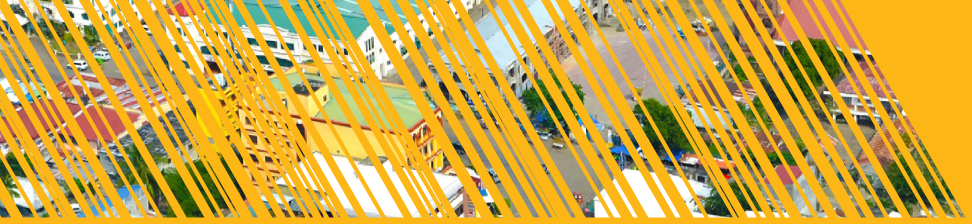


SDG 7 Localisation Snapshot

CAUAYAN, Philippines

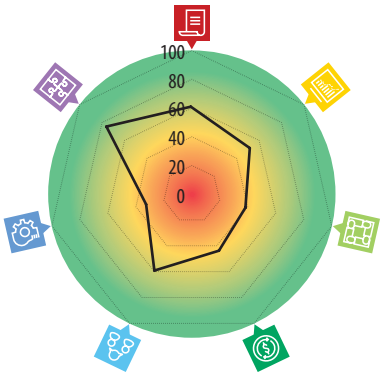
SDG7 Localisation Snapshot provides a brief overview of the key areas related to implementation of the Sustainable Goal 7 (SDG7) to 'Ensure access to affordable, reliable, sustainable and modern energy for all' at the local level based on the answers provided by the jurisdiction to the SDG7 Localisation 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	CAUAYAN
Country of the jurisdiction	Philippines
Population of the jurisdiction	143,443 people
Area of the jurisdiction (in km²)	336.4
Predominant climate	Relatively wet from May to November (29°C-32°C), dry for the rest of the year (35°C-41°C)

SDG7 Localization score



Score
0–33 34–66 67–100

Scores for each SDG7 Localisation indicator are calculated between 0 and 100 to show the assessment of the status in the jurisdiction in each of the respective areas.

Indicators score

61	52	39	43	59	32	75
Available policies and institutions for SDG localization	**Energy data monitoring**	**Cooperation with national and international stakeholders**	**Use of financial resources**	**Awareness raising and capacity- building**	**Implementation**	**Linkages to other SDGs**
Availability of specific policies and institutions focused on supporting the SDG 7 implementation.	Accessibility and penetration of energy monitoring and smart metering.	Efficient communication and collaboration between local stakeholders and various stakeholder groups at the national and international levels.	Availability of various financial resources and instruments for supporting SDG 7 implementation actions.	Availability of policies or actions to increase the understanding among citizens and build the capacity of professionals for SDG 7 implementation.	Presence of policies and actions to implement SDG 7 targets.	Availability of policies or actions with linkages between SDG 7 and other SDGs.

Sub-indicator score

59 Energy access	25 Renewable energy	11 Energy efficiency
Policies or actions taken by cities on energy access.	Policies or actions taken by cities on renewable energy.	Policies or actions taken by cities on energy efficiency.

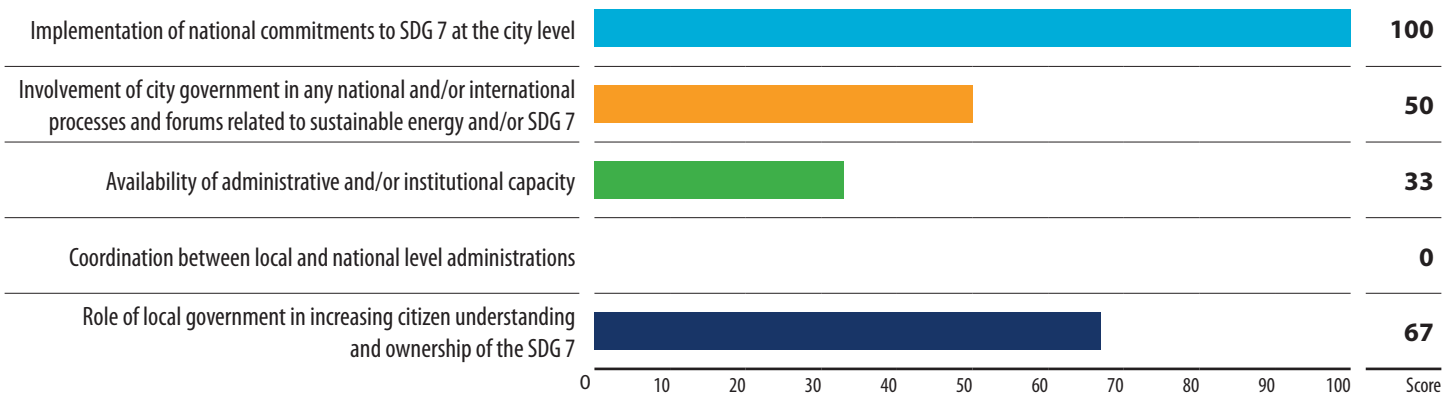
Sub-indicator score

68 SDG3. Good health and well-being.	20 SDG6. Clean water and sanitation.	85 SDG11. Sustainable cities and communities.	100 SDG12. Responsible production and consumption.	100 SDG13. Climate action.
The presence of energy-related activities or measures that support the health sector.	The presence of energy-related activities or measures that support water and sanitation.	The presence of energy-related activities or measures that support development of sustainable cities and communities.	The presence of energy-related activities or measures that support responsible production and consumption.	The presence of energy-related activities or measures that support climate action.

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.

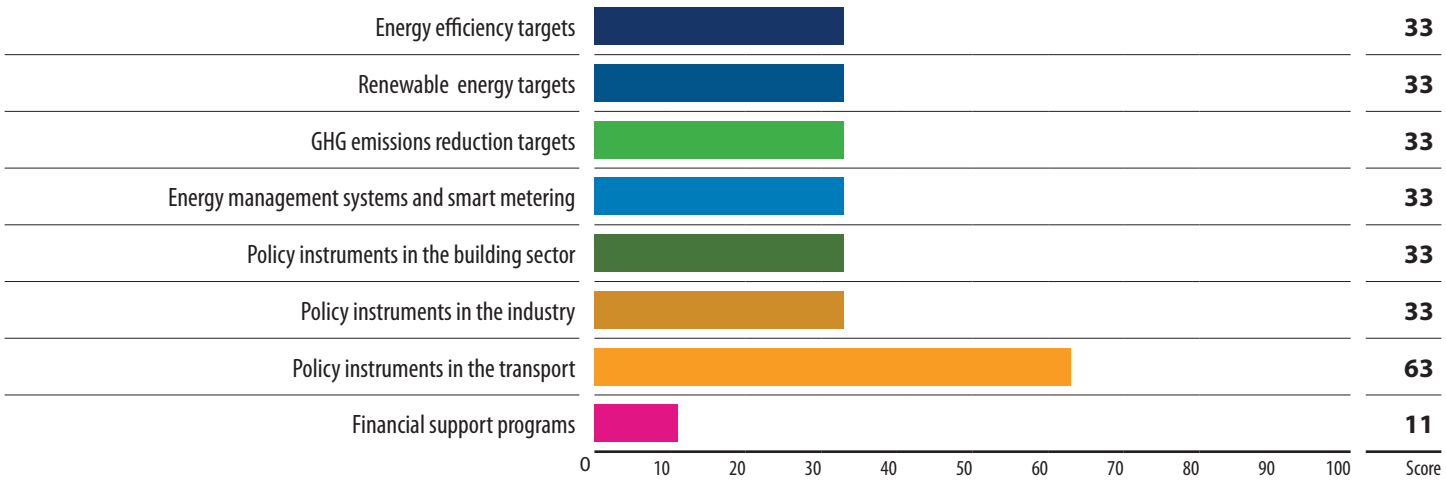
The results for each indicator are presented as a nominal score from 0 to 100 (where 100 is the maximum possible score, that can be achieved for each indicator or sub-indicator based on the aggregation of all answers of the questionnaire attributed to this particular indicator or sub-indicator).

SDG 7 commitments and institutional capacity of Cauayan

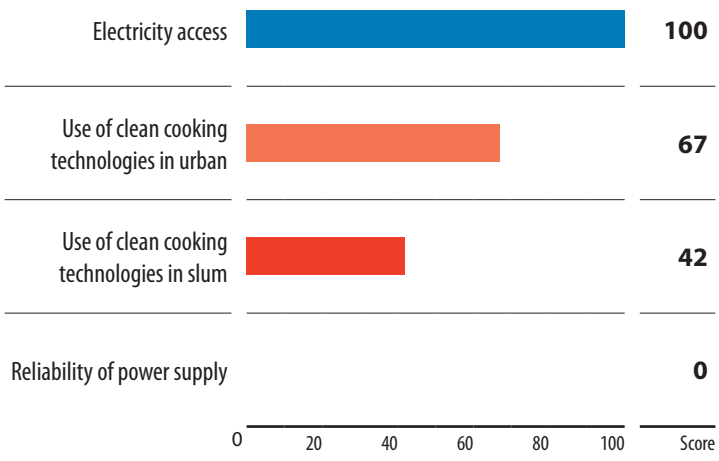


Note: The jurisdiction is not aware of/not information available regarding coordination between local and national level administration.

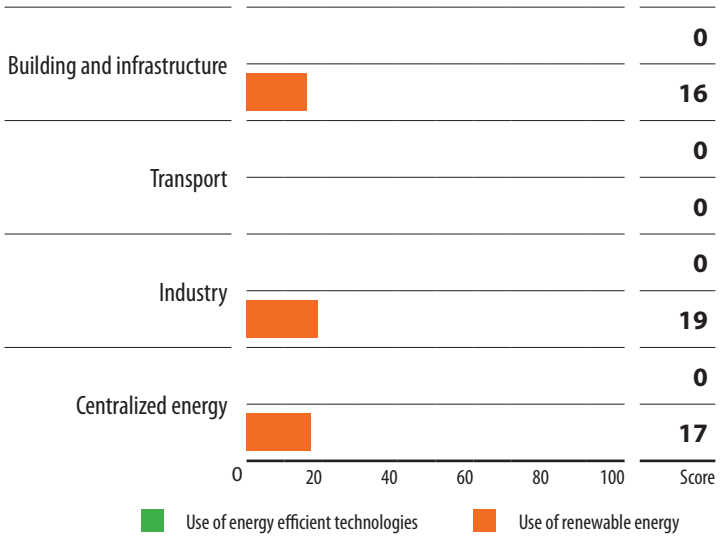
Implementation of SDG 7 support targets and regulations in Cauayan



Assessment of Energy Access in Cauayan



Assessment of utilization of energy efficiency and renewable energy technologies in Cauayan



Note: Energy consumer is not present; energy source is not available/available but not used or not widely use in the jurisdiction for the use of renewable energy in building and infrastructure and transport sector as well as the use of energy efficient technologies in centralized energy.

Recommendations

61 Indicator. Available policies and institutions for SDG localization

The jurisdiction is implementing policies and projects that take into account existing national SDG 7-related commitments. Ensuring that local efforts on SDG 7 implementation are aligned with the national commitments and plans. Exploring the ways to apply Multi-Level Governance (MLG) approach to implementing SDG 7 is recommended in order to enhance the efficiency of coordination between national and local levels of governance.

The jurisdiction has already started development of the institutional framework to support SDG 7 implementation. At this stage it is important to develop the necessary administrative process and to clearly define responsibilities of the supporting staff, who will be working on SDG 7 implementation. It is also important to ensure that staff qualifications are adequate enough to carry out their work responsibilities. 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.

Some sustainable energy policies for the building sector have been adopted at the national level. However, only a limited number of related initiatives have been implemented at the local level. It is recommended that work be undertaken on the implementation of nationally supported policy instruments at the local level, such as program to promote utilization of local materials in construction and retrofits, mandatory energy performance certification and labeling of buildings, voluntary energy performance certification and labeling of buildings, voluntary smart energy metering, and mandatory energy auditing. This implementation may start with selected national policy instruments, and/or cover specific sector or energy end-users in the jurisdiction. Monitoring and verification of the results, achieved after this 'pilot' implementation of selected policy instruments, are needed for possible fine-tuning and adaptation of the policies to the local conditions and requirements. It is also recommended working towards expanding and refining the policy framework in order to arrive at an effective mix of regulatory measures, incentives and information instruments.

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 policy instruments. 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 LPG or similar gas type engines use, regulations on biogas engines use, regulations on hydrogen engines use, mandatory Eco-drive training, and bus rapid transit.

52 Indicator. Energy data monitoring

The Jurisdiction has established data collection and monitoring systems in the following areas: energy efficiency, sustainable energy/SDG 7, and other SDGs. Nevertheless, some of the sustainable energy development targest still do not have reliable verification mechanisms, such as renewable energy and energy access. 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, public sector buildings, commercial buildings, slums and informal settlements, 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 system. 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.

39 Indicator. Cooperation with national and international stakeholders

Jurisdiction is a member of limited amount of multi-stakeholder city initiatives. It is recommended to increase and the level of 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 has limited involvement in 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 more opportunities for participation in such forums be identified , and that there be more proactive assigning of relevant technical staff to participate and share knowledge.

There are no coordination mechanisms between the jurisdiction and other levels of governance (e.g., nation Government) regarding sustainable energy issues and/or SDG 7 implementation. The local Government is encouraged to initiate the establishment of relevant coordination mechanisms, such as steering committees/councils/other institutions. This should include participation by representatives from the national, provincial and local levels of governance in order to align efforts and explore opportunities for extra-budgetary financing for SDG 7- related projects more efficiently.

43 Indicator. Use of financial resources

Some financial programmes to support sustainable energy policies and projects have been adopted at the national level. However, none of them have been implemented at the local level. 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 has access to international financial support for the implementation of energy efficiency and renewable energy technology projects in the area of the water management system. Detailed performance monitoring and result verification is required to enable further dissemination of successful results from the implemented projects.

59 Indicator. Awareness raising and capacity building

The jurisdiction has been involved in some reporting activities for tracking the progress on SDG targets. In order to evaluate that progress and the 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 VLRs is one of the ways to analyse available data, and track and report on progress for SDGs at the local level.

The local Government is currently developing and implementing awareness-raising campaigns to increase citizens' understanding and ownership of the SDG 7 targets. It is important to prepare a sustainable long-term plan on awareness-raising activities to cover a wide range of audience interests and to ensure continuity of efforts. Different SDG 7-related issues should be covered for various target groups – e.g., educational programmes for schools, colleges and universities; public awareness-raising events, the promotion of success stories for all citizens and training courses for professionals.

32 Indicator. Implementation

59 Sub-indicator. Energy access

Local government should make efforts to maintain high level of reliable electrification in the jurisdiction, as well as reaching remaining areas that might lack quality electricity supply. Proper monitoring and evaluation of the current power grid operation should be taking place regularly to identify potential efficiency gaps and possible ways for further improvements. Learning from international expertise and best-practices on sustainable electricity will help the local government identify further areas for sustainable energy actions.

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), kerosene, electric cookers/pressure cookers, induction electric stoves, high efficient natural gas or LPG 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), electric cookers/pressure cookers, high efficient natural gas or LPG 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.

Power outages are very common and can last for prolonged periods. Evaluation is recommended of the potential benefits of distributed electricity supply systems and microgrids, with integration of renewable energy sources, in order to increase the reliability of energy supply and improve the system's sustainability. Implementation of energy efficiency measures in buildings and industry may help to mitigate the problem of peak demand and further reduce the risk of power outages. Additional consultations with relevant national and international experts are required in order to develop a sustainable energy supply strategy that is tailored to the local context as well as relevant investment plans.

25 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.

Renewable and non-fossil fuel energy technologies are not used or have a limited level of implementation in the transport sector of the jurisdiction. Local government should a strategy for promoting renewable energy utilization in the transport sector and analyze potential financing mechanism in cooperation with relevant local and national experts. Feasibly studies for utilization of various RE technologies in different types of transport should be prepared taking into account existing international best-practices to identify the most appropriate solutions and implementation steps. Capacity building and trainings should be conducted for relevant administrative and technical personal to improve their skills on project development, installation and maintenance of renewable energy technologies.

11 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.

Renewable and non-fossil fuel energy sources are available and widely used in the building sector and infrastructure, but, utilization of related energy efficient technologies is limited. Larger-scale deployment of energy efficient renewable energy solutions should start with specific pilot projects – for example, at the district level – with subsequent replication of the solutions throughout the jurisdiction, taking into account lessons learnt and the economy of scale. Capacity-building and vocational training are required for the relevant local level professionals to establish the necessary skills and understanding of the installation and operation of respective renewable energy technologies as well as the implementation steps and requirements for renewable energy projects. Seeking technical assistance from national and international experts is recommended in order to enable access to project finance and political support.

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.

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.

75 Indicator. Indicator 7. Linkages to other SDGs

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

All of the Jurisdiction's existing health-related facilities have sufficient space cooling and are able to satisfy most of the health needs of the local population. It is recommended that consideration be given to further implementation of passive cooling strategies (especially for new buildings) through building design, insultation, shading, white roofs, windows with low-e coating, natural ventilation, where applicable, to reduce the cooling load. Energy efficiency improvement of active cooling systems (i.e., air-conditioning, refrigeration and ventilation), including integration of renewable energy solutions, is also recommended.

The jurisdiction has limited mobile vaccine/blood refrigeration facilities, which are insufficient to meet the needs of the local population. Such facilities are crucial for ensuring people's well-being and adequate responses to a health crisis (such as the one caused by the COVID-19 pandemic). It is recommended that a local sustainable health-care strategy be prepared (or the existing one updated) in consultation with the national level stakeholders as well as in cooperation with international organizations, in order to identify possibilities for financing the development and maintenance of related sustainable supply chains and their readiness for emergency response. Large-scale deployment of such facilities and equipment will increase energy use and the need for a reliable electricity supply. Therefore, it is recommended that existing energy-efficient solutions available be considered 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).

20 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 is outdated and inefficient, and requires major repairs or replacement. Implement of an upgrade of the wastewater system equipment is recommended, starting with carrying out audits and feasibility studies to identify strategies and technologies for improving energy efficiency of wastewater treatment in the jurisdiction. Subsequent implementation of the prioritized activities is also recommended. Funding options for these activities can be explored through consultation with relevant national stakeholders, international development organizations and the private sector.

Integrated Water Resource Management (IWRM) is not a common practice, but there are some related pilot projects being implemented in the jurisdiction. It is important to support further development and implementation of IWRM across different water end-users. Additional capacity-building training is required for the administrative and technical personnel concerned, in order to effectively identify and implement IWRM that is suitable for the local situation.

The jurisdiction is using a number of energy-efficient technologies in its IWRM. It is recommended that relevant energy performance monitoring and verification protocol be undertaken in order to identify the corrective measures needed as a result of load profile changes as well as to maintain high operational efficiency of the equipment.

85 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.

The jurisdiction is operating a wide public transport system, and most of the local population has access to public or shared transportation. It is recommended that further improvement of the system be carried out, with the introduction of energy-efficient transport solutions, increased utilization of renewable energy as well as expansion of the supporting infrastructure (e.g., charging stations for e-vehicles).

The level of air pollution in the jurisdiction is considered unhealthy for sensitive groups of people. It is recommended that support be given to the development of the low-emission development strategy, with priority focus on the analysis of potential solutions aimed at air pollution reduction It should cover different energy consumers in the jurisdiction, and should include the improvement of energy efficiency and increased utilization of renewable energy sources in the main air-polluting sectors.

100 Sub-indicator. SDG12. Responsible production and consumption

A modern and efficient waste management system is efficiently being implemented in the jurisdiction, including sorting, recycling, re-use and waste-to-energy solutions. It is important to support the proper continuous maintenance of the urban solid waste treatment system and the development of its various supporting components. A benchmarking and performance efficiency analysis should be conducted to identify the opportunities for further development and replication in other facilities in the jurisdiction. In addition, the lessons learnt at the national and international levels should be shared.

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.

UNITED NATIONS ESCAP
Economic and Social Commision for Asia and the Pacific

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.

UN environment programme

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.

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