Oshin Organics ingredients are ethically and locally sourced in Papua New Guinea, providing employment and training opportunities for people in the rural community. Oshin was chosen as a play on the word 'ocean', symbolic of the tranquil islands of Papua New Guinea, where organic coconuts grow wild and the sun shines on crystal blue waters, and the benefits of coconuts have long been known and loved by the locals. The significance is in supporting rural communities and employees with

a safe and sustainable workplace and trade practices, aiming to share the benefits of coconut oil with the world, crafting natural products for the skin, hair, and health, such as coconut oil moisturizer, by engaging local people, especially women, using organically-grown ingredients and encouraging sustainable agricultural practices. All products are free from harmful preservatives and chemicals made of coconut, which is a rich source of antioxidants, vitamins and minerals, essential to healthy, radiant skin.

Previously, at the 49th International Cocotech Conference and Exhibition, ICC granted the opportunity to showcase products of Koperasi Wanita Srikandi (Srikandi Woman Cooperative), Indonesia, led by chairwoman, Mrs. Sri Susilo Wati. The cooperative produces coconut sugar for both export and local markets with a production capacity of 300 tons per month of granulated coconut sugar and 20,000 bottles of coconut sap-based syrup. To expand exports, Koperasi Wanita Srikandi holds certification such as USDA Organic, COR Canada, and BPOM.

To achieve welfare and independence through community empowerment, Koperasi Wanita Srikandi has 1,500 fostered farmers with one internal control system (ICS) for managing every 50 farmers in four districts: Purworejo, Magelang, Wonosobo, and Kebumen. To maintain the supply chain, Koperasi Wanita Srikandi conducts regular empowerment to coconut sugar farmers, ICS, as well as collectors. In Indonesia, the production of coconut sugar is a popular household activity in 26 provinces. In the Banyumas district alone there are about 28,773 palm sugar-making units employing about 58,500 workers. About 75 per cent of the total production goes to large cities for local consumption and also for export to Singapore, Malaysia, and the Middle East.

To support the community, ICC runs many publications from which to disseminate the latest information on coconut sector technology and market trends, together with analysis to support decision-making for policymakers and government officers and business strategy for producers. The publications also enable technology transfer to farmers to increase production and productivity. The publications are: *CORD* (a journal on coconut research and development), the biannual *Coco-Info* magazine, the monthly *Cocommunity Bulletin*, *Coconut Statistical Yearbook*, *Directory of Coconut Traders and Manufacturers*, *Quarterly Bulletin*, website, and social media posts.

Coconut for healthier living

Coconut sugar is very popular as a natural sweetener in some developed countries especially in Europe, US, Japan, and Australia because of its low glycemic index (GI) value, suggesting its nature as a healthier sugar — coconut sugar has a GI value of 35 while sugar from palm and sugarcane has values of 42 and 58–82, respectively.

The global demand for coconut sugar as an alternative to refined cane sugar is increasing daily with a burgeoning health awareness in the food market. Coconut sugar can provide a healthy viable option that increases demand in the domestic and international markets so the potential of neera (coconut sap sugar) production could be maximized.

Besides providing healthy organic products and healthy food, it is clearly shown that coconut has contributed to

securing rural community livelihoods and culture by empowering local farmers' organizations, especially women who are involved in the upstream to downstream process, from harvesting, processing, and marketing of the healthy coconut value-added products, from rural areas to the global market. Consequently, this fosters farmers' families and all of those involved in the value chain's welfare.

Increasing health awareness also raised demand for Virgin Coconut Oil during the COVID-19 pandemic. Scientific research conducted by Dr. Fabian M. Dayrit, Chairman of the ICC Scientific Advisory Committee on Health, University of the Philippines, Philippines General Hospital, has found coconut oil to be useful as an adjuvant in therapies for COVID-19 patients with mild symptoms. After six months of experiment, compounds from coconut oil and virgin coconut oil significantly decreased coronavirus count by 60–90 per cent at a low viral load. He also found that coconut oil lowers total triglycerides and HbA1C levels, as an indicator of blood glucose level, while at the same time maintaining the ratio of low- and high-density lipoprotein at healthy levels.

Environmental impact of coconut

A coconut farm's capability of sequestering significant amounts of carbon dioxide from the atmosphere and transforming it into biomass affirm the positive environmental impact of coconut. These natural carbon sinks in polyculture farming systems not only facilitate carbon offsetting but also foster a nurturing relationship with the surrounding environment, safeguarding biodiversity and giving hope to the next generation. Coconut trees also require fewer pesticides, effectively reducing chemical pollution. They also release oxygen, contributing to a cleaner atmosphere and helping in the fight against climate change.

Currently, ICC-Coconut Genetic Resources Networks (ICC-Cogent), the International Treaty on Plant Genetic Resources for Food and Agriculture, and countries hosting the five International Coconut Genebanks (ICG) and 19 National Coconut Genebanks (NCG) conserve a comprehensive coconut diversity of more than 1,000 unique accessions. Those coconut germplasms are invaluable for improving coconut traits and are beneficial for industrial uses.

The longevity of a coconut palm tree is impressive, living up to 100 years and continuously producing coconuts during its lifespan. The fruit, the tree, and the by-products, all contribute to a cyclical eco-friendly system, from improving soil health to providing material for sustainable manufacturing.

Coconut cultivation already stands as a sustainable agricultural practice, given the plant's high water-use efficiency, the minimal requirement for pesticides, and excellent carbon sequestration capabilities. An additional practice that the coconut industry can adopt to further enhance its sustainability is traditional rainwater harvesting. When the coconut industry integrates this method into its operations, it results in a more sustainable system. It significantly reduces the industry's dependency on conventional water sources, particularly beneficial in areas prone to water scarcity or during dry seasons.

Coconut by-products, including husks, leaves, and shells, are transformed into organic materials and green energy sources, emphasizing the industry's waste recycling

capabilities. The shells are used to produce activated carbon, helping to purify water and air. Furthermore, coconut oil is emerging as a potential component for Sustainable Aviation Fuel (SAF). With the aviation industry's increasing focus on reducing carbon emissions, SAF made from coconut oil offers a promising solution. It burns cleaner than traditional jet fuel, reducing the carbon footprint of air travel. The coconut industry provides a multifaceted approach towards environmental sustainability, water conservation, waste management and green fuel production.

Another eco-friendly by-product is coconut charcoal. It can be processed as briquettes, reducing the need for wood-based charcoal, therefore decreasing the cutting and destruction of forests. Before coconut charcoal became available on the global market, people across the world relied on the use of wood charcoal for barbecues and shishas, with numerous trees felled to satisfy demand. As a result, woods were devastated, further threatening the global environment. With coconut charcoal briquettes now on the global market, thousands of tons of briquette exports have prevented the extinction of countless hectares of forest.

From rural communities to the global economy

Given the insignificant increase in global coconut production and the need to meet huge opportunities offered by the coconut sector, national and global strategic partnerships are imperative. Such a substantive and fruitful collaboration should be sustained with the active participation of governments, coconut industries, coconut farmer associations and local and international institutions, for the benefit of all farmers' families and humankind.

As we witness the industry's continuous efforts to address environmental and social challenges, we can confidently look toward a future where the coconut sector continues to thrive. This future promises healthier lives, empowered communities, robust economies and a better world.

Let us continue to harness the potential of the coconut tree in our quest for sustainable development. By doing so, we are embracing the essence of the tree of life, uniting rural communities and the global economy in a shared vision of sustainable prosperity. The coconut tree isn't just a plant — it's a symbol of resilience and a key to a sustainable future.



The domestic organic coconut sugar production process

Image: International Coconut Community

Empowering local partners for inclusive and sustainable agricultural development — experiences from the Tropical Legumes Project in Africa

Mequanint B. Melesse¹, Essegbemon Akpo², Chris O. Ojiewo³, Victor Afari-Sefa⁴

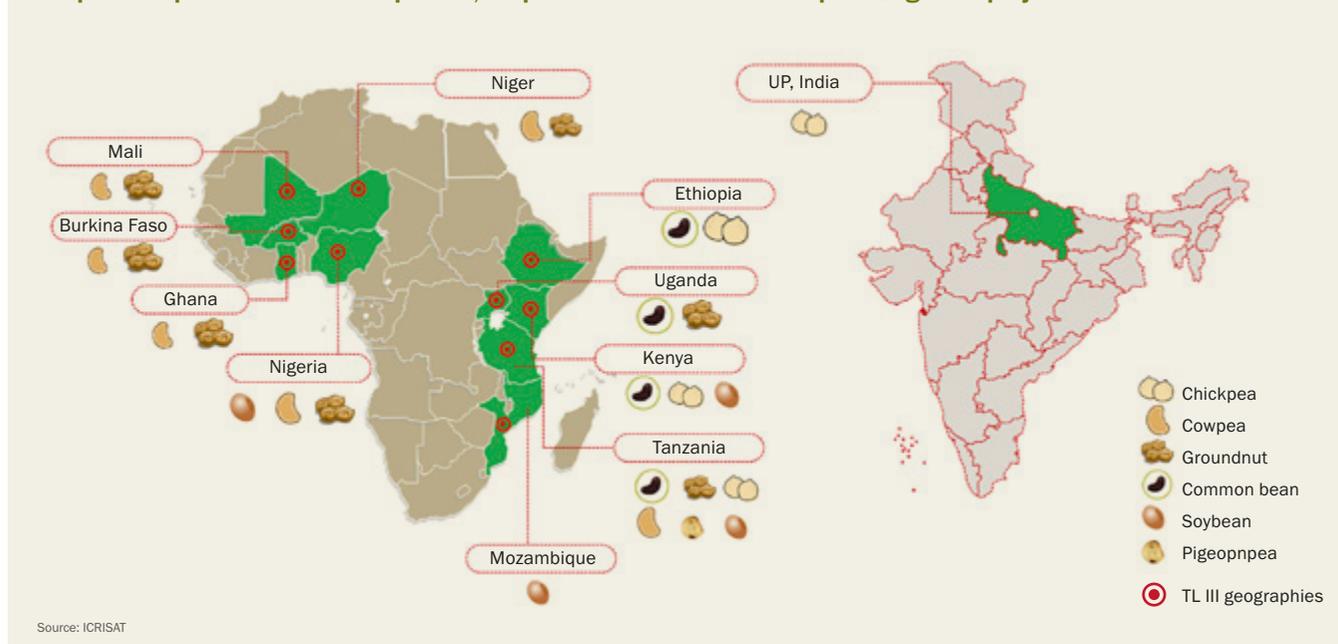
The importance of strong local partnerships and alliances for the sustainability and long-term success of agricultural development efforts cannot be overemphasized. This is supported by its inclusion as a standalone goal (goal 17) in the Sustainable Development Goals (SDGs), but also by increasing calls to make local partnerships and alliances integral components of development projects and programmes. Strong local partnerships are critical not only for identifying development needs, setting priorities, and driving the implementation of validated development interventions but also for scaling and sustaining impacts of such interventions.

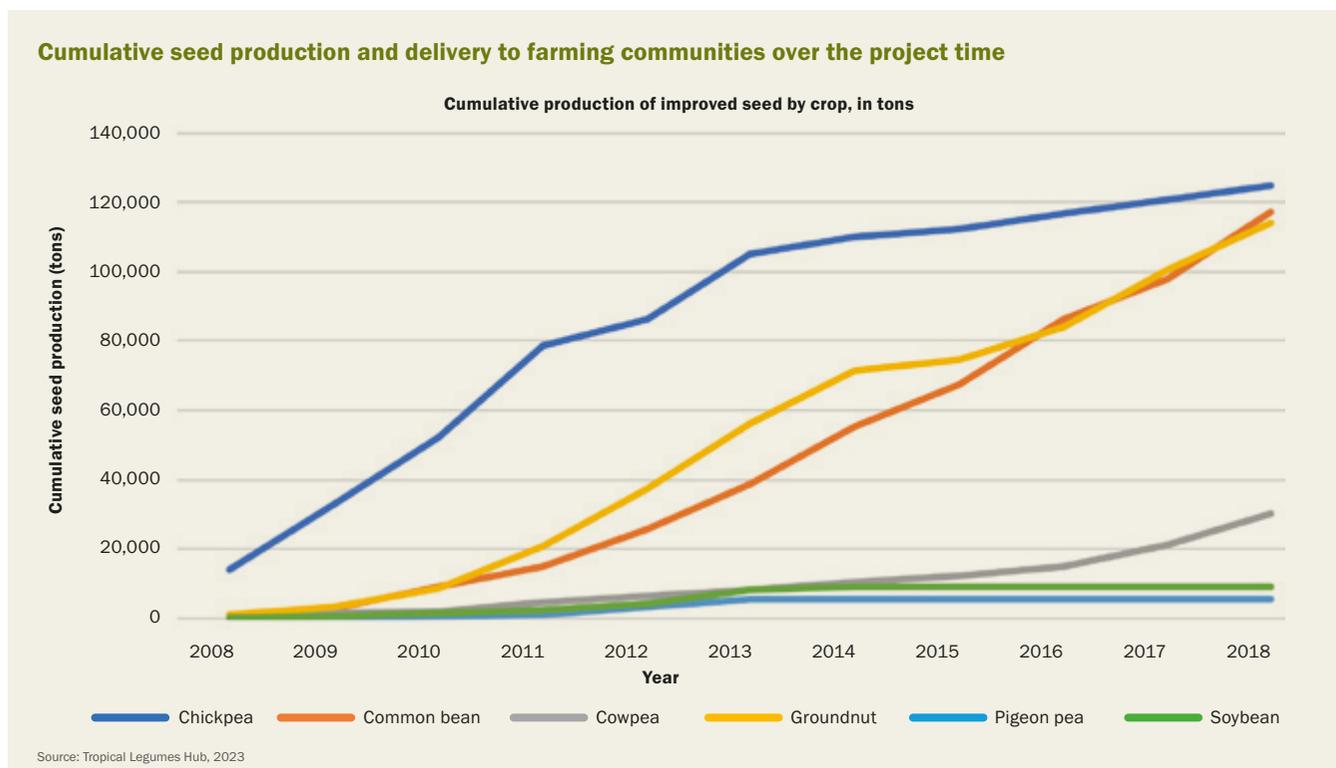
Establishing functional partnerships for inclusive and sustainable agricultural development requires a commitment to shift more ownership, leadership, decision-making and implementation to local partners through the institutionalization of proposed interventions, with strong support to truly empower them to achieve shared development goals. However, securing successful local partnerships has remained a critical challenge

for development efforts, and success stories are not widely documented for co-learning and future project design.

This article aims to offer critical insights into what it would take to develop successful local partnerships and alliances for inclusive and sustainable development by reflecting on the experiences of the Tropical Legumes (TL) project. The TL project focused on improving the productivity and production of six major legume crops in 13 countries in sub-Saharan Africa, and India and Bangladesh in South Asia. Funded by the Bill & Melinda Gates Foundation, TL was led by International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and implemented in collaboration with other CGIAR centres and national research agricultural research organizations in the target countries. TL was implemented in three phases over a period of 12 years, TL II Phase I (2007–2011), TL II Phase II (2012–2014) and TL III (2015–2019). TL I and II focused on understanding the legumes' environment and existing knowledge and developing and disseminating improved varieties, while the TL III project built directly upon the outputs and

Graphical representation of the phases, crops and locations of the Tropical Legumes project





momentum of TL I and II and placed increased emphasis on improving capacities of national breeding programmes and seed delivery systems. Globally, the project led to the development of 266 improved legume varieties and production of over 498,000 tons of certified seeds of the target legume crops on about 5.0 million ha of land, which helped over 25 million smallholder farmers increase their legume production and incomes. These legumes are an important part of people's diets to supply protein, healthy fats, vitamins, and essential micronutrients, while also serving a valuable role in crop rotation with cereals, nitrogen-fixation and restoration of soils, and adaptation to contemporary challenges of climate change.

With a focus on mainstreaming inclusive market-oriented development, the project promoted legume seed business and commodity value chain commercialization, with women and youth as primary target beneficiaries. Overall, the project was positioned to critically contribute to the achievement of the SDG goals of No Poverty (SDG 1), Zero Hunger (SDG 2), Good Health and Well-being (SDG 3), Gender Equality (SDG 5), Climate Action (SDG 13) and Life on Land (SDG 15).

Scientific articles, books, and reports have been widely published on the impact stories and achievements of the TL project¹; a special issue of the *Plant Breeding* journal has been dedicated to documenting achievements and results of the project² and a detailed record of the resources and data from the Tropical Legumes projects describing their legacy in sub-Saharan Africa and South Asia can be found at the Tropical Legumes Hub³.

ICRISAT won the Africa Food Prize in 2021 for its leadership in the collaboration that implemented this highly impactful project. This was made possible through the novel approach adopted by the initiative to embed scalability and sustainability into its implementation process. A holistic approach was

taken to drive impact through three primary pathways: Developing farmer-preferred varieties; improving local seed systems and commodity value chains; and strengthening the breeding capacity of national agricultural research systems.

Considerable strides were made to develop and nurture partnerships to strengthen the means of implementation for achieving the outlined goals of the TL project, beginning with the recognition that deploying the genetic gains achieved at research stations to farmer fields requires closer interaction and collaboration at all levels among the various actors and stakeholders. Among other reasons, the success of the TL project hinged on the fact that it managed to mobilize a consortium of a truly diverse and huge number of partnerships, involving international and national agricultural research institutes, farmers and their associations, public and private seed companies, national extension systems, and various market actors.

The game changer was the recognition that developing partnerships alone was not enough to achieve the desired goals of the project. Great emphasis was placed on the critical importance of empowering partners and alliances through targeted capacity development initiatives. The project invoked a multi-pronged strategy to assess gaps and needs and to co-design and implement targeted capacity development activities. To this end, the project conducted a systemic diagnostic analysis to identify specific capacity gaps and needs of partners and understand how to support and empower them for delivering genetic gains at scale. This analysis started with the assessment of breeding programmes and portfolios of both CGIAR institutes and national agricultural research systems (NARS). The Breeding Program Assessment Tool (BPAT) was developed and used to evaluate the actual capacities and challenges faced by the implementing international and national research institutes, while identifying steps to mitigate those challenges. The

BPAT is a robust tool that can help to comprehensively assess crop-wise breeding programmes across nine components. This diagnostic paved the way for strengthening the capacity of various institutions in equipment, infrastructure, and human resources to address the gaps hindering breeding outputs.

The diagnostic analysis also generated useful and actionable insights for other partners. For example, the low rates of adoption of new varieties of legume crops by smallholder farmers were attributed to a lack of awareness, insufficient capacity to adopt innovations, limited timely access to quality seed of improved varieties at realistic costs and inefficient extension and advisory services. The lack of interest in production of legume seeds by potential seed producers, especially the private sector, was attributable to limited information on the cost and profitability of producing these seeds.

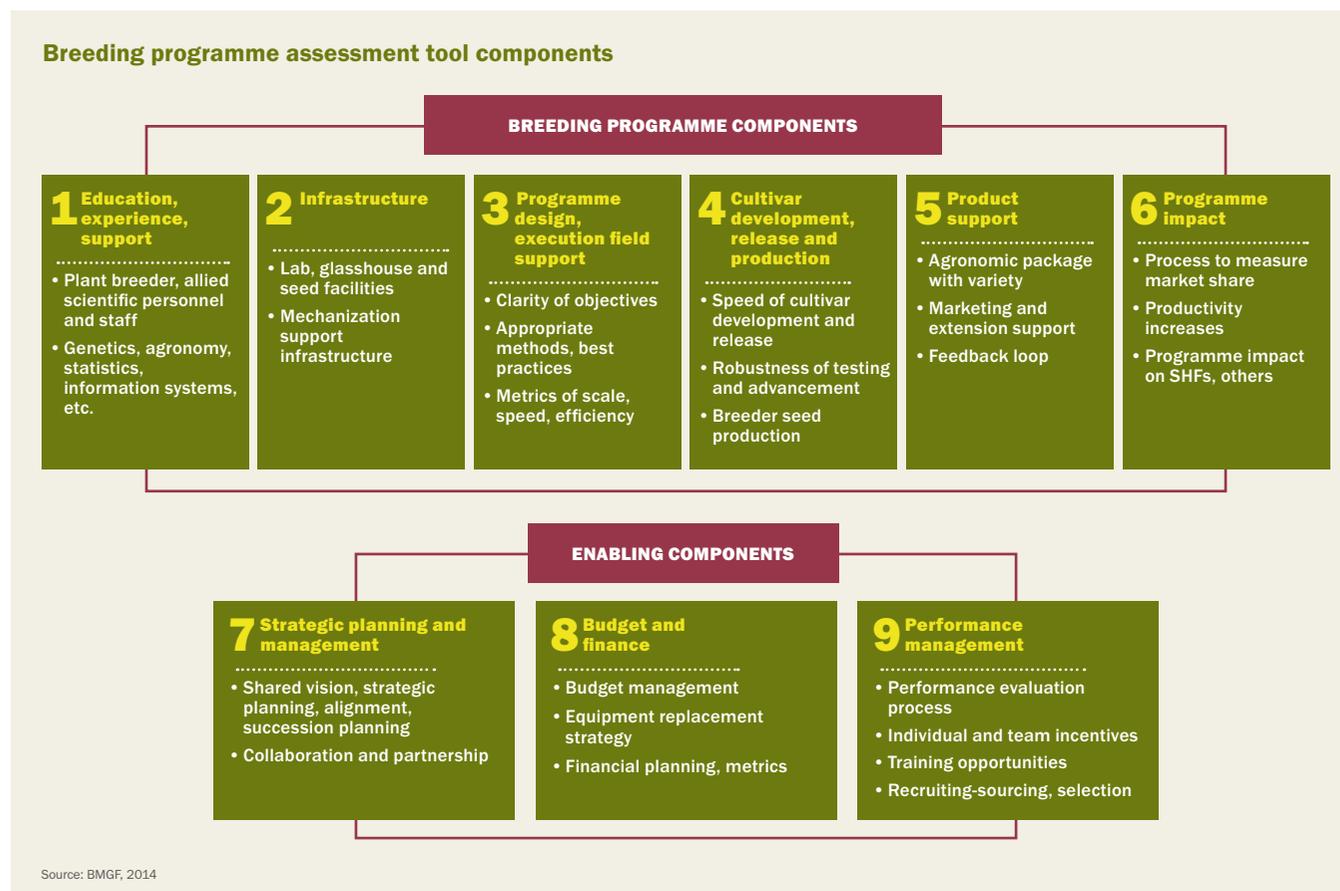
Following the diagnostic analyses, the project developed an adaptive strategy and action plan that largely focused on human and institutional capacity development to make the project successful. The developed strategy and plan were periodically revisited through multi-stakeholder platforms to address emerging needs for partners' capacity development, continually leveraging synergies in the project research and innovation ecosystem that promoted technology development, transfer, and uptake. Key to the strategy to achieve capacity development targets was intentional co-learning across international and national partners as well as project beneficiaries.

Various awareness and demand creation activities were initiated to ensure sustained collaboration and delivery of outputs and bring technologies closer to legume farming communities.

These activities involved demonstration farm trials, field days, participatory varietal selection, radio and TV shows, mobile app-based advisories, small seed packs affordable to resource-limited farmers, seed fairs, agri-shows and exhibitions, and targeted empowerment of women and youth in seed business and smart food making and marketing. Specifically, the implementing agencies trained farmers, the primary beneficiaries, on legume seed production and good agronomic practices, enhancing their knowledge and capacity to adopt the new technologies. This has helped to align breeding programmes with farmers' demands, while building a sense of ownership for the new varieties.

Multi-stakeholder platforms were also established along each legume crop value chain in the target countries. These platforms not only helped in dissemination of research-backed knowledge and training, but also in bridging the market gap that farmers often find difficult to cross by bringing input suppliers, seed companies and traders together in a common forum to exchange product and market information.

The institutional capacity development component focused on two interrelated levers: joint learning and formal training. Joint learning occurred in sharing germplasm materials, co-developing and testing of new varieties of target legume crops and relevant innovations between participating CGIAR centres and NARS through various mechanisms. The first mechanism was comparative cross-learning based on systematic assessment within and across countries of different partners based on the premise that agricultural policy processes vary by country and can be influenced by





Advanced groundnut nursery in Burkina Faso

national agricultural strategies and enabling factors for breeding and technology dissemination (e.g., regulations on seed systems), while recognizing country-specific conditions. This learning was facilitated during the theory of change review, annual M&E review and planning and reflection workshops. The second mechanism focused on participatory scenario analyses where effective delivery innovations, informative arrangements and appropriate market incentives were jointly identified and modified to fit country-specific circumstances for piloting and upscaling. The third set involved concerted action research in testing developed varieties and innovations through involving CGIAR and NARS partners, facilitating joint learning from both testing analyses and devising solutions to emerging challenges. Strengthening of breeding capabilities of implementing partners was also supported by formal learning through participation in short-term training courses and post-graduate research qualifications. The TL project helped 52 young scientists trained to acquire MSc and PhD qualifications. Most of these scientists are now active and still involved in various crop development programmes in the beneficiary countries.

Empowering partners through capacity development enhanced cooperation and awareness among individuals and organizations, building the capacity of partners to effectively lead the local implementation of project activities and to use data management and analysis tools for informed decision-making during project implementation. Particularly, the TL project's role in strengthening capacities of NARS was impressive and visible in current legume breeding programmes in the target countries. Building research capacity by training next-generation scientists instilled sustainability and scalability of project results and outcomes. This lays the foundation for developing new varieties and delivering genetic gains in farmers' fields in a short time span. The ensuing accelerated crop improvement made it possible to increase the number of crosses and populations developed each year and the number of generations per year using speed breeding to shorten the conventional breeding cycle, whereby countries increased their achievement from one up to four generations.

To conclude, reflecting on the lessons from the TL project implementation process revealed the insights needed to build effective partnerships in agricultural development projects and programmes. Firstly, successful partnerships are an outcome of carefully managed and nurtured collaborations based not only on shared goals but also on clear roles that each partner must play to contribute to achieving the shared goals. Secondly, what is even more critical is the extra effort needed to empower partners for advancing truly inclusive and sustainable agricultural development. This, in turn, requires applying a dynamic and adaptive strategy to continually address newly emerging needs and contemporary perspectives in the development discourse, while empowering local partners to set development priorities and to make strategic decisions backed by opening avenues to ensure access to critical resources beyond operation funds. Finally, a key factor underpinning this success was the continued engagement with policymakers and actors to secure their willingness and ability to use evidence in policymaking and implementation as well as to ensure high-level support to local implementing partners. It is hoped that this provides learning opportunities for similar efforts in agricultural development and research. Importantly, it would inspire development workers and project managers to share their own experiences and how these partnerships could be improved to revitalize global partnerships for sustainable development.



Training events for various actors in Uganda and Tanzania

Safaricom — a connected vision for sustainable transformation

Karen Basiye, Director of Sustainable Business, Social Impact and M-Pesa Foundation, Safaricom Limited

In 2016, Safaricom began a journey to integrate the Sustainable Development Goals (SDGs) into its business strategy. Since then, nine priority SDGs have been incorporated into the organization's performance objectives, both at company and individual employee levels. Each of the divisions is implementing projects or developing products and services in line with the SDGs. Reporting on SDG-related targets is now central to the company's ways of working, seeking to empower all those with whom Safaricom works — employees, partners, and other stakeholders — to set their own.

The SDG guiding framework includes a commitment by the company to deliver connectivity and innovative products and services (SDG 9) that will provide unmatched solutions to meet the needs of Kenyans, by enabling access (SDG 10) through technologies and partners (SDG 17), and by exploring opportunities in health (SDG 3), education (SDG 4)

and energy (SDG 7). Safaricom has committed to do so by managing its operations responsibly (SDG 12) and ethically (SDG 16), and in return stimulating growth and generating value (SDG 8) for the company, society, and economy. The SDGs represent humanity's shared vision of the actions that need to be taken to create growth for the benefit of everyone and is a social contract between the world's leaders and people.

Safaricom is a purpose-led technology company, operating in Kenya and Ethiopia, providing a wide range of services, products, and solutions, including mobile voice, messaging, data, financial and converged services. The company also provides digital services that enable commercial and personal platforms as well as ecosystem partnerships. It is one of a group of about 400 companies across Africa whose annual revenues amount to more than US\$ 1 billion. Safaricom, the leading telecommunication company in East Africa with over 45 million customers, is guided by its purpose: to transform lives.



Safaricom supports smallholder farmers both through the Foundation's economic empowerment programme and the Digifarm platform that helps farmers become commercially sustainable



Image: Safaricom

Foundations programmes on health

In 2006, Safaricom signed up to the United Nations Global Compact and in 2012 began reporting on its approach and progress to sustainability. In 2016, the company aligned its approach with the SDGs, translating ideals into meaningful and concrete plans. The current strategy incorporates nine of the 17 SDGs and builds on a strong history of results and partnerships to contribute to the company's next phase of growth.

Safaricom believes its role extends far beyond making profits, which is why the company sees technology as an opportunity to improve the quality of life, contribute to sustainable livelihoods and enable platforms and ecosystem partnerships. Safaricom's purpose encompasses four key pillars: creating shared value by leveraging the power of connectivity and digital services to create inclusive business platforms and strengthen the resilience of economies throughout the entire value chain; managing the impact on the environment and developing solutions to help customers mitigate their environmental footprint, which means achieving net zero by 2050, building a circular economy, and helping society to decarbonize; operating responsibly by focusing on ethics and integrity; tackling bribery and corruption as well as promoting human and digital rights for all; and nurturing the people and the world around us by creating a great place to work and harnessing the power of the company's brand and assets to connect Kenyans to opportunities, knowledge, and the world.

Through its Safaricom and M-PESA foundations, the philanthropy arm enables access for Kenyans to quality healthcare, education, skills and sustainable employment by providing resources, opportunity, hope, and dignity to communities.

In September 2023, Safaricom announced a multi-billion Sustainability Linked Loan (SLL) to strengthen its Environmental, Social and Governance (ESG) agenda. The KES 15 billion (US\$ 102.6 million) deal is the largest ESG-linked loan facility ever undertaken in East Africa, and the first of its kind for Safaricom as well as the first Kenya Shilling-denominated SLL on the market.

Contribution to the SDGs

SDG 3: Good health and well-being: ensure healthy lives and promote well-being for all at all ages

The company has leveraged its mobile technologies and foundations to transform lives by improving access to quality and affordable healthcare services and by promoting well-being for all. M-Tiba, a mobile phone service to put funds aside for healthcare, has close to four million users and over 6,000 approved health facilities, with more than US\$ 24m paid out to approved health facilities.

Afya Moja, which loosely translates as 'one health', is a medical records portability platform with a consortium of partners (Savannah Informatics Ltd, Intellisoft Consulting Ltd) to help patients achieve a continuum of care and to access their medical records using the Unstructured Supplementary Service Data protocol (USSD).

M-PESA Foundation, in partnership with Gertrude's Children's Foundation, through a telemedicine project dubbed Daktari Smart is aimed at providing access to specialist care to four underserved and hard to reach counties. The three-year programme targets over 32,000 children.



Image: Safaricom

Improving basic literacy and numeracy skills

In Homa Bay County, which is in Kenya's Lake Region, Safaricom supports the Uzazi Salama (safe parenting) programme, a partnership with Amref Health Africa and the county government. This programme also entails training of community health volunteers through a mobile platform known as LEAP to enable them to achieve safe deliveries.

Safaricom Foundation has set up newborn units and provided equipment such as incubators to ease access to neonatal and child health. In the coastal region of Lamu County, the programme has achieved a 60 per cent reduction in infant mortality rates. In Garissa County, in the northern part of Kenya, the Safaricom Foundation's Children with Diabetes programme has availed insulin and syringes and training for the management and treatment of diabetes in turn benefiting over 5,000 children and youth under 21 years with Type 1 diabetes.

SDG 4: Quality education: ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

The company has been expanding access to education through innovative solutions, a robust network, and strategic partnerships. For instance, over 350,000 pupils have downloaded the Zeraki Learning app which provides secondary school children with access to affordable education services from well trained teachers; Eight teacher training colleges benefitted from digital infrastructural improvements; Shupavu 291 is an SMS-based service that offers learning materials, tutorials, and assessments to children in marginalized areas. This service brings education closer to pupils. Also, in partnership with UNICEF, Safaricom established the GIGA Project that seeks to ensure that children from the poorest and most marginalized communities are able to access the Internet at school, are protected from violence and abuse, and receive life-saving information during droughts, floods, and disease outbreaks.

Through the Safaricom Foundation Technical And Vocational Education and Training Scholarship Programme, 1,027 youth trainees were equipped with sustainable skills for the construction and hospitality industries while the Waithaka Vocational Training Centre was renovated and equipped as a centre of excellence.

In 2018, the Foundation supported the Accelerated Learning Programme to improve children's basic literacy and

numeracy skills. At least 36,000 pupils have benefitted and about 100,000 reading and learning resources have been distributed since the programme's inception.

The M-PESA Foundation Academy currently provides 414 poor students with access to high-quality education and has further supported 574 learners/alumni in various tertiary institutions.

Launched in 2021, the Wezesha Elimu (Enable Education) programme — a partnership between Safaricom Foundation, AIC Cure and CBM Kenya to support children with disability access education — has offered rehabilitative surgery to over 700 children across the country and set up centres of excellence that are friendly to children with disabilities.

Keeping Girls in School is an initiative where sanitary towels are distributed to primary and secondary school students who cannot afford them. According to a Government of Kenya survey, girls miss at least 13 days of school every term due to periods.

Under Safaricom Foundation, schools from primary to tertiary level are supported with infrastructure, technology, and equipment to enable a conducive environment for learning in all 47 counties. Safaricom also equips special units to support children with disabilities.

SDG 7: Affordable and clean energy: ensure access to affordable, reliable, sustainable, and modern energy for all

As part of our ongoing commitment to the SDGs, Safaricom continues to work towards improving energy and resource efficiency in our network and facilities to reduce carbon emissions and fuel consumption. The company is committed to becoming net zero carbon-emitting by 2050.

An ongoing priority is the carbon offset reforestation programme which aims to grow five million indigenous trees by 2025. In partnership with local communities and the Kenya Forest Service, the programme is transforming lives through income generation, skills, and climate mitigation. The programme will offset an estimated 26 per cent of the company's emissions.

About 1,432 of Safaricom's sites have been transitioned to renewable and hybrid energy sources against a target of 5,000 sites by 2025. In partnership with M-Kopa Solar, Safaricom has provided access to solar energy to over 800,000 households



Image: Safaricom

The pay-as-you-go energy solution that enables Kenyans to access clean, affordable, and reliable gas



Image: Safaricom

The Safaricom Chapa Dimba tournament aims to transform the lives of young people, male and female aged 16–20 years by giving them a platform to showcase their talent and an opportunity to earn from their passion

impacting 3.3 million lives and resulting in over 1.7 tonnes of avoided emissions. As part of its energy strategy, Safaricom continues to modernize and optimize its energy infrastructure by upgrading capacity and retrofitting rectifiers, lithium-ion batteries, super-capacitor storage, efficient air conditioners and hybrid power solutions.

In partnership with M-Gas, Safaricom has developed a pay-as-you-go energy solution that enables Kenyans to access clean, affordable, and reliable gas. This innovation enables over 360,000 Kenyan households to purchase gas through a smart meter, leveraging Safaricom's connectivity.

SDG 12: Responsible consumption and production: ensure sustainable consumption and production patterns

Based on the principle that what is not measured cannot be monitored, managed, and mitigated, the company tracks its environmental performance carefully. Metrics include greenhouse gas (GHG) emissions, energy efficiency, resource consumption and cost, waste, and e-waste, as well as emissions reduction. Environmental impact assessments and audits are used together with international third-party standards such as the ISO 14001 environmental and ISO 50001 energy management systems. This approach enables the establishment of both negative and positive impacts and the implementation of mitigation measures where required. It also ensures responsible production and consumption. Safaricom achieves its environmental goals and embeds environmental responsibility and circularity through partnerships with various stakeholders across the value chain.

SDG 17: Partnerships for the goals: strengthen the means of implementation and revitalize the global partnership for sustainable development

Partnerships are at the heart of Safaricom's success and long-term strategy to transition from a telco to a technology company that meets the changing and expanding customer needs and societal challenges. Safaricom believes in partnerships that serve its purpose, partnering and building a collective capacity of people, organizations, and nations to promote and advance the nine embedded SDGs.

M-PESA, the world's first and largest mobile payment system and Africa's largest Fintech has, through various strategic partnerships with Visa, TerraPay, Paypal, Western Union among others empowered over 30 million customers to transact, save or borrow money through their mobile phone. The provision of accessible, affordable financial services to individuals and small businesses is promoting economic empowerment, entrepreneurship, and poverty reduction.

Safaricom has partnered with Nokia and UNICEF to connect 90 schools with the Internet to reach about 32,000 students with digital literacy. Safaricom has also signed an MOU with UNICEF under the Spot it, Stop it Campaign that seeks to minimize cases of violence and abuse against children by providing a hotline number for reporting.

CEO, Peter Ndegwa, was appointed to chair a 15-member national steering committee on drought in November 2022. The committee established the National Drought Mitigation Appeal Fund, with bank accounts operated by members of the private sector, the government and the Red Cross. The goal was to assist vulnerable communities in 20 counties in the Arid and Semi-Arid Land (ASAL) and nine non-ASAL counties. With the support of partners, Safaricom was able to raise the funds, and alleviate a dire situation that had been exacerbated by COVID-19 and disruptions in the global food supply chain as well as by climate change. Safaricom and the M-PESA Foundation also committed a foodstuff donation worth over US\$ 700,000 distributed to some of the hardest-hit counties.

Safaricom has also partnered with the Kenyan government, both national and local, on numerous initiatives to extend more services to citizens by digitizing primary school networks, connecting health centres, streamlining payments to farmers, and much more.

Collaboration leverages the strengths of different sectors to address complex challenges, drive innovation and foster economic growth which in turn benefits citizens through job creation and improved lifestyles. Moving forward, Safaricom will continue to explore partnerships with like-minded public and private organisations in health, agriculture, education, financial technology, digital payment solutions, e-commerce and other emerging sectors that align with the company's digital-first approach.

Technology for development

As a sustainable business, Safaricom does not innovate simply because it has the resources, but because it wants to combine technology and innovation to transform lives and the society in which it lives and works. Safaricom recognizes that the digital landscape is constantly shifting and, in response, the company is constantly innovating, refining, and redesigning the digital experience. The company will continue to invest in communities to build and transform lives, working towards sustainable transformation. As part of its ongoing commitment to the SDGs, Safaricom ensures that digital solutions are accessible, affordable, and inclusive, focusing on digital literacy, infrastructure development and regulatory frameworks that support innovation and protect users' rights to truly, transform lives. This will be vital to continue to connect people to people, people to knowledge and people to opportunities for growth, today and tomorrow.

Supporting climate change mitigation and adaptation in Central America

María José Venegas, The Central American Bank for Economic Integration (CABEI)

The Central American Bank for Economic Integration (CABEI) is a multilateral development bank with the primary objective of promoting economic integration and sustainable development in Central America by providing financial resources, technical assistance, and other services to its member countries. The organization plays a crucial role in financing public and private sector investments in the region and supporting regional integration initiatives.

CABEI is owned by 15 member countries: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, the Dominican Republic, Cuba, and several non-regional countries; Argentina, Colombia, South Korea, Spain, and the Republic of China Taiwan. Since its establishment in 1960, CABEI has been a key player in the Central American region, offering financial resources to both the public and private sectors. With a capital of US\$ 7 billion, the bank has provided a total disbursement of US\$ 37 billion as of 2022, driving economic progress, social development, and regional synergies.

One of the main roles of CABEI is to provide financing to support development projects, with provides loans, grants,

and technical assistance to support a wide range of initiatives, including infrastructure development, energy, transportation, agriculture, education, health, and housing. CABEI is committed to promoting inclusive and sustainable development and environmental sustainability, as well as ensuring that its projects have a positive social impact.

The bank's efforts have been recognized internationally, as evidenced by Moody's Investor Service, increasing CABEI's long-term international risk rating from A1 to Aa3 in 2019, and Standard & Poor's confirmation of its international credit rating at AA. These ratings have solidified CABEI's position as the best credit risk in Latin America and significantly improved its prospects of achieving an AAA indicator. As a result, the bank has continued to grow, establishing itself as the most significant source of multilateral funding in the region.

CABEI's role in the region cannot be overstated, with the bank's efforts to promote regional integration and cooperation ensuring that development initiatives are coordinated effectively, leading to increased regional synergies. As CABEI continues to expand its reach and impact, it will play a crucial role in building a more prosperous and integrated Central America.



Image: CABEI



Image: CABEI

Green resources mobilization

As the dominant multilateral development bank in Central America, supporting both public and private sector entities, especially through the funding of climate change initiatives, CABEI has extensive experience combining resources from different funding sources to enhance the availability of funds deployed to its member countries; especially those under ESG (environmental, social, and governance) considerations. CABEI has a proven and highly regarded strategy for mobilizing funds through financial instruments such as loans, grants and guarantees.

It is also important to note that one of the implementation guidelines of its 2020–2024 institutional strategy is the promotion of initiatives for environmental sustainability, under which projects for climate change mitigation and climate change adaptation support the strengthening of low-carbon economies, resilient societies, sustainable food production systems, clean energy generation and resource efficiency.

CABEI has been continually accessing the international capital markets to fund its portfolio of robust and high impact climate solutions through its Green Bond Framework initially established in 2019 and updated in 2022 to include blue taxonomy; thus, becoming a Green and Blue Bond Framework. The framework is aligned with the ICMA Green Bond Principles and is consistent with the voluntary Sustainable Blue Economy Finance Principles, hosted by the United Nations Environment Program Finance Initiative.

In addition, the development of the framework considered other highly relevant taxonomies in the international context, such as the European Union (EU) taxonomy for sustainable activities, the Climate Bonds Taxonomy and the IFC Guidelines for Blue Finance. Under its Green and Blue Bond Framework, which has a favourable second party opinion from Sustainalytics, CABEI has issued five green bonds for an aggregate of US\$ 910.2 million, and two blue bonds for an aggregate of US\$ 145.9 million.

CABEI has also mobilized a total of US\$ 1,200 million in climate change resources from other development partners to its member countries, through three different financial mechanisms: on-lending, co-financing, and grants. Such development partners include: KfW Development Bank, the French Development Agency (AFD), the Official Credit Institute (ICO) of Spain, the EU, the Japan Bank for International Cooperation (JBIC) and the Ministry of Economy and Finance (MOEF) from the Republic of Korea.

In addition, CABEI is accredited with global funds such as the Green Climate Fund (GCF) and the Adaptation Fund (AF) and has also undergone the EU's Pillar Assessment. In the case of GCF, to date, CABEI has obtained the approval of four investment projects for an aggregate of US\$ 525.2 million, and three technical assistance operations for an aggregate of US\$ 2 million (one financing proposal and two readiness proposals), further consolidating CABEI's position as main provider of climate finance solutions for the Central American region. CABEI has also mobilized resources from the Adaptation Fund for regional interventions that increase the adaptive capacity of Central American vulnerable communities.

General elements of CABEI's contribution to the SDGs

According to CABEI's Institutional Strategy for 2020–2024 the bank defined five main sustainable development focus areas: regional integration, sustainable competitiveness, human development, environmental and social sustainability, and gender equality, areas that are key contributors to the 17 Sustainable Development Goals (SDGs) that the United Nations has set and that all countries have adopted as common goals.

During the last five years CABEI has been focusing on making the greatest impact on the SDGs, approving a total of 128 projects in 10 countries, causing a domino effect of growth for the region and impacting the 17 SDGs during this period.

CABEI has provided loans to governments and the private sector for infrastructure development, renewable energy, gender equity and poverty reduction. For example, it has provided financing to governments for the construction of roads and bridges, thereby improving transportation and access to services. Such projects have mitigated the effects of COVID-19 on the economy. In addition, it has provided financing to private companies for renewable energy projects, such as wind farms and solar plants, reducing emissions and improving energy security. It has also provided financing and technical assistance for poverty reduction operations, such as education and health initiatives, thus improving the quality of life in the region.

In 2018, a total of 24 operations were approved, which had an impact on 12 of the 17 SDGs, with SDGs 8 and 9 having the greatest impact, promoting during that year sustainable economic growth, full and productive employment, and decent work for all, as well as fostering innovation and sustainable infrastructure. In 2019 a total of 21 operations were approved, the SDGs with the greatest impact were SDGs 8 and 9. In 2020, the first year of the pandemic, 16 of the 17 SDGs were impacted through 26 operations approved that year, with most of the projects aimed at reducing extreme poverty and improving the lives of the poor, with emphasis at improving the health and welfare of all people. In 2021, the same line of work was followed and a total of 28 highly employment-oriented operations were approved. In 2022, the bank, through the first round of poverty reduction Development Policy Operations (DPOs), together with other conventional operations, succeeded in having a great impact on SDG 1, whose purpose is to eradicate poverty. In that year employment generation, poverty reduction and infrastructure improvement were key elements in the 29 operations approved by the bank.

Projects for funding in action

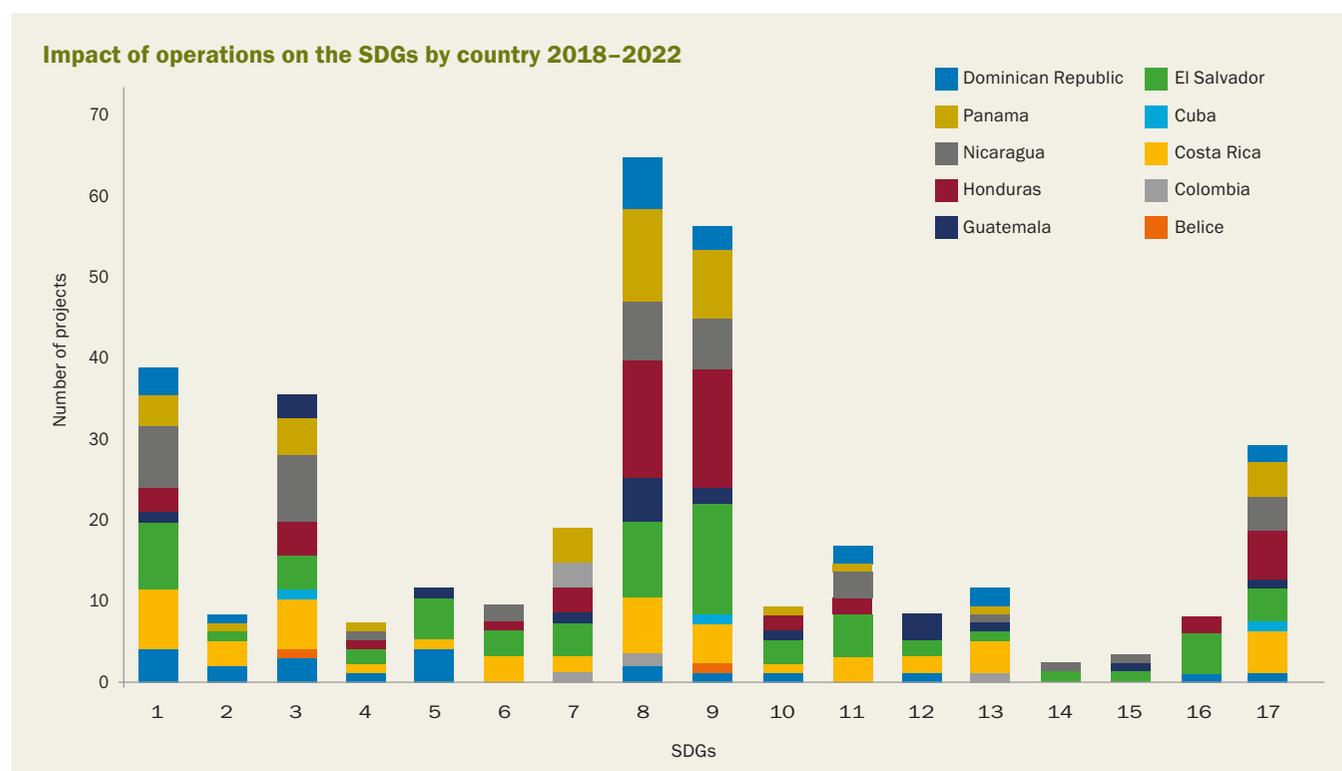
The NICADAPTA programme

Financed by CABEI for US\$ 7 million and executed by the Nicaraguan Ministry of Family, Community, Cooperative and Associative Economy (MEFCCA), this national programme was successfully completed in April 2021, benefiting the prioritized areas of 52 municipalities in the departments of the north of the country, in particular communities and territories of the Nicaraguan Caribbean coast. Framed within CABEI’s Rural Development and Environment Strategic Axis, each of the activities directed from NICADAPTA contributed to the reduction of poverty with a gender approach and to the support of new youth ventures and a representative number of families belonging to indigenous groups and Afro-Caribbeans.

More than 24,000 small producers who own less than 20 ha planted with coffee and cocoa benefited. They managed to acquire new skills to efficiently manage their businesses, increase the productivity of their crops, adapt them to climate change and achieve greater access to markets and new technologies. Also, a total of 25,762 rural families received technical assistance and training in practices and technologies for adaptation to climate change as part of the programme. Two new varieties of coffee and cocoa were also incorporated into their production.

The GEPRI dry corridor programme

This is an ecosystem-based adaptation programme to increase climate resilience in the Central American dry corridor and the arid zones of the Dominican Republic, with the main objective of strengthening the adaptive capacity of vulnerable people, including smallholder and commercial farmers, as well as rural communities and entrepreneurs across Guatemala, Honduras, El Salvador, Costa Rica, Nicaragua, and Panama. It is expected





Images: CABEI



to benefit more than 1,084,441 people directly and more than 1,364,044 people indirectly in the region. The programme funds are US\$ 217.1 million, of which the GCF will contribute US\$ 174.3 million and CABEI US\$ 42.8 million.

CAMBio II

The Productive Investment Initiative for Adaptation to Climate Change (CAMBio II), has an approved amount of US\$ 28 million to which the GCF will contribute US\$ 15.5 million and CABEI US\$ 12.5 million. This initiative will support MSMEs in accessing credit, technical assistance and incentives for climate change adaptation investments in sectors related to agroforestry, organic agriculture, silvopastoral systems, sustainable tourism, productive activities in private/community protected areas, sustainable forest management, sustainable fisheries and aquaculture, among others in Guatemala, Honduras, El Salvador, Costa Rica, Nicaragua, and Panama and in the arid zones of the Dominican Republic.

The bank's ambition for the region

CABEI through its institutional strategy 2020–2024 informs the international community, and especially Central American society, of the opportunities to contribute to the growth and reactivation of economies in the region, its commitment to deepen the social impact of its operations and its interest in seeking new spaces for collaboration with the rest of the world.

The Bank continuously promotes economic integration and balanced economic and social development of the Central

American region. This will be accomplished by promoting integration beyond the commercial scope and developing regional capacities that provide the area with better opportunities to compete in the global markets.

It is important to note that CABEI offers its member countries various financing modalities and financial instruments for the implementation of actions in favour of the region's development and directed to the public and private sectors. To contribute to inclusive economic growth and support countries in their development policies, the financial system is an essential key to meet the requirements of the private sector and enhance its role in economic activity. Direct financing to the private sector should respond to the specific interest of the country authorities and then established in the bank's institutional strategy.

Providing financial resources, technical assistance, and other services to support the prioritized projects of national governments as well as regional integration projects that have a positive social impact on two or more countries, CABEI will continue to be a key strategic partner for the sustainable growth of the area by promoting and improving regional integration, human development, gender equity and sustainable environmental and social development in the region.

CABEI seeks to position the region in the global context highlighting the nature of markets with similar economic characteristics and potential. In the current context in which large market groupings tend to concentrate increasingly more narrowly and closely, it is desirable that the region be seen as a totality, but without ignoring its national differences.

The Republic of Korea's new vision through forests — paving the way for a global forestry renaissance

Dr. Park Eunsik, Director General of the International Affairs Bureau, Korea Forest Service

The Republic of Korea (ROK) currently has a 63 per cent forest cover, twice the world average of 31 per cent, ranking it fourth among OECD countries. The transformation of the country's forests is truly remarkable — according to a 1969 United Nations report, Korea's forests were described as “difficult to recover due to long-term degradation”. However, progress made since then has been widely acknowledged and celebrated on the global stage.

This transformation is a testament to the unwavering dedication and efforts of the country over the past five decades. Through overcoming obstacles and implementing effective reforestation measures, Korea has demonstrated its tremendous potential for restoring degraded forests, serving as a model of good practice to other nations grappling with similar challenges. Korea's dedication to sustainable forest management sets an extraordinary example for the global community, encouraging collective action towards a greener and more resilient future.

A half-century of success: remarkable achievement in forest restoration and management

From the late 19th century until the mid-1950s, Korea experienced extreme forest degradation. The forests suffered severe devastation during the period of Japanese Colonial Rule until 1945, as trees were indiscriminately cut down to meet the demands of wars. The already depleted forests subsequently faced further destruction during the three-year Korean War which exacerbated the damage inflicted on the landscape, with most mountains becoming barren. In 1953, the average growing stock per ha was a mere 5.7m³ and these conditions persisted into the early 1970s with minimal improvement to just over 10m³. Forest degradation had severe and long lasting effects on the lives of citizens. The absence of forests on mountains led to soil erosion, frequent landslides, floods, and droughts, which hindered economic growth and endangered the safety of the people.

After the Korean War, Korea's GNP per capita stood at a meagre US\$ 65, placing the country among the poorest



Korea's forests in the 1970s (top) and today (above)

Evaluation results of forest's functions that provide public benefits, 2020

Forest public benefit assessments



Total value:
US\$ 199 billion

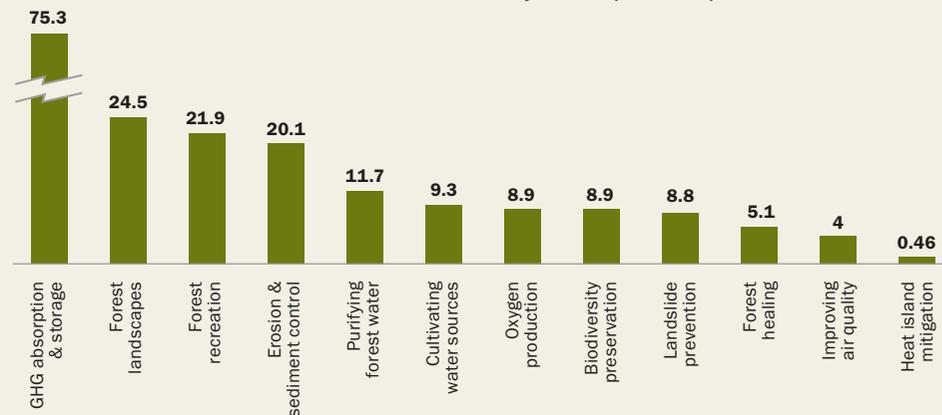


Share in GDP:
13.3%



Annual value per capita:
US\$ 3,850

Valuation of forest benefits by function (billion US\$)



nations in the world. In order to uplift its people from poverty and improve their quality of life, the Korean government initiated the 5-year Economic Development Plan (1962–1966). Concurrently, the government acknowledged the importance of rehabilitating forests to conserve the land and provide resources for rural regions. Against this backdrop, the Forest Act was created in 1961 to lay the groundwork for the restoration of degraded forests, while the establishment of the Korea Forest Service in 1967 played a pivotal role in driving this initiative forward.

The implementation of the first National Forest Plan (1973–1982) marked a significant milestone, aiming to restore one million ha of forest by planting an astounding 2.1 billion trees over a span of ten years. Through resolute governmental leadership and the fervent engagement of the Korean people, the plan achieved notable results, surpassing its initial targets within six years. By 1978, an impressive 2.9 billion trees had been planted across 1.08 million ha, showcasing the exceptional success of this concerted effort.

Building upon the ambitious accomplishments of the first plan, the second National Forest Plan (1979–1988) swiftly followed, leading to the restoration of 325,000 ha of forests and the creation of 80 commercial forests. Additionally, the plan facilitated the establishment of forest management systems for the restored forests, including support programmes for private forests. The second plan concluded in 1987 with great success, ahead of its initial schedule. These collective endeavours culminated in Korea's average growing stock per ha reaching 31m³ in 1987.

As a direct outcome, the diligent execution of National Forest Plans spanning from 1973 to 2021 led to the planting of more than 10 billion trees, effectively restoring forests to their former glory. As of 2021, Korea boasts an outstanding average growing stock of 165m³ per ha, surpassing the OECD average of 131m³. This achievement showcases a notable 29-fold increase compared to the figures from 1953. These accomplishments not only underscore Korea's unwavering dedication to reforestation and sustainable forest management but also set an inspiring example for the rest of the world, spearheading global reforestation endeavours.

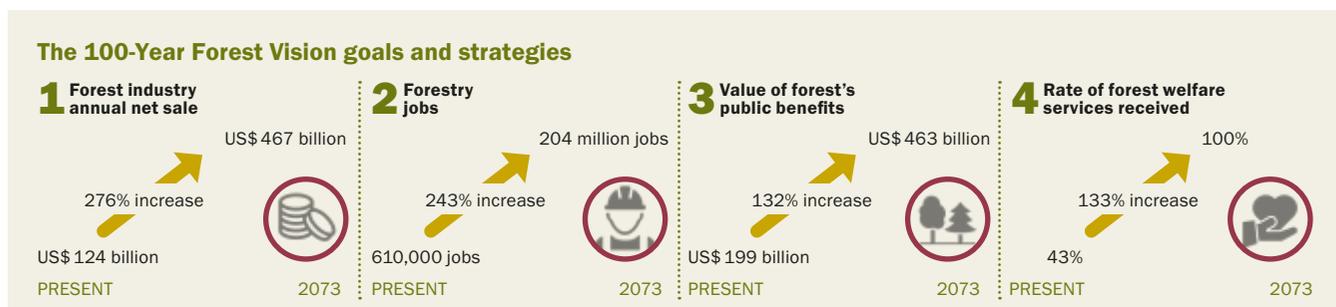
Beyond reforestation: Korea's journey towards sustainable forest management

Following the conclusion of the second National Forest Plan, Korea's forest policy gradually shifted its focus towards enhancing the economic, environmental, and social functions of forests. The third National Forest Plan (1988–1997) concentrated on maximizing the value of forests by increasing sources of income and the public benefits derived from them. Notably, the third plan marked a significant milestone by recognizing the evaluation of the non-market values of forests, including their contributions to public benefits such as water resources and wildlife conservation.

The goal of the fourth National Forest Plan (1998–2007) was to foster a lush green country where people and forests harmoniously coexist. The scope of this plan expanded beyond viewing forests solely as natural resources and encompassed their various functions that provide public benefits. Subsequently, the fifth National Forest Plan (2008–2017) presented the vision of a green welfare country where all citizens can experience harmony with forests. This plan emphasized the creation of a framework in which forests serve as foundations for work, rest, and living, establishing a virtuous cycle of various forest functions and benefits. Furthermore, the role of forests as carbon sinks was reinforced to address the climate crisis.

The sixth National Forest Plan (2018–2037), currently underway, has been extended from its initial 10-year time frame to a comprehensive period of 20 years, aligning it with other national planning systems such as land use planning and natural environment conservation planning. With the vision of economic forests that create jobs, forest welfare enjoyed by all, and ecological forests for people and nature, the concept of a circular economy with forests was included. This concept promotes sustainable economic growth and generates social added value by increasing investment in people. The plan also emphasizes stronger connections with the global community's Sustainable Development Goals, specifically through the implementation plans for SDG 13 (Climate Action) and 15 (Life on Land).

The year 2023 marks the 50th anniversary of the implementation of the first National Forest Plan which was known as the Forest Rehabilitation Plan. Over the past five decades,



Korea has made significant efforts in restoring degraded forests and improving the value of forests. As forests thrive, deliberate measures are taken to enhance their diverse functions and ensure sustainable management. Consequently, Korea has witnessed the continuous expansion of the economic, environmental, and social contribution fulfilled by its forests.

As of 2021, the forest industry in Korea achieved annual sales surpassing US\$ 120 billion, generating around 610,000 jobs in related sectors. In an effort to preserve biodiversity, 12 per cent of the total forest area has been designated as protected. Forests are also instrumental in the absorption and storage of approximately 38 million tonnes of carbon on an annual basis, playing a critical role in mitigating climate change.

Moreover, around 43 per cent of the Korean population actively engages with forests to enhance their welfare, participating in activities such as forest recreation, education, and healing. Additionally, approximately 19 per cent of the population resides in mountainous villages, using forests for their livelihood. Beyond the goods traded in markets, such as timber, forests in Korea contribute significantly to public benefits. As of 2020, the value of these benefits amounted to over US\$ 195 billion per year. This implies that each Korean receives benefits from forests equivalent to US\$ 3,737 annually.

Forging a sustainable future: Korea's new forest vision for a happier country

In 2023, the Korea Forest Service has unveiled the 100-Year Forest Vision, bridging the accomplishments of the past 50 years with the aspirations for the next 50 years. This vision serves as a testament to the enduring dedication of the Korean government in harnessing the power of forests to drive comprehensive national development. It embodies a long-term commitment to foster a sustainable and harmonious relationship between the people and invaluable resources, with the ultimate goal of flourishing with forests.

The plan sets forth ambitious goals — to enhance sustainable forest management, the national economy, people's happiness and safety, as well as respond to global and national critical issues, the vision delineates six strategic approaches: economic forest, environmental forest, social forest, forest disaster control, international forest cooperation, and forest science and technology. These strategic approaches will guide efforts to achieve the future envisioned, where forests play a pivotal role in fostering holistic well-being and prosperity for the Korean people.

To safeguard and preserve our forests, the goal is to maintain the total forest area at its current level, which accounts for about 63 per cent of the total land mass. Additionally, steps

will be taken to expand the protected forest, with a target of encompassing 30 per cent of the total forest area. Sustainable forest management will be a key policy, encompassing the cycle of planting – tending – harvesting – planting again. To support effective forest management and disaster control, the development of forest roads will be prioritized. Furthermore, promoting forestry mechanization will facilitate domestic wood production. These efforts are expected to increase the wood self-sufficiency rate. By adopting these measures, Korea aims to ensure the long-term vitality and sustainability of its forests while fostering a balanced and self-sufficient approach to wood production.

Forests will play a crucial role in the journey towards achieving carbon neutrality. To this end, there will be a focus on expanding carbon absorption and wood production in domestic forests, while also enhancing the carbon storage capacity of urban areas through the development of wood-friendly cities and wooden public buildings. Moreover, efforts will be made to improve living conditions in mountainous villages, fostering the development of forest culture and promoting forest tourism. Urban forests will be nurtured to enhance the welfare of all citizens, ensuring that forests are accessible and enjoyed by everyone.

Through these comprehensive efforts, a forestry renaissance will be achieved, enhancing the happiness and well-being of the Korean people through their profound connection with forests. By recognizing the multifaceted benefits of forests and embracing sustainable practices, Korea is poised to lead the way in fostering a harmonious relationship between people and nature, while actively working towards a greener and more resilient future.

Growing together: sharing reforestation and forest management expertise

Since the inception of Korea's bilateral forest partnerships in 1987 with the signing of a Forestry Cooperation Agreement between the Republic of Korea and Indonesia, Korea has demonstrated a steadfast commitment to international forest cooperation by establishing bilateral ties with 39 countries across all six continents and has actively contributed to forest restoration in developing countries.

With the rise of global challenges like the climate crisis, desertification, deforestation, and biodiversity loss, Korea's focus has shifted towards collaborative efforts to address these issues. Against this backdrop, the ROK has proposed global forest initiatives and joined hands with various international organizations. The Forest and Landscape Restoration Mechanism and the Food and Agriculture Organization of the United

Nations (FAO) (FLRM), and the Forest Ecosystem Restoration Initiative with the Convention on Biological Diversity (FERI), among others to commit to various global forest initiatives have been launched.

Furthermore, at the 10th session of the Conference of Parties (COP10) of the UNCCD, hosted in Changwon, ROK in 2011, the Changwon Initiative was launched to support global efforts to combat desertification and land degradation. The initiative has performed a vital role in developing and promoting Land Degradation Neutrality (LDN), one of the targets of SDG 15, and enabled Korea to support the Greening Drylands Partnership (GDP) which has helped 16 developing countries restore their degraded land and forests. Serving as a bridge between developed and developing countries, Korea put its efforts to solve global forest issues.

Recently, Korea has joined the Forest & Climate Leaders' Partnership (FCLP), and led three significant cooperation projects in collaboration with United Nations organizations. These projects include Assuring the Future of Forests with Integrated Risk Management (AFFIRM), Sustaining an Abundance of Forest Ecosystems (SAFE), and the Reducing Emissions from Deforestation and Forest Degradation (REDD+) Capability Building Platform (REDD+ CBP). These initiatives were announced during the 15th World Forestry Congress, which Korea hosted in May 2022. These projects exemplify Korea's commitment to international cooperation in protecting forests and promoting sustainable development.

AFFIRM, in collaboration with FAO, is dedicated to establishing a forest disaster risk management platform and enhancing forest fire response capabilities within developing countries from 2022 to 2025. Its primary objective is to strengthen the resilience of forests and local communities by effectively managing and mitigating forest-related risk. Through this partnership, AFFIRM aims to contribute to the sustainable management and the protection of forests.

In partnership with The United Nations Environment Programme, SAFE focuses on ecosystem restoration in

vulnerable areas with significant biodiversity in developing countries from 2023 to 2030. This initiative focuses on establishing a comprehensive monitoring system, developing income-generating programmes for local residents, and supporting capacity building efforts. By restoring ecosystems, SAFE seeks to enhance biodiversity conservation and improve the well-being of communities dependent on forest resources.

The REDD+ CBP project, in cooperation with the UN-REDD+ Programme, has developed a capacity building platform for the implementation of REDD+ in developing countries from 2023 to 2027. This initiative focuses on reducing greenhouse gas emissions by promoting sustainable forest management practices, combating deforestation, and encouraging forest conservation efforts. By supporting countries in implementing REDD+ policies, the project aims to contribute to global climate change mitigation efforts and foster sustainable forest management practices.

Over the past three decades, Korea has been proactive in expanding international forest cooperation, encompassing various areas such as forest fire management, landslide prevention, pests and diseases control, forest inventory utilizing information and communication technology, forest recreation and tourism, as well as forest restoration. These endeavours reflect Korea's dedication to addressing global challenges and fostering sustainable forest management practices.

In March 2023, the Korea Forest Service unveiled the second International Forestry Cooperation Plan (2023–2027) with the primary objective of expanding official development assistance (ODA) for global forests and taking on an active role in collective response to global environmental issues. Through its international forest cooperation efforts, Korea strives to share its expertise, exchange knowledge, and contribute to global forest conservation and restoration. By collaborating with other nations and organizations, Korea wishes to join the journey with the global community in addressing the challenges our forests face and realize a sustainable future for both people and the environment.



Left: The Korea Forest Service renews the MOU on forestry cooperation with the Ministry of Agriculture and Rural Development in the presence of the two leaders, Hanoi, Vietnam, 2023. Right: NAM Sunghyun, Minister of the Korea Forest Service, plants mangrove seedlings, Nin Binh, Vietnam, 2023

Sustainable solutions — teaming up on forest stewardship

Kim Carstensen, Director General, FSC International

Healthy and resilient forests help life on Earth to thrive. Forests cover over 30 per cent of the Earth's surface, harbouring the vital genetic diversity of land-based plants, animals, and other living organisms. However, deforestation and forest degradation have resulted in over 13 million ha being lost annually, creating a significant global loss in biodiversity and ecosystems.

There is a crucial need to halt deforestation and forest degradation; forest stewardship does and goes even further. We must pursue a holistic approach including protection, conservation, restoration, and active forest management to ensure a future filled with healthy and resilient forests. We otherwise risk losing the fight against enormous global challenges such as climate change and biodiversity loss.

The Forest Stewardship Council® (FSC®) has made it its mission to promote environmentally sound, socially beneficial and economically viable forest management worldwide. FSC certification sets the standard for responsible forest management and is used by forest managers, businesses, and public authorities as part of their sustainable development agendas. FSC has implemented an evolving, holistic approach to foster a community for co-creation. Forest stewardship brings together stakeholders from diverse economic, environmental, and social perspectives in a balanced organizational structure to address global challenges facing forests and the planet as a whole. It enables multi-stakeholder processes to define responsible forest management standards that the certificate holders implement worldwide to drive change on the ground and set a global benchmark for forest stewardship.



Image: Julián Manrique

Ejido Nuevo Becal, Mexico. Forest conservation and sustainable forestry in Mexico contributes to maintaining the king vulture species' population



Image: Iván Castro

The Mayan Biosphere Reserve, Petén, Guatemala, is an FSC-certified community model on reducing deforestation and generating economic and social benefits for its inhabitants

The true value of forests is reflected in our understanding of forest stewardship. This is based on the knowledge, experience, and differing interests of our members, network, and staff around the world. A solution-based collaboration helps ensure holistic engagement, where the world's forests are used, cared for and protected.

The protection and development of the world's forests encompasses a multi-level approach, with FSC setting legal, environmental, social, and economic standards for forest stewardship. FSC is working to contribute to the development of widely used norms for forest landscape restoration and the creation of connectivity in the landscape to generate significant ecosystem benefits. Its standards extend beyond forest management and include monitoring requirements for manufacturers in the supply chain for labelling and recycling. FSC certification continues to grow and plays a pivotal role in achieving the Sustainable Development Goals (SDGs) outlined in the 2030 Agenda for Sustainable Development. As such, forest stewardship not only benefits local managers but also influences regional, national, and international stakeholders.

Key to protecting and managing ecosystems is the High Conservation Values approach, a pragmatic methodology that identifies and protects areas of high conservation importance. The six main categories are: species diversity; landscape-level ecosystems, ecosystem mosaic and intact forest landscapes; ecosystems and habitats; ecosystem services; community needs; and cultural values. FSC incorporates this approach into its forest stewardship standards, requiring local managers to protect FSC-certified forests, preserve endangered species, and maintain biodiversity and ecosystem functions. Adherence by all certificate holders to these extensively developed

and reviewed standards makes FSC a significant contributor to the Global Biodiversity Framework and SDG 15, which focuses on conserving and restoring 'Life on Land.'

FSC certification is highly relevant to SDG 15 and recognized as an indicator within target 15.2, which refers to the implementation of sustainable and responsible management of all types of forests, their protection, and reforestation. FSC forest management standards require forest managers to prevent deforestation, avoid forest degradation, and maintain biodiversity and ecosystem functions in the certified area. Only those forest managers that meet and maintain these standards are granted FSC certificates. Forest certification serves as a tool to track global progress towards sustainable forest management, included in indicator 15.2.1. However, its impact is not limited to one aspect within SDG 15. Instead, it plays a role in meeting most of SDG 15's targets. For example, FSC certifications and stipulations can be used for afforestation (15.3), mountain ecosystems (15.4), natural habitat (15.5), and protection against poaching (15.7), to name just a few. Applying the principles of FSC in these projects can encourage the creation of multi-functional forests with benefits beyond the borders of the project. In fact, FSC certifications have significantly impacted the conservation and restoration of forest ecosystems worldwide, playing into target 15.1 — ensuring the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains, and drylands.

The Maya Biosphere Reserve (MBR) in Guatemala is one such notable example of FSC-certified forest management. Within this reserve, FSC-certified local communities manage approximately 398,300 ha (out of the more than two million

ha of 15–20-meter towering trees), with 55 per cent designated for conservation and safe habitats for local biodiversity and harvesting non-timber products, like xaté. The remaining 45 per cent is approved for wood extraction, limited to a cutting cycle of 30 to 40 years. The success of responsible forest management in the MBR is evident through the economic benefits generated, improved community well-being, and thriving biodiversity, including an increased population of jaguars. With reported values ranging from 1.5 to 11.28 jaguars per 100 km², these areas boast the highest numbers of this iconic species in the country. Furthermore, the incidence of vegetation fires within certified community forest areas in the MBR is significantly lower. Less than 1 per cent of the 7,794 regional vegetation fires recorded in 2017 occurred within the certified community forest areas. This stands in stark contrast to surrounding legally protected areas like the Laguna del Tigre National Park. The MBR case exemplifies FSC's contribution to SDG 15, particularly targets 15.2, 15.5, 15.7, 15.9 and 15.A and B.

Achieving sustainable development requires not only protecting forests but also ensuring responsible and sustainable production and usage of forest materials throughout global supply chains. Consumers worldwide are increasingly demanding sustainable goods and expect brands and businesses to bear responsibility for positive change. The global report “An Eco-wakening” from The Economist Intelligence Unit, 2021, has shown an increased online interest

Case study: Maya Biosphere Reserve, Guatemala

The Maya Biosphere Reserve (MBR) forest concessions in Petén are a clear example of conservation, cohesion, and development. These concessions bring benefits not only to the local communities but also to the forest itself and the country as a whole. By fostering biodiversity and enabling sustainable livelihoods for local communities, the MBR demonstrates the successful coexistence of human well-being and environmental preservation.

Under the management of local communities, the forest concessions within the MBR have thrived, showcasing sustainable practices and remarkable biodiversity. In fact, the level of success achieved within the FSC-certified areas surpasses that of adjacent legally protected regions. One notable accomplishment is the preservation of the forest, with deforestation rates as low as 0.4 per cent, contributing significantly to maintaining 70 per cent of the reserve's conservation status.

The positive impact extends beyond environmental conservation. Within the local communities, the forest concessions have led to tangible improvements in social indicators. For example, child malnutrition rates have decreased, school attendance has increased, and migration rates have lowered. These outcomes reflect the holistic approach of the forest concessions, promoting the well-being of both people and nature.

The MBR forest concessions demonstrate the extraordinary potential for sustainable development when communities, conservation, and responsible forest management align.

in sustainable goods by 71 per cent worldwide. Additionally, according to a joint study from McKinsey and NielsenIQ published in the US in February 2023, an overwhelming majority of consumers care about buying environmentally and ethically sustainable products. This seems to be directly correlated to the business growth of companies, as the study states: “Products making ESG (environmental, social, and corporate governance)-related claims averaged 28 per cent cumulative growth over the past five-year period, versus 20 per cent for products that made no such claims.” Through these kinds of studies, it is apparent that consumer awareness for sustainable products is on the rise and manufacturers are increasingly required to show their commitment to responsible and sustainable production.

FSC provides certifications and labels such as the “FSC 100%” and “Chain of Custody Certification” to manufacturers, enabling them to demonstrate their commitment to responsible and sustainable production. By sourcing materials from FSC-certified forests, manufacturers are required to maintain a sustainable resource base while harvesting forest materials and providing benefits for ecosystems. Certified manufacturers are also enabled via the FSC network to source from sustainably managed forests carrying a Forest Management Certification. FSC actively supports licence holders to connect with certified sources and suppliers, fostering trust and certainty for all stakeholders. In the same vein, FSC has helped develop SDG 12, which focuses on “Responsible Consumption and Production,” and is a main contributor under this goal. Its implementation helps to achieve overall development plans, reduce future economic, environmental, and social costs, to strengthen economic competitiveness and reduce poverty. FSC particularly supports targets 12.2 on sustainable management and efficient use of natural resources and 12.6 on company reporting in sustainable practices.

Sustainable forest management can also often be driven by public procurement. FSC's efforts have garnered support from public authorities, who are increasingly integrating sustainable sourcing requirements into their purchasing policies and recognizing the value of FSC's claims and labels. In consideration of target 12.7 on promoting public procurement practices that are sustainable, FSC has started a project to promote the use of FSC certification in sustainable public procurement in Latin America. With responsibly sourced materials and manufacturers observing best practices, the penultimate step lies with the people. Only if consumers have the opportunity to choose sustainably produced materials and products can a true impact be achieved. With forest managers, manufacturers, and consumers acting in concert, moving toward a better world becomes possible.

Consumer awareness and demand for sustainable products are on the rise, emphasizing the importance of providing choices for sustainably produced materials. Closing the circle from sourcing to reclamation, FSC has established the “FSC Mix” and “FSC Recycled” Labels. These labels promote the reclamation and recycling of wood materials to ensure circularity in the sustainable production of forest materials. FSC's labels and practices contribute significantly to achieving SDG 12, specifically targets 12.5 on reducing waste generation substantially through prevention, reduction, recycling and



Image: paper bottles: Paboco. Pots: H&M Home



Image: Ivan Castro

Above: Paboco paper bottles made with FSC-certified paper, offering a fully recyclable alternative to established non-degradable plastic bottles. Left: The Mayan Biosphere Reserve, Petén, Guatemala

reuse, and 12.8 on ensuring that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

An example of sustainable production is the Paboco bottle. Since 2022, Paboco has used FSC-certified paper to offer consumers a fully recyclable alternative to established non-degradable plastic bottles. The development of the bottles began in 2010 and quickly became a collaborative effort between Paboco and FSC with the vision to create a 100 per cent bio-based and recyclable paper bottle using materials that are responsibly sourced and fully sustainable. It's this kind of small innovation and step toward responsible consumption and circularity that moves us forward on the path to a better

world. Collaborative projects such as this are vital for achieving SDG 12, and FSC remains a valuable tool and enabler for all forest-based products.

By combining responsible forest management and sustainable consumption practices, FSC contributes holistically to sustainable development worldwide. FSC certification ensures that forests are protected, biodiversity is conserved, and ecosystems can thrive, thus contributing to SDG 15. Simultaneously, with FSC's labels and certifications empowering manufacturers to demonstrate their commitment to responsible production, FSC is actively advancing the objectives of SDG 12. Together, these efforts contribute to the broader goals outlined in the 2030 Agenda for Sustainable Development.

While the work to protect forests and promote sustainable practises is ongoing, FSC remains dedicated to providing the necessary tools for sustainability commitments on communal, business, and governmental levels. We strongly believe that forest certification has been, and remains, a powerful solution, but it cannot stand alone. Collaborative efforts between forest managers, manufacturers, consumers, NGOs, and public authorities are essential to keep forests healthy and resilient and to realize the SDGs. Forest stewardship has a role within these efforts, and we aim to increasingly work in partnership with other actors to achieve the long-term preservation of biodiversity, the restoration of forest ecosystems, and a more sustainable future for all.

Protected and used sustainably, tropical forests are key to our sustainable future

Sheam Satkuru, Executive Director, International Tropical Timber Organization (ITTO)

Forests, and especially tropical forests, sit in the eye of a global storm. Market forces, poverty and climate change are among many factors driving their continuing loss and degradation worldwide. Yet the need to conserve their vast stores of carbon, biodiversity and the socio-economic benefits that forests provide has never been more pressing.

Finding ways to safeguard and restore forest ecosystems so they can withstand these pressures and continue delivering their many benefits will be vital to realizing the Agenda 2030 for Sustainable Development and its related Sustainable Development Goals (SDGs), from ending poverty and hunger to strengthening livelihoods and protecting the health of both people and nature.

Forests cover nearly one-third of the Earth's land surface and are among the most productive land-based ecosystems. Some 1.6 billion people depend on forests for their livelihoods or essentials like food, fuel and shelter. Some 70 per cent of people enduring extreme poverty live in the tropics. When managed sustainably, forests conserve soil and water, filter the air we breathe, prevent land degradation and desertification, and reduce the risk of floods, landslides, droughts and other disasters.

Some 45 per cent of global forests are found in the tropics, extending over more than 1.8 billion ha in Latin America, Africa and Asia. The harvesting and trade of wood and other products from tropical forests supply local and global markets while supporting economies and communities in many developing countries. Furthermore, the sustainable management



Image: Sarawak Forest Department

High school students learn about forest values during a field trip to the Lanjak Entimau Wildlife Sanctuary in Sarawak, Malaysia



Image: ENEF, Mhaimayo

Forest education curricula must be kept up to date to meet the demands of this fast-evolving sector

of forests is of critical importance for SDG 15 (Life on land): “Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.”

ITTO and the SDGs

Ensuring the sustainable use of tropical forests is a core mandate of the International Tropical Timber Organization (ITTO), which is aligned with the recognition enshrined in the 2030 Agenda that ending poverty must go hand-in-hand with strategies to build economic growth, address social needs, tackle climate change and ensure environmental sustainability.

As the only intergovernmental organization focused exclusively on the sustainable management of tropical forests and the sustainable and legal trade of tropical timber and timber products, ITTO is perfectly placed to assist countries in their efforts towards the SDGs, especially SDG 1 (No poverty), SDG 12 (Responsible consumption and production), SDG 13 (Climate action) and SDG 15.

Following its establishment in 1983, ITTO pioneered the concept of sustainable forest management (SFM). Over the years it has funded more than 1,200 projects and activities to promote SFM through improved policies and on-the-ground practices and by building capacity in tropical countries; work that has contributed significantly to the achievement of many of the 17 SDGs as outlined here.

Forest landscape restoration

A key approach to reviving tropical forests and the land from which they have been largely cleared is forest landscape restoration (FLR). FLR often involves creating a mosaic of productive, resilient and biodiversity-rich land uses, for instance by promoting sustainable forestry and agroforestry as well as conservation and ecotourism.

ITTO considers FLR as an important element in efforts to help economies recover from the impacts of the COVID-19 pandemic. Interest in FLR has grown enormously in recent years, and there are an estimated 900 million ha of degraded forest lands in the tropics, meaning that the potential gains are vast.

In 2020, ITTO, in cooperation with several partners, published guidelines for restoring degraded tropical forest landscapes¹ as a tool to help stakeholders — from policy-makers to foresters and farmers — in restoring degraded landscapes, thereby providing vital goods and ecosystem services and creating sustainable rural livelihoods and employment. Training on the application of the guidelines has commenced and is an ongoing exercise.

In addition, ITTO and the International Union of Forest Research Organizations (IUFRO) released a free series of learning modules to increase understanding and raise awareness of FLR among the next generation of professionals and policy- and decision-makers. Released as a contribution to the 2021–2030 UN Decade on Ecosystem Restoration, the

modules can be used by high schools and universities across the tropics and elsewhere to boost curricula in science, social science, agriculture, climate change, environmental studies, forestry, geography, and planning and development studies.

At field level, numerous ITTO projects are making tangible contributions to the restoration of tropical forest landscapes. For example, an ITTO project has restored a variety of forest landscapes in Guatemala, part of the Central American Dry Corridor and one of the most vulnerable countries in the world to climate change. Providing training to and working closely with communities, the project has restored four different forest ecosystems: cloud forests, dry forests, pine-oak forests and mangrove forests. In Togo, two ITTO projects have supported women's groups carrying out FLR in the West African country's poorest prefectures, Blitta and Lacs. The initiative has involved 100 women, who produced nearly 48,000 seedlings of forest tree species and used them to transform 20 ha of degraded land into tree plantations and agroforests. The agroforests are generating significant income, and their output will help meet local demand for fuelwood and timber while enriching the livelihoods of local communities by empowering the women involved and granting them financial independence in line with ITTO guidelines on gender equality and women's empowerment.²

ITTO's work on FLR contributes to SDGs 4, 5, 11, 12, 13, 15 and 17.

Integrated fire management

Climate change is fanning the threat from wildfires in ecosystems including tropical forests. ITTO has responded with projects designed to reduce the risk of fire in forest landscapes, protecting communities and businesses that depend on forests along with valuable stocks of timber, biodiversity and carbon.

In Indonesia, where uncontrolled and unmanaged burning causes catastrophic fires, an ITTO project has engaged with local communities and built the capacity of fire brigades in the provinces of South Sumatera, Central Kalimantan and South Kalimantan. Communities have been instructed in how to prepare land without burning, while fire brigades were trained in fire management and provided with gear and equipment. The project has also helped with the development of a monitoring and reporting system for fire prevention. ITTO has carried out a similar project in five departments in Peru, where an increased awareness among local communities of the risks posed by forest fires can accelerate the implementation of national and regional forest fire action plans.

ITTO's work on integrated fire management contributes to SDGs 3, 13, 15 and 17.

Mangroves

ITTO's work also encompasses coastal forests. In several tropical countries, ITTO activities have enabled the restoration and sustainable management of mangroves.



Brigade training on fire management in South Sumatera, Indonesia

Image: ITTO fire project



Image: Aporosa Ramulo Livani, Ministry of Forestry

The Nasilai women's group planted 5,000 mangrove propagules along the foreshores of their village as part of an ITTO project in Fiji

In Fiji, for instance, an ITTO project has supported the efforts of local communities and government in restoring mangroves and wetlands in the Rewa Delta, the country's most important marine ecosystem. The project is a key element of the government's effort to increase tree cover across the Pacific archipelago. The project established sites to demonstrate the rehabilitation and sustainable management of coastal ecosystems; worked with communities and other stakeholders to improve decision-making on mangroves; developed a national guideline on mangrove use and management; and raised awareness of the importance of sustainable mangrove management, including through the production of guidelines and several videos.³

ITTO's work on mangroves contributes to SDGs 1, 5, 13, 14, 15 and 17.

Tropical timber supply chains

As well as field projects that showcase best practices in SFM that can be applied at scale, ITTO supports the strengthening of governance frameworks and policies that foster sustainable forestry and the trade in sustainably and legally harvested tropical timber and other forest products and services. A central pillar of these activities is support for the development of legal and sustainable supply chains, whose establishment can promote the use of tropical timber as an environmentally friendly, sustainable material and help consumers identify green products. This includes support for tracking systems that prove the origin and legality of timber in international trade. Together with improved enforcement against illegal logging and trade, such measures are critical to channeling urgently needed investment into wood industries with

sustainable business models. For example, ITTO is implementing a programme that harnesses the benefits of legal and sustainable supply chains (LSSC) for climate-change mitigation, biodiversity conservation and development.

Under its capacity building component, the ITTO LSSC programme produced a comprehensive training course aimed at managers and technical staff across Africa's Congo Basin to facilitate their understanding and appropriate management of LSSCs for tropical timber products. The course is already being disseminated in five countries. In Vietnam, Thailand and Indonesia, an ITTO project is supporting the development of domestic markets for sustainably produced wood products to reduce the sector's dependence on exports and of sustainable plantation forestry to meet demand and provide jobs and income in rural communities. This involves working to improve the regulatory framework and building capacity among stakeholders to engage in wood supply chains.

Vietnam is a focus along with other countries in the Greater Mekong Subregion of ITTO activities to enable smallholders to improve their livelihoods while meeting growing demand for sustainable teak. For example, an ITTO project has produced a book presenting best practices for planting, managing, harvesting and processing this valuable tropical hardwood and for demonstrating legality and sustainability along supply chains. Other activities have included training programmes for hundreds of foresters and smallholders and the establishment of tree nurseries in the subregion, which also includes Cambodia, the Lao People's Democratic Republic, Myanmar and Thailand.

ITTO released a free online course⁴ designed to help realize the potential of sustainable timber supply chains derived from



Image: ITTO

Farmers work in their teak nursery in Lampang, Thailand, which is producing higher-quality teak planting stock as part of efforts to expand and improve the area's planted teak resource

sustainably managed forests. The course is aimed at entrepreneurs, forestry professionals, government officials, students and others; it encourages the uptake of SFM by creating a conducive policy environment and builds the capacity of businesses to meet market requirements for sustainability. This course was ITTO's output to a larger project in collaboration with the Food and Agriculture Organization of the United Nations and IUFRO to improve forest education worldwide.

ITTO's work on legal and sustainable timber supply chains contributes to SDGs 4, 8, 9, 12, 15 and 17.

Policy and advocacy

Knowledge-sharing to foster SFM and sustainable development involves, in addition to hands-on training, the formulation of guidance for policymakers as well as cooperation with a wide range of stakeholders. ITTO's policy work has seen it issue several guidelines on, for example, FLR in the tropics, criteria and indicators for the sustainable management of tropical forests, the conservation and sustainable use of biodiversity in tropical timber production forests, and gender equality and empowerment of women.

Achieving the goals of ITTO as well as the SDGs depends on governments deepening their commitment to Agenda 2030 in general and the sustainable management of tropical forests in particular. To that end, ITTO is tireless in its advocacy for SFM and sustainable trade, whether through its communications, field activities, outreach work, or presence at major international forums.

Speaking at the December 2022 Conference of the Parties to the Convention on Biological Diversity, where a new global

framework for the conservation of nature through to 2030 was agreed, ITTO called for more investment in tropical forests and greater recognition of how global challenges are intertwined. Tropical forests are increasingly susceptible and vulnerable to land-use change, deforestation and degradation, all of which are precipitated by worldwide threats affecting food, wood and energy security. Finding integrated and cross-cutting solutions that can address these issues simultaneously is the challenge of our times. Forests will be central to meeting the goal of conserving 30 per cent of lands and water by 2030 under the new framework. Managing tropical forests so that they continue to deliver their many precious benefits must be part of the solution, and ITTO stands ready to assist in devising and implementing the actions needed to secure a sustainable future.



Image: G. Sánchez-Vigil

A rural landscape of forest and agricultural land in Sierra los Tuxtlas, Mexico

A braid of care and empowerment — partnerships for refugees from Ukraine

Johan Alwall, Sandy Lu, Sarah Chu, Global Partnership Affairs Department, Buddhist Tzu Chi Charity Foundation

February 24, 2022 was Hanna Mankus's forty-second birthday, but instead of a celebration, she woke up to an invasion. Peering out of the window, she saw several Russian fighter jets flying by her home in Zaporizhzhia from Crimea, the sonic booms of the aircraft shaking the entire building as they passed. With a surge of adrenaline, Hanna sprang into action, instinctively gathering some belongings, grabbed her children by the hand, and rushed to the railway station in hopes of boarding one of the evacuation trains.

The scene was one of pandemonium and despair, with thousands of people, including women, children, and the elderly, desperately struggling to secure a place on the trains. For a few minutes, Hanna's heart skipped a beat as she momentarily lost sight of her younger son, Artem, during what felt like an eternity. On the train, compartments originally meant for four

people held twenty individuals, pressed together in discomfort. Whenever the train was forced to stop due to overhead shelling, the hours felt like days. When they were finally able to cross the border, the family found themselves adrift in a sea of uncertainty, where the duration of their exile remained unknown.

Hanna's story is far from unique. During the first three months of Russia's invasion, 6.5 million people left Ukraine, the biggest exodus in Europe since the Second World War and one of the fastest-growing refugee crises in history. Host countries, including Poland, which received over 3.5 million refugees in a matter of months, and Moldova, the second poorest country in Europe with a population of just 2.6 million, which received over 700,000 refugees, were quickly overwhelmed. In the face of what could have become a humanitarian disaster of gigantic proportion, hundreds of thousands of individuals and families in the host countries took action, flocking to railway



Image: Polish Women Can Foundation

Ukrainian refugees study Polish language and culture at the Safe Haven, a collaboration between the Polish Women Can Foundation and Buddhist Tzu Chi Charity Foundation



Image: Airlink

Strengthening the local capacity to provide life-saving medical care through the donation of medical equipment, in partnership with Airlink and ADRA in the Baryshivka region, Ukraine

stations and borders to offer transportation and necessities, or opening their doors to the refugees, allowing Ukrainian families, women and children to stay in their homes. National and international non-government organizations also acted quickly, setting up tents and providing services, many times coordinating the efforts directly on the ground.

For Buddhist Tzu Chi Charity Foundation (Tzu Chi), a faith-based international non-governmental organization with volunteers in 66 countries and activities in 128 countries around the world, the full-scale Russian invasion of Ukraine marked the start of months of febrile activity. Before the conflict, the organization had its main activities, resources, and volunteer manpower in Asia, Africa, and the Americas, with only a modest presence in Europe. In particular, the organization was not present in any of the countries neighbouring Ukraine. Still, the mandate of the organization's founder, Bhikkhuni Dharma Master Cheng Yen, was clear: compassion and love go beyond borders and are independent of religion, nationality, ethnicity, societal status, age, or gender. Remaining inactive in the midst of such tremendous suffering and needs was not an option.

Mobilizing connections in Poland as well as volunteers from Germany, Türkiye, UK, and the US and establishing relationships with local churches and charitable organizations, Tzu Chi was able to quickly set up a number of distribution points to provide refugees with grocery cards and cash value cards, providing recipients with the agency to choose how to use the assistance, based on their individual needs. Distributions were organized to maximize their healing, uplifting, and community building qualities, featuring Ukrainian performances and music, a streamlined check-in and distribution process, and a large number of volunteers to guide and interact with the refugees, who were also invited to volunteer or donate money themselves to assist others and pass the love forward.

However, it was clear from the start that there were limits to what Tzu Chi could accomplish by itself. To have a lasting,

positive effect on the development of the refugee crisis, Tzu Chi needed to partner with other local as well as international organizations, working together to maximize the impact of their combined resources and expertise. Tzu Chi therefore issued a call for project proposals and reached out to long-term partner organizations to solicit project ideas and plans rooted in the situation on the ground. Among the proposals received, the organization selected those most aligned with its principles of directness, timeliness, priority, practicality, and respect, with a special focus on projects that promoted agency and empowerment of the target populations. Selected organizations included UNICEF, the Camillian Disaster Services International Foundation (CADIS), Polish Women Can Foundation, IsraAID, Airlink, the Adventist Development and Relief Agency (ADRA), Project Hope, and World Hope International. As it happened, aside from strengthening the aid capacities of everyone involved, these partnerships also created a strong interfaith bond, including Buddhist, Catholic, Protestant, Jewish, and secular organizations working hand in hand to provide relief for the mostly Orthodox, Catholic or secular Ukrainian refugees and IDPs.

For Hanna and the millions of other Ukrainian refugees, weeks in exile turned into months, and with time, a range of different needs presented themselves. In the beginning, the main concern might have been shelter and food, but gradually, needs for psychological support, medical assistance, and long-term housing were joined by the necessities of learning the host country's language and finding job opportunities. Anticipating these developing needs, Tzu Chi's various partnerships addressed different clusters of needs, and the flexible partnership setups ensured that the responses would evolve and develop according to the shifting situation on the ground.

Before the invasion, the Camillian Mission for Social Assistance had been assisting populations affected by homelessness in Warsaw, building up significant capacities and networks for shelter, rehousing, and job placement services as well as a variety of urgent relief expertise. With the arrival of the Ukrainian refugees, these capacities were quickly put to good use, with staff setting up information services at the two main railway stations in Warsaw, providing information as well as hot meals and other assistance to tens of thousands of refugees on a daily basis. With assistance from Tzu Chi, part of the Camillians' homeless shelter facility was turned into short-term housing for Ukrainian women and children, and their seminary dormitory was renovated and repurposed into intermediate-term housing, in particular for families. The provisions included meal services, regular medical services, childcare for preschool-aged children, as well as job placement and assistance in finding long-term rental housing for residents once they were able to stand on their own feet. The most recent addition to the services is the provision of a co-working space, enabling refugees to make an income by providing services to the community, including hair-dressing, manicures, and various types of handcraft.

The Polish Women Can Foundation specialized in assistance to children in foster care and their families, with expertise in dealing with different types of trauma in children and with the benefit of a large contact network among day care facilities around Poland. Building from their experiences of assisting



Image: Tiffany Tu

Cash value cards with letters of blessing from Tzu Chi and CADIS



Image: IsraAID

In Moldova, IsraAID's Child-Friendly Spaces have provided more than 2,500 children with therapeutic and recreational play, crafts, and educational opportunities in partnership with Tzu Chi

those vulnerable populations, they proposed to create an integration space where refugees, primarily the elderly, women, and mothers with children, could find a range of services helping them deal with their traumas and preparing them for a long-term stay in Poland. In partnership with Tzu Chi as well as a medical clinic company, AMEDS, the offerings included psychologist services, legal consultation, group therapy, therapeutic activities for children, medical services, and classes in parenting, safe birth, nutrition, and, crucially, the Polish language, all at no cost to the clients. The space was primarily staffed by Ukrainian refugees, providing employment opportunities for psychologists, doctors, teachers, and administrative personnel who were in this way able to assist their compatriots while simultaneously making a living and practicing their professions. This integration space was such a success with the Ukrainian refugee population in the Warsaw area that both the integrations space and the medical assistance project have been extended for a second year, currently running through to the end of 2023.

In Warsaw, these facilities complement the family care services and financial assistance provided by Tzu Chi's

volunteers. For example, care recipients may visit AMEDS for medical care and go to Polish Women Can for Polish language classes and psychological assistance, while working in the co-working space provided by the Camillian Mission. The close partnerships across organizations, sectors, and faiths create a braid much stronger than any of its threads, and the unity of vision among the partner organizations ensures that all of them work toward empowerment and rehabilitation, obviating the possibility of service recipients falling into a state of dependency or entitlement.

For the people who work within these partnerships, the experience is providing another, unexpected benefit — the deep and warm friendships developed with colleagues, volunteers, and care recipients from different organizations, countries, cultures, and backgrounds. In the end, such interpersonal relationships, characterized by gratitude, respect and love, may very well be what will most help refugees from Ukraine in their journey of re-establishing their lives, whether in their new host countries or after returning to Ukraine in the future.

Letter from a Safe Haven beneficiary

"I arrived in Warsaw with my daughter Vlada and our dog, having only two backpacks with candles, matches, soap and provisions for three days each. Thankfully, I heard about the Safe Haven by Polish Women Can Foundation and Tzu Chi Foundation. There, we were able to receive grocery cards, professional psychological support, legal assistance, group language classes, various trainings and group meetings, and even celebrations and gifts during the holidays. My daughter found friends among the group for teenagers, who spend time solving their problems together with psychologists and also play games such as billiards and bowling. For us, the Safe Haven has truly become a place where you feel like home. It's a place where you can take a break, drink delicious coffee, talk about what's going on right now and know that you're not alone. It's a space where new friends appear, new ideas are born and the desire to live returns. Thank you so much for being in our lives, and thank you for your work, responsiveness, professionalism, creativity, warmth, and humanity."

Marianna Fedorenko

Supply of clean, drinkable water, free for residents

After the city of Mykolaiv saw its water infrastructure destroyed by war, the city had no clean water for over three months, and what water it did have was contaminated. Tzu Chi and IsraAID partnered with the local municipality to install twelve reverse osmosis (RO) systems along with 32 heated dispensers, which, so far, have produced more than 2.3 million litres of clean, drinkable water free for all residents.

"We had no water whatsoever. Every day, I drove around looking for springs. I wanted to help my hometown. I do everything in my power to help people with drinkable water."

A Mykolaiv resident, Pavlo, who joined IsraAID as a water process engineer.

SDGs helping to bridge religion and development

Katherine Marshall, Georgetown University

Two bold assertions might be questioned: that the Sustainable Development Goals (SDGs) cannot be achieved without religious engagement, and that every goal, every SDG target, involves religious communities and ideas.

That most of the world's population (84 per cent, by one count) has a religious affiliation is often forgotten in policy-making circles. More important still are the deep roots of compassion and aspirations for a better world that are intrinsic to most faith traditions and teachings. Faith communities provide substantial, if only partially quantified financial and material support. These realities can be obscured both by important tendencies embedded in multinational circles that include, positively, impulses towards objectivity and evidence-based approaches, and, less positively, preconceptions and, simply, blinkers. Long histories and vivid present tensions linked to religious actors encourage many to shy away from them. But theologian Hans Kung's assertion, that there can be no peace without peace among religions, rings true today. Ignoring or sidelining religious roles is too common a mistake.

Religious communities helped shape the SDGs — their influence on United Nations' member governments is significant and countless organizations form part of the civil society

organizations that are omnipresent. But many have pointed out that explicit recognition of religious dimensions in the SDGs themselves is very limited.

For the SDGs to succeed, religious support and engagement are important, not as an afterthought but as an integral part of the architecture. Trust, a sorely needed commodity, community and communication capacity are among religious assets; all are vital to the SDGs. Religious scepticism can undermine progress. Religious engagement must reflect both the complexity and dynamism of religious institutions and communities and their different contexts. Where religious communities are part of moving SDGs forward, that should be well understood. And where there are doubts or blind spots that too demands engagement. Knowledge and dialogue are prerequisites, drawing on the rich experience of religious communities, touching every challenge and every goal.

Four examples highlight how and why religious communities have central roles for the SDGs.

Protecting the world's rainforests, the “lungs of the earth”, is the goal of the Interfaith Rainforest Initiative (IRI). It draws on commitments of different religious traditions to conservation and protection of natural resources but also to their understanding of the multiple and often complex pressures that drive deforestation in crucial rainforest regions.



Launch of the Interfaith Rainforest Initiative, June 2017, Nobel Peace Center, Oslo, Norway



Image: Katherine Marshail

Focus on children at Sarvodaya headquarters, July 2023

Religious leaders and communities come together both to increase public awareness and bolster political will to act and to address specific challenges linked, for example, to complex land disputes and tensions over the best ways to meet demands of poor communities that see potential benefits in moving into rainforest regions.

The indigenous communities that play vital roles in protecting tropical rainforests are central to the challenge and need to be included in protection strategies. That, in turn, demands an appreciation for their spiritual beliefs and practices as well as interests linked to welfare and community cohesion. In the Amazon basin, Southeast Asia, and Central Africa, interreligious approaches that honour and respect the indigenous communities are opening new windows for action.

Threats to the world’s major rainforests cannot be addressed by any single community alone — governments, private sector, and civil society must all be involved. The IRI offers a vivid example of a multisectoral approach that draws on important assets of religious communities and shows the benefits of a common approach that addresses differences among communities but also builds on common values. It brings religious communities together with governments and business leaders in new, creative coalitions that have promise for progress towards, especially, SDG 10 but at least nine other goals.

The framework of the SDGs is an integral part of the contemporary work of Sarvodaya, a world-renowned movement born

in Sri Lanka. Sarvodaya, from its founding by scholar and activist A. T. Ariyaratne, draws on Buddhist values, especially community involvement and compassion, both to shape its strategies and to motivate staff, volunteers, and those it works with. Sarvodaya has, over its 65-year history, proved itself a dynamic institution, taking on new challenges as the nation has developed and changed. Today, with Sri Lanka facing multiple challenges, economic, social and political, Sarvodaya is involved from the very local to very national levels, across the full SDG framework. It is a valued member of Sri Lanka’s civil society and a thought and action leader in addressing challenges that range from conflict resolution to development of social protection systems that are “fit for purpose” to Sri Lanka’s current challenges. It brings its religious heritage and conscious value system into every aspect of its strategic and day to day work.

The SDGs are distilled into five ‘Ps’, and in the strategic framing of its work, Sarvodaya can point to links to all five, with a rich approach that builds on the core spiritual values and on its practical work and the lived experience of the organization. ‘People’ reflects the deep commitment to human development, both individual and community, and core commitment to end extreme poverty through development of human capacities. ‘Peace’ is an essential part of work in a deeply divided society contending with the legacies of a long and bitter war. ‘Prosperity’ points to a continuing focus



Image: Katherine Marshall

Dr. Vinya Ariyaratne, Director General, Sarvodaya, Moratuwa, Sri Lanka, July 2023

on decent livelihoods and economic justice as a framing value. ‘Planet’ is reflected in a growing awareness of the values of conservation and a broad commitment to respect for nature and the environment, linked to core Buddhist teachings. And Sarvodaya has a long history of rich ‘Partnerships’ with organizations across different sectors. The focus on the SDG framework is exemplified in Sarvodaya’s longstanding commitment to children and to engaging them in efforts to work for a better future.

SDG target 3.7 focuses on specific and, in some settings, controversial goals: “By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.” Issues of sexuality and more specifically approaches to family planning are often viewed as difficult topics in religious settings, and they also raise the crucial topic of women’s equality. In West Africa’s Sahel region, which has some of the world’s highest population growth rates, questions about religious roles and approaches were so sensitive that the topic was essentially taboo in some settings.

In Senegal, a Muslim leader, Cheikh Saliou Mbacké, seasoned by extensive experience in international interreligious conflict resolution work, took on the challenge of turning a loosely defined commitment under Senegal’s national family planning strategy to use religious champions into something practical. Starting deliberately and cautiously, he engaged, in an approach that involved a widening circle of religious leaders from the different religious communities, Muslim and Christian, first in exploring the facts of population growth and maternal and child mortality, then in approaching leading religious communities and their leaders to secure support or at

least a willingness to listen and maintain neutrality. Over time, the informal circle grew into an association and then a formal, well grounded non governmental organization (NGO), with a strategy supported by an intellectual analysis that argued for religious support for child spacing and free access for married couples to modern contraception. The NGO, Cadre des Religieux pour la Santé et le Développement, or Religious Support for Health and Development (CRSD), is now a respected partner of both Senegal’s Ministry of Health and the multi-country Ouagadougou Partnership, and is an integral part of the broad strategy to address family planning in the region.

Sexuality and family planning are still sensitive issues for religious leaders and contribute to hesitation, for example, to introduce robust sex education programmes in schools, CRSD is forthright on what it sees as limitations for religious engagement, especially in promoting family planning for youth. The experience of a broadly framed and honest engagement has, however, supported a continuing dialogue that also translates into religious engagement on related issues including access to health, child marriage, and long-standing debates on education curricula.

The broad scope of religious involvement in global development work, including climate action and humanitarian challenges, is an important lesson from the COVID-19 emergencies. This underscores the need for scrutiny of the SDG framework with a religious lens. In the initial phases of the COVID-19 pandemic, the roles of religious communities were obvious — large religious gatherings were among early ‘super spreader’ events, religiously owned and run health facilities were direct service providers, and many, including the World Health Organization, appreciated the distinctive and powerful potential for religious communities to convey messages, positive and otherwise, about health-linked behaviours such as washing hands, social distancing and vaccination. Early collaborative ventures opened doors to active engagement that extended beyond immediate issues to bolder ventures like the Faiths4Vaccines coalition that focused on working with religious actors to reach underserved communities and to current work on pandemic preparedness.

But the religious roles went well beyond the classic public health roles. Religious communities were at the forefront of the safety nets that communities across the world needed as jobs vanished, supply chains were disrupted and food prices rose. Grief, mental health challenges and isolation also evoked much needed religious responses. Religious leaders contributed to efforts to address misinformation and hate speech and tensions among communities, linked to the pandemic and beyond.

In sum, countless examples of religious action and support across the SDGs bolster the assertion that there are significant religious links to every SDG as well as vital roles, some well developed and some still potential, to play. What is too often missing is thoughtful analysis and integration. And the case that religious engagement goes beyond the desirable to the essential in successful implementation and achievement is strong. Informed and creative engagement needs to take fully into account the wide diversity of religious communities and their development engagement. But, with positive engagement, much more can be achieved.

Notes and References

Page 18: Contributions of the Arab Fund for Economic and Social Development in satisfying Arab development needs and achieving SDGs

- 1 Among the most important financed projects in these areas are the King Abdullah Hospital in the Hashemite Kingdom of Jordan, which contributed to building and equipping a teaching hospital with a capacity of 643 beds that provided medical services to about 1.2 million people, building the Prince Hamzah Hospital in Jordan, contributing to the establishment of the first public university in Djibouti, and financing a project supporting primary education in Tunisia.
- 2 Other projects financed by the Fund within this field include a project aimed at providing about 7 million citizens with drinking water in Cairo, the Damascus project to provide 160 million cubic meters of water to supply about 1.3 million people, and the drinking water projects in Oman that supply large areas such as Seeb and the governorates of Sharqiyah, in addition to the Djibouti water project, which provides 2.1 million cubic meters annually, and the project to supply the eastern Aftoot area with drinking water in Mauritania through the establishment of a water treatment plant with a capacity of 5,000 cubic meters per day, a number of pumping stations and reservoirs, and the extension of main and secondary pipelines along a length of 170 km, and a project to supply 240 villages deprived of water in Egypt.
- 3 Among the most prominent contributions of the Arab Fund is the introduction of the steel-building industry in Yemen for the first time by contributing to the financing of the iron factories in Aden and Mukalla, financing the rehabilitation and maintenance of phosphoric acid and fertilizer factories in Tunisia, the rehabilitation of the phosphate fertilizer factory in Homs, Syria, financing of two fish-canning factories in Sabratha and Zaltin in Libya, and financing the infrastructure of the two industrial zones, Samail and Nizwa, in Oman.

Page 38: Sustainable agenda for future youth

- 1 MIB is a system that encompasses traditions dating back to the early days of the Southeast Asian Malay Kingdoms and that stresses the strong Malay cultural influence on the nation's fabric, the importance of the Islamic religion in many aspects of daily life and governance, and the acceptance and respect for Brunei Darussalam's ancient Monarchic tradition as represented by His Majesty the Sultan and Yang Di-Pertuan of Brunei Darussalam.

Page 42: Park City — a new paradigm for living in harmony with nature

- 1 The term Park City is disassembled into four Chinese characters corresponding to people, park, city, and market.

AUTHORS

Jiahua Pan, Xiao Ma, Yushan Li, Manqi Li, Maolin Liao; Research Institute for Eco-civilization, Chinese Academy of Social Sciences, Beijing 100710, China.
Li Liu, Chongqing University of Education, Chongqing 400065, China.

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AUTHORS:

Saikat Datta Mazumdar
Principal Scientist [Cluster Leader Nutrition, Dietary Behaviour and Smart Food and Chief Operating Officer, NutriPlus Knowledge (NPK) Program, Agribusiness and Innovation Platform (AIP)], Enabling Systems Transformation, ICRISAT.

Aravazhi Selvaraj
Chief Executive Officer and Cluster Leader, AIP, Enabling Systems Transformation, ICRISAT.

Priyanka Durgalla
Senior Scientific Officer, NPK, AIP, Enabling Systems Transformation, ICRISAT.

Harshvardhan Mane
Associate Manager, AIP, Enabling Systems Transformation, ICRISAT.

Tamilselvi Nedumaran
Senior Officer – Partnership development, AIP, Enabling Systems Transformation, ICRISAT.

Nancy Divya
Associate Manager – AIP, Enabling Systems Transformation, ICRISAT.

Victor Afari-Sefa
Research Program Director, Enabling Systems Transformation, ICRISAT.

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AUTHORS

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International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).
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International Crops Research Institute for the Semi-Arid Tropics (ICRISAT); International Center for Agricultural Research in the Dry Areas (ICARDA); and 'Ecole de Gestion et de Production Végétale et Semencière, Université Nationale d'Agriculture', EGPVS/UNA, Benin Republic.
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International Crops Research Institute for the Semi-Arid Tropics (ICRISAT); and International Maize and Wheat Improvement Center (CIMMYT).
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International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

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