



SDG 7 Localisation Snapshot

SCIENCE CITY OF MUÑOZ, Philippines



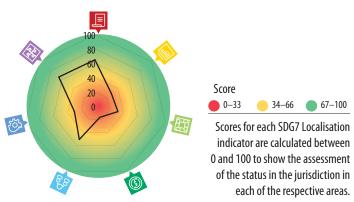
SDG7 Localisation Snapshot provides a brief overview of the key areas related to implementation of the Sustainable Goal 7 (SDG7) to 'Ensure access to affordable, reliable, sustainable and modern energy for all' at the local level based on the answers provided by the jurisdiction to the SDG7 Localisation questionnaire.

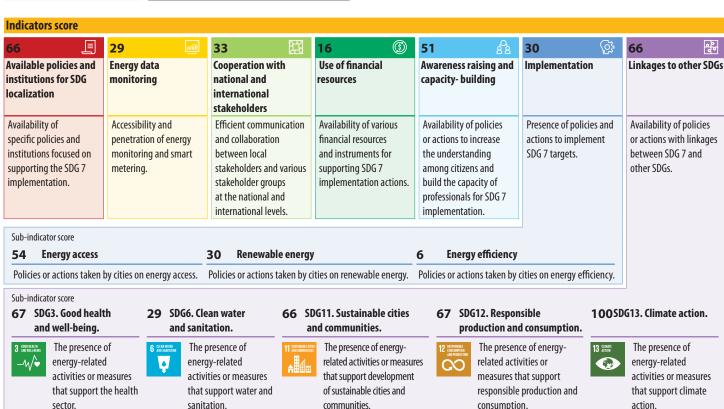
Questionnaire allowed to collect the assessments from the local officials regarding the situation on the implementation of SDG7 in their jurisdiction. SDG7 Localisation Snapshot is a part of the collaborative project of United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) and United Nations Environment Programme (UNEP) to support city and sub-national governments in accelerating their efforts in the field of sustainable energy.

General information

Name of the jurisdiction Country of the jurisdiction Population of the jurisdiction Area of the jurisdiction (in km²) Predominant climate SCIENCE CITY OF MUÑOZ Philippines 89,167 people 163.05 Tropical

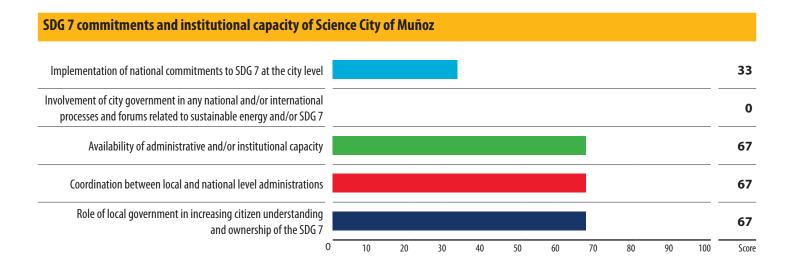
SDG7 Localization score

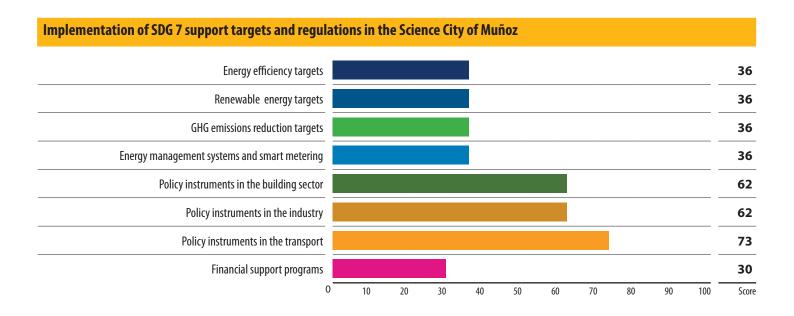


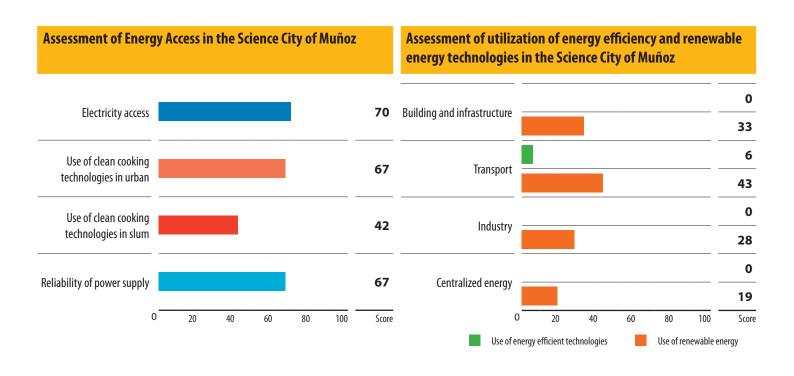


It is important to note that these indicators are qualitative and should not be used for assessing cities' achievement of quantitative targets under the SDG 7. The results for these qualitative indicators are based on cities' self-assessment of their current conditions, efforts, resources and capacity in relation to supporting SDG 7 localization process and can serve the role of the evidence base for constructing recommendations tailored to the local context, as well as the baseline results for tracking cities' progress of their SDG 7 localization efforts.

The results for each indicator are presented as a nominal score from 0 to 100 (where 100 is the maximum possible score, that can be achieved for each indicator or sub-indicator based on the aggregation of all answers of the questionnaire attributed to this particular indicator or sub-indicator).







Recommendations



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Indicator. Available policies and institutions for SDG localization

There are no national commitments to SDG 7, However, the jurisdiction is implementing SDG 7 policies and projects at the local level. It is recommended that the jurisdiction reach out to the national-level stakeholders involved to share lessons learnt on the implementation of SDG 7. It is also recommended that collaboration be sought with them on the development of SDG 7-related policies and projects as well as to receive guidance on the availability of financing or other stimulation measures in this area. It is recommended that the ways to apply a Multi-Level Governance (MLG) approach to implementation of SDG 7 be explored. The jurisdiction should consider integrating SDGs into its local development plans and other policies.

The jurisdiction has already established the necessary institutional set-up and appointed dedicated staff to support SDG 7 implementation. However, the existing technical and/or administrative capacity to support sustainable energy projects is limited. It is important to evaluate whether staff qualifications and capabilities are adequate enough to carry out the work on SDG 7 implementation. It is recommended that consideration be given to allocating some resources towards capacity-building and professional training of appointed staff to ensure that they have sufficient knowledge of SDG 7-related issues and solutions.

Various sustainable energy policies for the building sector are implemented or currently under implementation in the jurisdiction. It is recommended to work further towards expanding and refining the following policy instruments: mandatory use of renewable energy for hot water, mandatory requirements for on-site solar generation program to promote utilization of local materials in construction and retrofits, sustainable procurement regulation, smart energy metering, energy efficiency obligations schemes/ white certificates and carbon market project mechanisms/green certificates. The jurisdiction should aim to arrive at an effective mix of regulatory measures, incentives, and information instruments. Further increase of local level implementation needed for following policy framework, supported at the national level: mandatory on-site water treatment.

Various sustainable energy policies for the transport sector have been implemented or are currently under implementation in the jurisdiction. It is recommended that further work be undertaken towards expanding and refining the following policy instruments: regulations on biogas engines use and regulations on hydrogen engines use. Additional capacity-building training could be conducted for the relevant administrative personnel and transport sector experts, with the focus on the development of action plans and unlocking access to financial support, and disseminating lessons learnt. The jurisdiction should aim at arriving at an effective mix of regulatory measures, incentives and information channels. A further increase of local level implementation is needed for following up the policy framework, with support from the national level: regulations on hybrid engines use.



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Indicator. Energy data monitoring

The Jurisdiction has established data collection and monitoring systems in the following areas: other SDGs. Nevertheless, some of the sustainable energy development targets still do not have reliable verification mechanisms, such as energy efficiency, renewable energy, energy access, and sustainable energy/SDG 7. Establishment of a comprehensive data collection system for the local energy sector and areas related to other SDGs is a crucial foundation for the development and implementation of SDGs-related projects. Consulting existing guidelines on SDG indicators for further improvement of existing systems is recommended.

Energy management system and smart metering are currently under development. This covers a limited number of energy end-users in the jurisdiction, and its implementation at the local level is lacking supporting policy instruments: residential sector buildings, food and beverages, chemical and synthetic products, glass, cement and non-metals, iron and steel, pulp and paper, textile, leather and leather products, machinery and Transportation Equipment, wood and other products, agriculture and farming, other processing industry, electricity generation, district cooling systems, district heating systems, passenger car, motorbike, taxi, auto rickshaw, bus, tram, tractor, mini bus, freight transport, landfills, waste recycling, street lights, architectural and buildings lights, centralized water supply, and centralized sanitation systems. It is recommended that the necessary administrative and regulatory support is provided, starting with the appointment of responsible energy manager (or department), development of the Energy Action Plan and the implementation strategy. Transparent energy data collection and analysis is required for enabling access to extrabudgetary financing of SDG 7 oriented projects. For sectors which are still not covered by both national and local level programmes, the same steps for establishment of energy management system could be taken, with additional development of primary documents.



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Indicator. Cooperation with national and international stakeholders

Jurisdiction has been involved in a few multi-stakeholder city initiatives. Further development of national and international cooperation with city initiatives, networks and associations is recommended in order to benefit from the opportunities for capacity building, peer-to-peer learning, unlocking finance and disseminating knowledge on best-practices and solutions in the field of sustainable energy and SDG 7 localization.

The jurisdiction is not involved in any national and/or international processes and forums related to sustainable energy. Improved communication and cooperation with national and international stakeholders are required in order to promote knowledge sharing and peer-to-peer learning with other jurisdictions across the region. It is recommended that the opportunities for technical staff to participate in such forums be identified, and that collaboration with relevant national and international stakeholders be established.

Coordination mechanisms between the jurisdiction and other levels of governance (e.g., the national Government) regarding sustainable energy issues and/or SDG 7 implementation are in place and are supported by respective institutional set-up and budgetary frameworks. It is recommended that the jurisdiction and its local Government lead by example, and proactively initiate collaborative dialogues with the national Government and other jurisdictions in the country in order to identify, develop and implement joint activities on sustainable energy and jointly seek access to their financing.



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Indicator. Use of financial resources

Some financial programmes to support sustainable energy policies and projects have been adopted at the national level. However, only a limited number have been implemented at the local level: energy access, energy efficiency, renewable energy projects implementation. Focus on further strengthening the local level implementation of these mechanisms is recommended, in order to enable access to available extrabudgetary options that could be used to support execution of local-level projects. Additional capacity-building training for responsible administrative personnel, and the development of guidelines on accessing finance, are important steps towards establishing the framework for local procurement and financing procedures.

The jurisdiction does not have access to international support for energy efficiency and renewable energy water treatment project implementation. It is recommended that the level of cooperation between local administrative representatives and international development organizations be increased. Discussion and development of clear financing guidelines could streamline the process of project identification, preparation and implementation.



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Indicator. Awareness raising and capacity building

The jurisdiction has been involved in a limited number of reporting activities for tracking the progress on SDG targets. In order to evaluate the progress on, and contribution to the achievement of Sustainable Development Goals, including SDG 7, identify areas of life that require improvement, evaluate project opportunities, access sustainable energy financing and coordinate efforts with the national stakeholders, it is recommended that a sound SDG tracking and reporting process be established in the jurisdiction, and that cooperation be improved with relevant national level stakeholders. Preparation of Voluntary Local Reviews (VLRs) is one of the ways to analyse available data, and track and report on progress for SDGs at the local level.

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Indicator. Implementation

Sub-indicator. **Energy access**

Enhancement of electricity access in the jurisdiction is needed. The process should start from evaluation of technical conditions of existing electrical grids and other components of distribution system (in the format of technical inspections, energy audits, etc.) in order to increase accuracy of electrification planning. Energy efficiency measures and integration of renewable energy should be an important part of the electrification program. Targets for electrification and related key performance indicators should be set by relevant administrative department(s) and approved by policy makers at the local level. Capacity building trainings for local government and technical personnel are required, in order to ensure correct implementation of the planned activities.

A number of clean cooking technologies are used by households in the jurisdiction, such as: basic methods of burning fossil fuels (coal, oil products, wood, raw organic waste), improved wood cookstoves, electric cookers/pressure cookers, induction electric stoves, and low emission stoves (using fossil fuels or pellets/charcoal briquettes). Further promotion and support for clean cooking technology dissemination (e.g., capacity-building training on assembly and maintenance of clean cooking equipment for local professionals and low-income communities) are required, in order to achieve replication of efforts and large-scale adoption.

A number of clean cooking technologies are used in slums and informal settlements of the jurisdiction, such as: basic methods of burning fossil fuels (coal, oil products, wood, raw organic waste), kerosene, improved wood cookstoves, electric cookers/pressure cookers, induction electric stoves, and low emission stoves (using fossil fuels or pellets/charcoal briquettes). Further promotion and support for clean cooking technology dissemination (e.g., capacity-building training on assembly and maintenance of clean cooking equipment for local professionals and low-income communities) are required, in order to achieve replication of efforts and large-scale adoption.

Energy supply is quite reliable and sufficient for end-users most of the time. However, power outages may still occur sometimes. Improvement of the local backup energy supply capacity is recommended by installing emergency generators, including those based on renewable energy. Implementation of energy efficiency measures in buildings and industry will help to mitigate the problem of peak demand and further reduce the risk of power outages.

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Sub-indicator. Renewable energy

Renewable energy targets exist at the national level. However, these targets are currently not being implemented at the local level. It is recommended that a dialogue be initiated with the relevant national-level stakeholders to discuss how the jurisdiction can implement these targets at the local level as well as receive necessary support for this process. It is recommended that a study be conducted of the jurisdiction's renewable energy potential in order to establish such targets tailored to the local context and different energy consumers. The results of this study and identified targets should be used as a basis for developing a renewable energy action plan for the jurisdiction. Establishment of a mechanism is advised for tracking progress according to specific key performance indicators and revising them regularly (e.g., every five years).

Targets for reducing GHG emissions/air pollution have been introduced at the national level but have not been implemented at the local level. It is recommended that a dialogue be initiated with the relevant national-level stakeholders to discuss how the jurisdiction can achieve these targets at the local level and receive necessary support for this process. The jurisdiction can also lead by example and establish its own targets. It is recommended that a regular GHG inventory be conducted and that air pollution monitoring systems are established in the jurisdiction, which will provide the data necessary for determining local targets. It is advised that a mechanism be initiated for tracking progress on achieving these targets and revising them regularly (e.g., every five years).

Renewable and non-fossil fuel energy technologies are not used in the building sector and infrastructure, or their utilization is very limited. Deployment of renewable energy solutions should start with establishing ambitious, yet realistic targets based on estimation of the renewable energy potential for various sources available at the local level. In case of data unavailability geospatial data can be collected and analysed by GIS experts Implementation strategy for identified renewable energy sources could be developed in cooperation with experienced local or international professionals. The analysis of relevant financing schemes for renewable energy deployment can help to identify potential sources of investment and project implementation.

The transport sector has a moderate level of renewable energy (RE) utilization. A strategy for upscaling renewable energy utilization should be developed; involvement of experienced local or international consultants with the support from the local government will be beneficial for this process. The strategy should include the analysis of potential sources for renewable project finance and investments, as well as outline policy measures that can support renewable energy utilization in transport (e.g. subsidies, tax deductions for renewable energy technologies, etc.). Capacity building and trainings should be conducted for relevant administrative and technical personnel to improve their understanding of renewable energy in the transport sector.

Sub-indicator. Energy efficiency

Targets to improve energy efficiency or to reduce energy intensity exist at the national level, although with a limited coverage of energy-consuming sectors. These targets are currently not being applied at the local level. It is recommended that a dialogue be initiated with the relevant national-level stakeholders to discuss how the jurisdiction can adapt these targets to the local context and receive necessary support for this process. It is recommended that a study be conducted of the jurisdiction's energy sector and the opportunities for energy efficiency improvement, in order to determine relevant targets based on the data analysis of different energy consumers. The results of this study and the identified targets should be used as a basis for developing an energy efficiency action plan for the jurisdiction. It is advised that a mechanism be established for tracking progress according to specific key performance indicators and for revising them regularly (e.g., every five years).

Fossil fuels are used in the building sector and infrastructure of the jurisdiction. However, in most cases the respective equipment and technologies are quite energy-intensive and/or outdated, thus resulting in low levels of energy efficiency. Developing minimum energy performance standards and targets for this equipment is recommended, in combination with the mandatory requirements for regular maintenance and upgrades of energy-consuming technologies. Conducting capacity-building training is recommended for local professionals as well as relevant technical and administrative staff of the jurisdiction on effective deployment, maintenance and financing of renewable energy technologies. Incentive programmes should be provided for further promotion and utilization of renewable energy technologies, where feasible. These measures, among others, should be integrated into the local energy management and clean energy strategy.

Use of energy-efficient technologies for electricity consumption in the building sector and infrastructure is currently at the low level. Supporting further promotion of energy-efficient domestic and commercial appliances is recommended. Financial incentives and changes in the public procurement process can be used to encourage consumers' choices in favour of more energy-efficient appliances and equipment. Capacity-building training and awareness raising campaigns, targeting dedicated administrative and technical staff in the jurisdiction, should be focused on the development of relevant skills for the cooperation with the manufacturers and suppliers of energy-efficient equipment.

Efficient fossil fuels technologies have limited use in the transport sector of the Jurisdiction. Further promotion of sustainable energy, low-emission solutions in the transport sector is recommended (for example, high- efficiency hybrid and electric vehicles in combination with renewable supply, heavy freight haulage, last mile freight and private transport). Initiating the establishment of a relevant administrative and financial framework is also recommended. Awareness-raising campaigns on "green transport" could also increase understanding of the importance of a low emissions transport system in the modern city infrastructure. Additional capacity-building training is recommended for dedicated administrative and technical staff, with the focus on best practices and lessons learnt from low-carbon transport solutions by other countries and cities. Such programmes could be conducted with the support of relevant national institutions or international organizations.

Utilization of energy efficient renewable energy and non-fossil fuel technologies is limited in the jurisdiction's transport sector. It is recommended that support is increased for monitoring and evaluation of the achieved results of the existing projects, in order to be able to identify the opportunities for scaling up successful solutions for replication across the jurisdiction, including planning and development of relevant infrastructure. Capacity-building training for dedicated administrative and technical staff could be focused on the operation of low-emission transport systems as well as awareness raising about efficient transportation practices that can be integrated into the overall decarbonization strategy of the jurisdiction.

The jurisdiction has limited or pilot level electrical vehicle deployment. A further increase in the number of electrical vehicles should be accompanied by the development of supporting infrastructure. This includes charging stations and batteries as well as the overall decarbonization of the electricity supply in the jurisdiction through wider utilization of local renewable energy sources. Financial incentives – such as lower vehicle taxes, lower electricity tariffs for charging, free parking etc., for private electric vehicles – will stimulate consumers' choices in favour of this type of transport, especially once the supporting infrastructure becomes widely available.



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Indicator. Indicator 7. Linkages to other SDGs

Sub-indicator. SDG3. Good health and well-being

Most of the existing health-related facilities have adequate space cooling and can, to a large extent, satisfy the health needs of the local population. Improvement and analysis of energy data monitoring is recommended for the health-care facilities in the jurisdiction. It is also recommended that dedicated energy performance indicators (focused on space cooling efficiency) be included in the energy management system or relevant existing energy monitoring protocol, if any. It is recommended that consideration be given to implementing passive cooling strategies (especially for new buildings) through building design, insultation, shading, white roofs, windows with low-e coating and natural ventilation, where applicable, to reduce the cooling load, and that energy efficiency improvement be made in active cooling systems (i.e., airconditioning, refrigeration, ventilation, etc.), including integration of renewable energy solutions.

The jurisdiction has a sufficient number of mobile vaccine/blood refrigeration facilities to satisfy most of the current needs of the local population. Such facilities are crucial to ensuring people's well-being and adequate responses to a health crisis (such as the one caused by the COVID-19 pandemic). Therefore, it is recommended that a local sustainable health-care strategy be prepared, or the existing one updated, in consultation with the national level stakeholders and in cooperation with international organizations, in order to analyse present and future local health-care needs for related sustainable supply chains and their readiness for emergency response. As further expansion of such facilities and equipment will increase energy use and the need for a reliable electricity supply, it is recommended that consideration be given to the existing energy-efficient solutions available for health cold chain and 'green' vaccines supply (e.g., energy-efficient cooling and refrigeration technologies with better insulation, off-grid direct current-based refrigerators, solar cooling or solar direct drive vaccine refrigerators).

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Sub-indicator. SDG6. Clean water and sanitation

There are no adequate wastewater treatment facilities in the jurisdiction. The situation requires immediate action by the local administration. It is recommended that consultations be conducted with relevant national level stakeholders, and financial assistance be sought from international development organizations that are active in the country of the jurisdiction.

Water management and sanitation equipment in wastewater facilities have relatively low levels of energy efficiency, functioning with significant energy losses. It is recommended that upgrading of the wastewater system equipment be implemented, starting with audits and feasibility studies to identify strategies and technologies for improving the energy efficiency of wastewater treatment in the jurisdiction. In addition, subsequent implementation of the prioritized activities is recommended. Funding options for these activities can be explored through consultations with relevant national stakeholders, international development organizations and the private sector.

Integrated Water Resource Management (IWRM) is recognized as an important practice in the jurisdiction and there are multiple cases of its implementation. It is recommended that detailed monitoring and evaluation of results achieved be carried out after IWRM introduction. The findings should be presented to the relevant administrative and technical personnel for evaluation and identification of areas needing further improvement, supported by an analysis of existing IWRM best practices at the national and international levels.

Exploring the opportunities for further integration of energy-efficient and renewable energy technologies into the existing IWRM is recommended (e.g., smart process control systems, automated demand-side water supply regulation, solar energy for water supply and treatment etc.). This should be supported by building relevant technical capacity.

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Sub-indicator. SDG11. Sustainable cities and communities

A relatively small portion of the local population (less than 5%) lives in informal settlements or inadequate housing. People who live in these areas typically do not have access to sustainable energy services. Deployment of energy-efficient and renewable energy technologies is challenging, due to the lack of basic infrastructure. Integration of upgrading strategies for such informal settlements into local housing policies is recommended. Also recommended is the development of policies on energy access (electrification and clean cooking) and last-mile electrification of these areas in combination with support programmes for slum dwellers to use more energy-efficient and renewable energy technologies, such as solar LED lighting, solar mini-grids and efficient cooking stoves. Awareness-raising about benefits of sustainable energy technologies and their proper maintenance are important to ensuring effective adoption and long-term use.

A large portion of the local population has access to the existing public transport system. Monitoring of the transport system's performance and related GHG emissions is needed, in order to conduct benchmarking of the existing system compared to available national or international successful analogs. It is advisable to review the network of public and shared transportation applicable for the local conditions, and to develop a strategy to improve access to low-emissions transport. Supporting infrastructure (e.g., charging stations for e-vehicles) should be planned and developed together with the implementation of the transport network.

Pedestrian lanes are common in multiple places in the jurisdiction and most of them are convenient for walking, although some lanes require improvement. Improvement of the situation is recommended by expanding existing territorial planning solutions or by introducing additional ones (e.g., dedicated lanes for pedestrians and cyclists, restricted pedestrian area, etc.) aimed at developing effective walkable neighbourhoods, as well as ensuring proper maintenance of existing pedestrian areas. Such measures can significantly reduce transportation energy use as well as improve air quality and people's well-being.

The level of air pollution in the jurisdiction is considered low. Continuing to maintain high air quality in the jurisdiction is recommended together with the use of green and pollution-free energy use and generation technologies, with the focus on improving energy efficiency and increased utilization of renewable energy sources.

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Sub-indicator. SDG12. Responsible production and consumption

The jurisdiction is taking steps towards sustainable waste management process implementation with some of the landfills already implementing pilot waste treatment and recycling practices. Conducting a detailed benchmarking analysis of the operational efficiency on the implemented waste recycling facilities is recommended, together with the preparation of a strategy for replication of successful sustainable solutions in other facilities in the jurisdictions. A feasibility study to explore the potential for waste-to-energy projects in the jurisdiction, its cost-effectiveness and ways to gain financing can help to enhance waste treatment as well as offer a local source of sustainable energy. Conducting capacity-building training for local professionals, focused on existing best practices for sustainable solid waste treatment systems, and consideration of possible financing mechanisms is also recommended. Cooperation with relevant national level and international stakeholders is required at this stage in preparing guidelines for large-scale development and implementation of green urban solid waste treatment projects.

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Sub-indicator. **SDG13. Climate action**

Disaster reduction strategies are being implemented at the local level in line with relevant national strategies. Reviewing these strategies is recommended in order to learn whether the synergies between disaster reduction and sustainable energy solutions are being considered. Examples of such synergies may include, but are not limited to materials and technologies that enhance a building's energy efficiency as well as make the building more durable and resilient to threats posed by natural disasters. A sustainable energy supply, co-generation systems, distributed generation and micro-grids can support the recovery process from natural disasters etc. Where such synergies are not considered in the existing disaster reduction strategies, it is recommended that relevant adjustments be made based on existing international good practices. Implementation of a public awareness programme on these synergies is recommended in order to influence the adoption and implementation of energy-efficient and resilient designs.



About the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)

ESCAP serves as the United Nations' regional hub promoting cooperation among countries to achieve inclusive and sustainable development. The largest regional intergovernmental platform with 53 Member States and 9 Associate Members, ESCAP has emerged as a strong regional think-tank offering countries sound analytical products that shed insight into the evolving economic, social and environmental dynamics of the region. The Commission's strategic focus is to deliver on the 2030 Agenda for Sustainable Development, which it does by reinforcing and deepening regional cooperation and integration to advance connectivity, financial cooperation and market integration. ESCAP's research and analysis coupled with its policy advisory services, capacity building and technical assistance to governments aims to support countries' sustainable and inclusive development ambitions.



About the UN Environment Programme (UNEP)

UNEP is the leading global voice on the environment. It provides leadership and encourages partnership in caring for the environment by inspiring, informing and enabling nations and peoples to improve their quality of life without compromising that of future generations. This work is supported by the UNEP-led Integrated Urban Systems Partnership – a public-private initiative launched by UNEP and partners in 2019 that supports an integrated approach to infrastructure development in cities to achieve more sustainable and liveable cities that are more energy and resource efficient.

For inquiries, contact