

Sector: Energy



## **SDG-NDC Synchronization: Assessment and Recommendations**

How can the Nationally Determined Contributions on Climate Change and the 2030 Agenda for Sustainable Development complement and support each other towards a sustainable future?

MINISTRY OF ENVIRONMENT  
UNITED NATIONS DEVELOPMENT PROGRAMME  
Nationally Determined Contribution Support Programme



## Assessment and Recommendations for Integration of Sustainable Development Goals within Lebanon's Climate Related Plans

### Description and Objectives

The Paris Climate Agreement's Nationally Determined Contribution (NDC) and the Sustainable Development Goals (SDGs) share some mutual goals and a common target year (2030). Many synergies exist between the two agendas and addressing those linkages from an integrated institutional viewpoint will enhance the implementation, coordination and tracking of the different actions. The aim of this analysis is to assist policymakers in:

- Assessing the sectoral policies that make up the NDC in terms of SDG linkages using the SDG Climate Action Nexus tool (SCAN tool) in order to establish and clarify the linkages;
- Identifying progress indicators of NDC policies to inform SDG progress and vice versa, in order to synchronize reporting;
- Operationalizing the coordination between institutions responsible for the implementation and reporting of both the NDC and SDGs.

### Methodology

- The SCAN-tool provides high-level guidance on how climate actions can impact the achievement of the SDGs ([http://ambitiontoaction.net/scan\\_tool/](http://ambitiontoaction.net/scan_tool/));
- Coupled with local expertise, this analysis:
  - Identifies potential linkages between specific recommendations included in each of Lebanon's climate related plans and policies and the SDGs;
  - Includes the identification of a primary SDG linkage along with other relevant SDG linkages;
  - Identifies potential linkages to all of the SDG targets, and provides further recommendations.
- All climate-relevant and sustainable development plans inherently contribute to SDG 13 (climate action);
- SDG 17 addresses global partnerships and means of implementation, relevant SDG 17 linkages to local plans are also identified in this assessment.

**This is not an exhaustive analysis but it provides a sound basis to better understand where and how Lebanon's climate actions impact SDG achievement.**

## How to use this guide?

### **Step 1: Review**

This guidance recommends certain linkages per SDG which should be reviewed in the context of policy-making.

### **Step 2: Prioritize**

Not all the linkages made have the same relevance to the policy or activity, therefore, the linkages should be prioritized considering magnitude of impact, co-benefits and other criteria depending on the institution and its priorities.

### **Step 3: Consult**

Depending on the prioritized SDGs, stakeholder consultations for policy-drafting should include the lead institutions responsible for implementing the selected SDGs.

### **Step 4: Synchronize**

When implementing the policy, synchronization at the level of tracking between the different institutions, the NDC committee and the SDG committee should be considered.

**Sector:** Energy

**Sub-sector:** Energy Efficiency

**Source document:** The Second National Energy Efficiency Action Plan (NEEAP) for the Republic of Lebanon (2016-2020)

**Ministry:** Ministry of Energy and Water - Lebanese Centre for Energy Conservation (LCEC)

**URL:** <http://climatechange.moe.gov.lb/viewfile.aspx?id=229>

### Plan/ Policy Overview

The Second National Energy Efficiency Action Plan (NEEAP) is a technical plan focused primarily on energy savings measures. The NEEAP takes a sectoral end-use measure approach to energy savings touching on many sectors including: buildings; industry, SMEs, agriculture; mobility and transport; and public services and facilities. The sum of the overall estimated savings of the proposed measures over the 5 years of the second NEEAP’s implementation are around 686.1 GWh for primary energy (including electricity generation, transmission and distribution) and 828.1 GWh for end-use energy (including building, industrial and public sectors). That would imply total savings of 1,514.2 GWh over the 5 years leading to average yearly savings of 302.9 GWh.

### Links to Climate Change and Sustainable Development

The NEEAP tackles energy efficiency both from supply and demand, therefore, implementing the NEEAP will directly reduce greenhouse gas emissions through reduced and more efficient use of energy resources such as heavy fuel oil and diesel.

In Lebanon’s Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, one of the mitigation targets is an energy efficiency target:

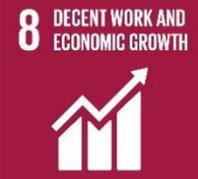
<i>Unconditional Target</i>	A GHG emission reduction of 15% compared to the Business-As-Usual (BAU) scenario in 2030.
	A 3% reduction in power and heat demand through energy-efficiency measures in 2030 compared to the demand under the BAU scenario
	15% of the power and heat demand in 2030 is generated by renewable energy sources.
<i>Conditional Target</i>	A GHG emission reduction of 30% compared to the BAU scenario in 2030.
	20% of the power and heat demand in 2030 is generated by renewable energy sources.
	A 10% reduction in power demand through energy-efficiency in 2030 compared to the demand under the BAU scenario

The following assessment identifies how the specific actions in the NEEAP relate to the SDG targets (Tables 1 and 2). It identifies how green buildings, for example, can positively or negatively impact SDG targets.

**Table 1: Primary SDG Target**

Relevant SDG	How does the NEEAP contribute to this SDG? (examples)
 <p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p>	<ul style="list-style-type: none"> <li>- Energy efficiency and related reduction in energy demand and losses can help increase energy security by reducing energy imports in countries that rely on trade for energy supply</li> <li>- Increasing energy efficiency in power generation can contribute to a more reliable, affordable and cleaner energy supply</li> <li>- Technology upgrades support supplying modern and sustainable energy services for all</li> </ul>

**Table 3: Highly Relevant SDG Targets**

Relevant SDG	How does the NEEAP contribute to this SDG? (examples)
 <p><b>3</b> GOOD HEALTH AND WELL-BEING</p>	<ul style="list-style-type: none"> <li>- Higher energy efficiency can reduce air, water and soil pollution (e.g. less fuel needed) and related non-communicable diseases</li> <li>- A modal share shift reduces air pollution from reduced fuel use</li> </ul>
 <p><b>8</b> DECENT WORK AND ECONOMIC GROWTH</p>	<ul style="list-style-type: none"> <li>- Improvements in efficiency improve productivity by increasing economic output per unit of energy. Related industry and supply chain development could also support higher productivity</li> <li>- Financial support to encourage development and uptake of low carbon technologies and services supports entrepreneurship and MSMEs through better financial services</li> </ul>
 <p><b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<ul style="list-style-type: none"> <li>- Efficiency improvements in power generation installations contribute to having sustainable and resilient infrastructure that supports economic development and human well-being</li> <li>- Modal share shift requires and supports development of sustainable, affordable, and accessible transport infrastructure</li> <li>- Supports R&amp;D and upgrading of industrial capabilities by creating demand for new energy efficient building methods and material and energy efficient technologies</li> </ul>
 <p><b>11</b> SUSTAINABLE CITIES AND COMMUNITIES</p>	<ul style="list-style-type: none"> <li>- Improved energy efficiency contributes to sustainable urbanization</li> <li>- Reduces air pollution and improves ecosystem and habitat conservation due to reduced pollution and land use activities</li> </ul>
 <p><b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	<ul style="list-style-type: none"> <li>- Energy efficiency reduces energy demand and related resources needed for power generation</li> <li>- Supporting improved energy efficiency in industrial processes supports adoption of sustainable practices by companies</li> <li>- Can support companies to adopt sustainable practices (e.g. through energy efficiency retrofit schemes)</li> </ul>

## Summary of Recommendations

The next NEEAP update or amendment should explicitly address linkages to specific SDG targets, and the NDC goals. In doing so, there should be narrative that focuses on the plan's broader societal goals and impact on addressing climate change. As highlighted above, energy efficiency positively impacts at least twenty-six SDG targets and advances the NDC goals in reducing GHG emissions, and it should therefore be demonstrated in the plan so that common entry points can be better understood within and among Lebanon's sustainable development related plans and policies.

- For example, energy poverty in Lebanon affects 16% of the households (paying more than 10% of their income on electricity bills) ([UNDP - CEDRO Team, 2018](#)) and therefore in implementing the NEEAP, poverty is being addressed by creating a more reliable, accessible and affordable energy supply.
- Likewise, energy efficiency strategies can greatly reduce greenhouse gas emissions and therefore greatly reduce premature deaths from air pollutants. In Beirut, approximately 93% of the population is exposed to high levels of air pollution which is primarily due to heavy traffic (AUB, 2011). Therefore, transport energy efficiency measures such as shifting to more fuel-efficient vehicles, as is described in the NEEAP can have positive impact on SDGs 3.4 and 3.9 which relate to achieving more positive health outcomes by reducing harmful pollutants.

Future iterations of the NEEAP should consider the potential impact on SDG targets and in addressing climate change when developing and prioritizing specific implementation strategies. For example, the plan should prioritize measures that are most economically feasible and have largest impact on both the NDC and SDGs. In other words, there are opportunities in portraying energy efficiency through a more holistic approach: looking through the lens of the SDGs and NDC might result in a different prioritization of plan strategies.

- For example, looking at energy efficiency from a gender perspective might result in new strategies to include women and girls in EE decision making and implementation strategies.
- Further, NEEAP key indicators should be expanded and synthesized with other plans and policies, to include a broader assessment of meeting SDG targets and NDC goals.
- The SDG and NDC committees should work collaboratively, alongside the responsible ministries, in the development of joint indicators that can be utilized among all sustainable development related plans and policies to jointly assess both NDC and SDG progress.

## Potential Negative Linkages

The majority of energy efficiency measures result in largely positive benefits to the environment however, a few measures can have negative or unintended consequences. The overall impact and potential trade-offs need to be weighed to determine if projects have a net positive impact and/or if potential negative impacts can be avoided. Moreover, some negative linkages may not be detrimental specifically to the environment, but they can have negative consequences on other SDGs such as hunger, poverty, health or jobs. Therefore, it is imperative to understand how certain plan recommendations may negatively impact some SDGs. Table 3 illustrates some examples of the potential negative linkages that the deployment of energy efficiency could have on the SDGs.

**Table 3: Potential Negative Linkages to SDGs**

11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	Unless subsidized, EE measures can drive up housing cost in the short term and can have long-pay back periods (impacting housing affordability in the near term)
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Modal share shift may cause potential job losses in personal vehicle value chain (manufacture of cars, servicing, petrol stations)
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	Transportation measures need to focus on modal share shift (getting people out of cars and into buses and trains) in addition to fuel efficiency, otherwise, an increase in auto ownership could potentially offset the benefits of more fuel-efficient vehicles

### **Sustainable Development Anchors: what is there and what is missing?**

A key word search and review of the NEEAP identifies where the plan explicitly addresses components of sustainable development and climate change. While the SCAN tool identified where linkages exist between plans and the SDG targets, further examination of each plan reveals where these linkages are explicitly stated in each plan. For example, energy efficiency measures have strong linkages to responsible consumption and production (SDG 12) but these linkages are not included as part of the NEEAP narrative. Likewise, education and awareness raising plays a central role in the NEEAP, however, the narrative does not place it in the context of sustainable development.

The following is an assessment of sustainable development and climate change language included the NEEAP and recommendations for creating linkages in future iterations of the plan. The below recommendations tackle the primary SDG, the other important SDG linkages as well as the rest (Table 4).

**Table 4: Recommendation for Estimation of Impact of SDGs**

Key Words	Description in the Policy/Strategy/Action Plan	Recommendation for Estimation of Impact/Integration of Impact
<p><b>SDG One: No Poverty</b></p> <ul style="list-style-type: none"> <li>· Low-income</li> <li>· Poor</li> <li>· Poverty</li> <li>· Disadvantaged</li> <li>· Underprivileged</li> </ul>	<p>Poverty is not addressed in the NEEAP.</p>	<ul style="list-style-type: none"> <li>- EE measures increase energy access to low-income individuals and reduces energy expenditure which contributes to reducing poverty levels;</li> <li>- More steady and reliable energy services allows for more productive and income generating time;</li> <li>- In the long run energy efficiency measures can make energy more affordable through cost savings;</li> <li>- EE awareness raising can reduce household energy costs through behavior change (consumption and purchase decisions).</li> </ul>
<p><b>SDG Two: Zero Hunger</b></p> <ul style="list-style-type: none"> <li>· Hunger</li> <li>· Food access</li> <li>· Food security</li> <li>· Food affordability</li> <li>· Agricultural Productivity</li> </ul>	<p>The NEEAP has an agricultural component which includes energy efficiency measures to increase productivity and conservation of water resources:</p> <ul style="list-style-type: none"> <li>- Rational use of the water resource increases the water sustainability and the yield of production for farmers;</li> <li>- Different water irrigation technologies exist and can help improving water management and energy efficiency at the same time. Installing drip irrigation, variable speed drives (VSD), energy efficient water pumps are examples of good practices and present potential water and energy saving.</li> </ul>	<ul style="list-style-type: none"> <li>- Energy efficient irrigation and smart agricultural practice contributes to improving agricultural productivity and incomes of small-scale food producers;</li> <li>- More efficient irrigation can decrease in competing land uses for food production due to more efficiency in crops (less land needed).</li> </ul>
<p><b>Highly Relevant SDG</b></p> <p><b>SDG Three: Good Health and Well-being</b></p> <ul style="list-style-type: none"> <li>· Environment</li> <li>· Health</li> <li>· Pollution</li> </ul>	<p>Health is not addressed in the NEEAP.</p>	<p><b>In addition to SDG 3 in Table 2:</b></p> <ul style="list-style-type: none"> <li>- Reduces air pollution and improves mental health and well-being due to decreased urban heat island effect;</li> <li>- Fuel efficient cars reduce air pollution from reduced fuel use.</li> </ul>
<p><b>SDG Four: Quality Education</b></p> <ul style="list-style-type: none"> <li>· Education</li> <li>· Awareness raising</li> <li>· Youth</li> </ul>	<p>The NEEAP places heavy emphasis on education and awareness raising as a means to educate students in energy efficiency related careers. Further the NEEAP recommends awareness raising campaigns to promote behavior change in energy use to the general public. The NEEAP also addresses the need for education and certification for installers:</p> <ul style="list-style-type: none"> <li>- The ultimate goal would be to create a new culture of sustainability among the Lebanese population on one side, and to create a new</li> </ul>	<ul style="list-style-type: none"> <li>- Promoting behavior change in consumer consumption is central to decreasing demand;</li> <li>- Awareness campaigns to support mitigation actions, especially in schools, would spread skills and knowledge about sustainable development.</li> </ul>

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Key Words	Description in the Policy/Strategy/Action Plan	Recommendation for Estimation of Impact/Integration of Impact
	<p>generation of professionals knowledgeable in the energy efficiency sector;</p> <ul style="list-style-type: none"> <li>- Working with the Directorate General of Technical and Vocational Education and more closely with the Ecole Des Arts Et Metiers - Dekwaneh on modifying the curriculum to include courses related to energy efficiency and renewable energy;</li> <li>- Giving awareness raising presentations and lectures to school children and university students throughout Lebanon;</li> <li>- At least twenty information campaigns (posters, brochures, lectures and educational books) shall be focusing on how to improve energy efficiency and how to adapt schools and scouts' daily behavior;</li> <li>- Modifying school curriculum especially technical schools and institutes to include energy efficiency courses such as efficient heating and cooling, heat recovery, efficient buildings;</li> <li>- Integrating Green Diploma such as ProGreen program and the RE masters;</li> <li>- Promoting online student training programs;</li> <li>- Integrating Research and Development activities through financial incentives to work on three topical subjects;</li> <li>- Energy University.</li> </ul>	
<p><b>SDG Five: Gender Equality</b></p> <ul style="list-style-type: none"> <li>· Women</li> <li>· Gender</li> <li>· Vulnerable groups</li> <li>· Rural communities</li> </ul>	<p>Gender is not addressed in the NEEAP.</p>	<ul style="list-style-type: none"> <li>- Because rural women and girls are primarily responsible for the bulk of household work, access to energy will make a significant difference to their quality of life, including their health (UNDP, 2011);</li> <li>- Women and girls benefit the most from clean, efficient energy solutions. In rural areas, where access to modern energy sources is lacking, everyday household activities such as cooking and cleaning can be labor and time intensive;</li> <li>- The emissions from the use of biomass fuels present many health risks</li> </ul>

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		<p>to the users. Sourcing biomass can also present safety issues for women. Clean and efficient energy products help to reduce health and safety risks and time saved on domestic duties;</p> <ul style="list-style-type: none"> <li>- The availability of affordable lighting, increases the time available for education; employment, income-generating activities, and social and political interactions (EEP, 2017).</li> </ul>
<p><b>SDG Six: Clean Water Sanitation</b></p> <ul style="list-style-type: none"> <li>· Clean water</li> <li>· Drinking water</li> <li>· Wastewater</li> <li>· Water quality</li> </ul>	<p>Water is not mentioned in terms of cleanliness or sanitation in the NEEAP. However, water is addressed in the NEAP in terms of conservation and efficiency in irrigation:</p> <ul style="list-style-type: none"> <li>- Rational use of the water resource increases the water sustainability and the yield of production for farmers. Different water irrigation technologies exist and can help improving water management and energy efficiency at the same time.</li> </ul>	<ul style="list-style-type: none"> <li>- Water thermal and non-thermal pollution. All types of energy efficiency improvements lead to reduction in discharge of thermal or polluted water, due to reduced requirement for generation;</li> <li>- All types of energy efficiency improvements lead to reduction in water usage for energy production if applied to water-intensive power plants;</li> <li>- Supports conservation of water ecosystems due to reduced water use from energy generation;</li> <li>- Reduce water use due to efficient irrigation systems (e.g. rice cultivation) and reduced water use for intensive agriculture.</li> </ul>
<p><u>Primary SDG</u></p> <p><b>SDG Seven: Affordable &amp; Clean Energy</b></p> <ul style="list-style-type: none"> <li>· Energy efficiency</li> <li>· Electricity transmission</li> <li>· Electricity distribution</li> <li>· Reliable energy</li> <li>· Affordable energy</li> <li>· GHG reduction</li> <li>· Mitigation</li> <li>· Energy security</li> </ul>	<p>The NEEAP's primary focus is on energy efficiency and therefore, references to energy and GHG reductions are referenced throughout the plan.</p>	<p><b>In addition to SDG 7 in Table 1:</b></p> <ul style="list-style-type: none"> <li>- Energy efficiency and related reduction in energy demand can help increase energy security by reducing energy imports in countries that rely on trade for energy supply;</li> <li>- Technology upgrades (transmission and distribution) contributes to modern energy supply and sustainable energy services for all;</li> <li>- Reducing energy losses contributes to increasing energy efficiency;</li> <li>- Awareness campaigns can lead to behavior changes thus more energy efficiency;</li> <li>- Energy efficient buildings decrease energy poverty due to improved energy affordability, increases energy security due to decreased imports and greater reliability, and improves access to modern and sustainable energy services.</li> </ul>

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Key Words	Description in the Policy/Strategy/Action Plan	Recommendation for Estimation of Impact/Integration of Impact
<p><a href="#">Highly Relevant SDG</a></p> <p><b>SDG Eight: Decent Work and Economic Growth</b></p> <ul style="list-style-type: none"> <li>· Jobs</li> <li>· Income</li> <li>· Employment</li> </ul>	<p>Work is mentioned in terms of the need for awareness raising and capacity building of workers. Job potential is also mentioned in regards to education of students in energy efficiency but the NEEAP does not address the employment potential or economic development opportunities in energy efficiency. The NEEAP also address the business-side in reference to creating a legislative framework for ESCOs:</p> <ul style="list-style-type: none"> <li>- The ultimate goal would be to create a new culture of sustainability among the Lebanese population on one side, and to create a new generation of professionals knowledgeable in the energy efficiency sector;</li> <li>- This action predicts drafting and/or amending the legislative and normative framework in place to promote the development of ESCOs.</li> </ul>	<p><b>In addition to SDG 8 in Table 2:</b></p> <ul style="list-style-type: none"> <li>- Supports decent job creation and entrepreneurship, and formalization of small enterprises through support for e.g. EE retrofit programmes;</li> <li>- Implementation of mass transit schemes can support decent job creation among supply chain for construction and operation;</li> <li>- Supports decent job creation through new opportunities to help companies improve industrial process efficiency;</li> <li>- Supports decent job creation through major transportation infrastructure development and then operation;</li> <li>- Increased energy efficiency supports more efficient use of resources and reduces environmental harm from energy use.</li> </ul>
<p><a href="#">Highly Relevant SDG</a></p> <p><b>SDG 9: Industry, Innovation, Infrastructure</b></p> <ul style="list-style-type: none"> <li>· Industry</li> <li>· Innovation</li> <li>· Infrastructure</li> <li>· Research and development</li> </ul>	<p>The NEEAP contains numerous references and recommendations for the industrial sector including mandatory energy audits as well as implementing industrial energy efficiency measures. The NEEAP addresses infrastructure in reference to the Electricity Policy Paper and the transport NAMA:</p> <ul style="list-style-type: none"> <li>- Public transport / Bus Rapid Transit (BRT) with dedicated lanes. As defined in the NAMA factsheet, BRT system is a high-capacity transport system with dedicated lanes for bus transit. It consists of a systematic combination of infrastructure (busways, stations, terminals) with organized operations and intelligent technologies to provide a higher quality experience than possible with traditional bus operation.</li> </ul>	<p><b>In addition to SDG 9 in Table 2:</b></p> <ul style="list-style-type: none"> <li>- Building energy efficiency supports development of sustainable and resilient infrastructure and supports human well-being (better quality living environments);</li> <li>- Building energy efficiency supports sustainable industrialization through creation of demand for more energy efficient construction methods and building products;</li> <li>- Building energy efficiency supports upgrading and retrofitting of industries, increased resource efficiency, and adoption of environmentally sound technologies through more efficient (industrial) buildings and appliances;</li> <li>- Contributes to achieving increased resource-use efficiency in the agriculture industry;</li> <li>- Modal share shift increases resource efficiency in the transport industry and contributes to infrastructure upgrading.</li> </ul>
<p><b>SDG 10: Reduced Inequalities</b></p>	<p>Equity is not addressed in the NEEAP.</p>	<ul style="list-style-type: none"> <li>- Fair and equitable access to energy plays a key role in meeting</li> </ul>

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<ul style="list-style-type: none"> <li>· Equity</li> <li>· Inclusion</li> </ul>		<p>households basic needs and creating pathways out of poverty;</p> <ul style="list-style-type: none"> <li>- The availability of affordable lighting, increases the time available for education; employment, income-generating activities, and social and political interactions (EEP, 2017).</li> </ul>
<p><b>Highly Relevant SDG</b></p> <p><b>SDG 11: Sustainable Cities and Communities</b></p> <ul style="list-style-type: none"> <li>· Cities</li> <li>· Communities</li> <li>· Urban</li> <li>· Urbanization</li> <li>· Fuel efficient vehicles</li> <li>· Modal share shift</li> <li>· Public transportation</li> <li>· Accessibility</li> <li>· Mobility</li> </ul>	<p>The NEEAP does not address cities specifically but it aligns with SDG 11 through its focus on energy efficiency in the transport sector, which primarily concentrates on promoting a modal share shift and reducing demand through promoting public transport and measures to reduce driving. The NEEAP is also comprised of a long list of building energy efficiency recommendations which supports sustainable urbanization:</p> <ul style="list-style-type: none"> <li>- Lebanese road transport sector consumes energy (in terms of percentage of the total energy consumption of the country) double the world average;</li> <li>- Mobility demand has experienced a real explosion since 1990, particularly in Greater Beirut Area (GBA), and the trend is strongly upward over the decade to come. This growth is mainly attributed to the rise of daily passenger trips and the increase of car ownership.</li> </ul>	<p><b>In addition to SDG 11 in Table 2:</b></p> <ul style="list-style-type: none"> <li>- Reducing energy losses contributes to reducing the environmental impact of cities as less fuel is needed for the same amount of power generated (e.g. reduced air pollution);</li> <li>- Improves ecosystem and habitat conservation due to reduced pollution;</li> <li>- Improving energy efficiency in industry reduces the impact of cities (through reduced pollution from industry within city areas).</li> </ul>
<p><b>Highly Relevant SDG</b></p> <p><b>SDG 12: Sustainable Consumption and Production</b></p> <ul style="list-style-type: none"> <li>· Consumption</li> <li>· Production</li> <li>· Output</li> <li>· Productivity</li> <li>· Efficiency</li> </ul>	<p>The NEEAP addresses sustainable consumption and production throughout the plan – agriculture, industry, buildings etc. Consumption and production are framed both in terms of current conditions as well as in recommendations in reducing consumption, and optimizing production:</p> <ul style="list-style-type: none"> <li>- Increasing water scarcity and agriculture intensification leads to more demand for the geographical location. Nevertheless, Lebanon’s diversified climate and its production show an asset if only the country makes rational use of its natural resources, especially water, overcomes the obstacles limiting its competitiveness, and preserves the environment;</li> <li>- The first step would be to start with an Energy Consumption Labeling Ordinance that would open the way to implement MEPS in Lebanon. Labeling should be mandatory;</li> <li>- Increasing water scarcity and agriculture intensification leads to more</li> </ul>	<p><b>In addition to SDG 12 in Table 2:</b></p> <ul style="list-style-type: none"> <li>- Energy efficiency supports sustainable use of resources;</li> <li>- Awareness raising approaches to encourage mitigation actions and sustainability would spread information across society;</li> <li>- A modal share shift contributes to reduced outdoor air pollution and reduces water pollution (run-off) from reduced personal vehicle use.</li> </ul>

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	<p>demand for the geographical location. Nevertheless, Lebanon’s diversified climate and its production show an asset if only the country makes rational use of its natural resources, especially water, overcomes the obstacles limiting its competitiveness, and preserves the environment;</p> <ul style="list-style-type: none"> <li>- Rational use of the water resource increases the water sustainability and the yield of production for farmers.</li> </ul>	
<p><b>SDG 13: Climate Change</b></p> <ul style="list-style-type: none"> <li>· Climate Change</li> <li>· GHG emissions</li> <li>· Resilience</li> <li>· Mitigation</li> <li>· Adaptation</li> <li>· Nationally Determined Contribution (NDC)</li> </ul>	<ul style="list-style-type: none"> <li>- References to the Technology Needs Assessment;</li> <li>- GHG emissions as outcome indicators for several measures;</li> <li>- Applying Decree 6603/1995 regarding the operating standards of buses and trucks working on diesel and monitor the GHG emissions proposed as a measure for EE in transport;</li> <li>- The Ministry of Energy and Water has invested a lot of efforts in order to develop the sustainable energy sector in Lebanon, and specifically energy efficiency measures.</li> </ul>	<ul style="list-style-type: none"> <li>- Reference how EE contributes to climate change mitigation and adaptation;</li> <li>- Reference role of EE in the NDC;</li> <li>- Align policy targets with the NDC.</li> </ul>
<p><b>SDG 14: Life Below Water</b></p> <ul style="list-style-type: none"> <li>· Water</li> <li>· Sea</li> <li>· Lakes</li> <li>· Streams</li> <li>· Rivers</li> <li>· Mediterranean</li> <li>· Marine life</li> <li>· Run-off</li> <li>· Water pollution</li> <li>· Coastal</li> </ul>	<p>In the NEEAP water is primarily addressed in terms of conservation – agricultural irrigation, solar water heaters for buildings and institutions, and in setting energy labeling for appliances. The NEAP makes no mention of the benefits of energy efficiency on water systems or marine life:</p> <ul style="list-style-type: none"> <li>- Increasing water scarcity and agriculture intensification leads to more demand for the geographical location. Nevertheless, Lebanon’s diversified climate and its production show an asset if only the country makes rational use of its natural resources, especially water, overcomes the obstacles limiting its competitiveness, and preserves the environment.</li> </ul>	<ul style="list-style-type: none"> <li>- Cleaner energy production reduces water pollutants and run-off into bodies of water;</li> <li>- Improved energy efficiency in fossil power plants will reduce fuel combustion and thus reduce thermal and non-thermal water pollution potentially entering the marine environment;</li> <li>- Energy efficiency reduces water thermal pollution;</li> <li>- Modal share shift reduces water pollution (run-off from road surfaces) which can end up in marine environment.</li> </ul>
<p><b>SDG 15: Life on Land</b></p> <ul style="list-style-type: none"> <li>· Ecosystems</li> <li>· Biodiversity</li> <li>· Forests</li> <li>· Reforestation/ afforestation</li> <li>· Seed bank</li> </ul>	<p>The NEEAP makes a brief mention of the benefits of water efficiency to the natural environment:</p> <ul style="list-style-type: none"> <li>- The estimated total water consumption for irrigation is 1,050 Mm3 /year. Increasing water scarcity and agriculture intensification leads to more demand for the geographical location. Nevertheless, Lebanon’s</li> </ul>	<ul style="list-style-type: none"> <li>- Modal share shift improves conservation of water ecosystems and improves ecosystem and habitat conservation due to reduced pollution and land use activities;</li> <li>- Modal share shifts reduce degradation of natural habitats through reduced pollution;</li> </ul>

**Table 4: Recommendation for Estimation of Impact of SDGs**

Key Words	Description in the Policy/Strategy/Action Plan	Recommendation for Estimation of Impact/Integration of Impact
<ul style="list-style-type: none"> <li>· Genetic</li> </ul>	<p>diversified climate and its production show an asset if only the country makes rational use of its natural resources, especially water, overcomes the obstacles limiting its competitiveness, and preserves the environment;</p> <ul style="list-style-type: none"> <li>- Rational use of the water resource increases the water sustainability and the yield of production for farmers.</li> </ul>	<ul style="list-style-type: none"> <li>- Improved energy efficiency can support sustainable use of freshwater ecosystems through reduction in water usage for energy production, predominantly from fossil fuel power plants;</li> <li>- Energy efficiency helps reduce degradation of natural habitats by reducing the requirement for energy generation and its related negative impacts (in systems with polluting and water intensive power plants);</li> <li>- Improved transmission and distribution can support sustainable use of freshwater ecosystems through reduction in water usage for energy production, predominantly from fossil fuel power plants.</li> </ul>
<p><b>SDG 16: Peace, Justice &amp; Strong institutions</b></p> <ul style="list-style-type: none"> <li>· Capacity</li> <li>· Legislation</li> <li>· Regulation</li> <li>· Legal framework</li> <li>· Policy</li> <li>· Participatory</li> <li>· Inclusive (decision-making)</li> </ul>	<p>The NEEAP makes several recommendations to strengthen or create regulatory and legislative frameworks for energy efficiency which links with SDG 16.6 (developing effective and transparent institutions):</p> <ul style="list-style-type: none"> <li>- This measure aims at setting the legislative framework for the Energy Service Companies (ESCOs);</li> <li>- According to the situation detailed above, the following measure deals with setting Minimum Energy Performance Standard (MEPS) for certain appliances;</li> <li>- Minimum Energy Performance Standards or MEPS determine the minimum energy efficiency that products shall meet in order to be sold in the market;</li> <li>- This measure aims at setting the double wall as an ordinance;</li> <li>- There is a huge need to update the building code of Lebanon towards having a sustainable building code.</li> </ul>	<p>Development of a conservation law towards a more comprehensive framework law is a means to develop effective, accountable and transparent institutions.</p>
<p><b>SDG 17: Partnerships for the Goals</b></p> <ul style="list-style-type: none"> <li>· Resource</li> <li>· Financing mechanism</li> <li>· Public-Private Partnerships</li> </ul>	<p>The NEERA finance mechanism links with SDG 17.1- Strengthen domestic resource mobilization. Additionally, the policy and legislative measures mentioned above in SDG 16 - MEPS, building codes, ordinances relate to SDG 17.7- Strengthening policy coherence:</p> <ul style="list-style-type: none"> <li>- It is undisputable that financing mechanisms are an extremely effective way to boost energy efficiency, renewable energy, and green buildings</li> </ul>	<p>Financing mechanisms support and leverage domestic resource mobilization.</p>

**Table 4: Recommendation for Estimation of Impact of SDGs**

Key Words	Description in the Policy/Strategy/Action Plan	Recommendation for Estimation of Impact/Integration of Impact
	in a country. Fortunately, Lebanon is characterized by one of the best financing mechanisms in the region: NEEREA is the National Energy Efficiency and Renewable Energy Action, a highly efficient financing mechanism developed by the Central Bank of Lebanon (BDL) back in November 2010.	

## Annex I: Lead Institution per SDG in Lebanon

*To be determined: Lead institutions per theme are currently being determined. Results of the institutional leadership will be posted here in due time.*

<b>Theme: People</b>		Leading Institution: <b>TBD</b>			
<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>10</b> REDUCED INEQUALITIES 
<b>Theme: Planet</b>		Leading Institution: <b>TBD</b>			
<b>6</b> CLEAN WATER AND SANITATION 	<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 	<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 
<b>Theme: Prosperity</b>		Leading Institution: <b>TBD</b>			
<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 			
<b>Theme: Peace</b>		Leading Institution: <b>TBD</b>			
<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 					
<b>Theme: Data and Statistics</b>		Leading Institution: <b>TBD</b>			
<b>Cross-cutting theme:</b>					
<b>17</b> PARTNERSHIPS FOR THE GOALS 					

## Annex II: Indicators

A cohesive and integrated indicator framework that synchronizes SDG and NDC progress is essential for coordinated implementation and joint progress assessment. The NEEAP 2016-2020 identifies baseline indicators for 2010 which will then be compared to data in 2020 as overall indicators of progress in the energy efficiency realm. These baseline indicators are a good starting point at considering the integration of energy efficiency indicators with the SDG indicator framework. Annex II, Table 1 shows the baseline indicators identified in the NEEAP and where there is overlap with the SDG global indicator framework. Currently, there are just two joint indicators which include energy power intensity and the rate of electrification, both indicators for SDG 7 Affordable and Clean Energy.

Lebanon has yet to nationalize the SDG indicators which provides an opportunity to include climate focused indicators into the nationalized approach so that both agendas can be assessed through a mutual set of indicators. The absence of nationalized SDG indicators withstanding, a robust database of national level data can be found through the SDG API database. The database provides data from global sources at the national level that correspond to the Global SDG Indicator Framework, making comparisons of SDG progress across countries easily accessible and consistent.

The SDG global framework provides a valuable starting point to integrate the two agendas' indicator framework. However, a barrier to solely utilizing the SDG global framework for both agendas, is that it is limited in its ability to measure NDC implementation. Many of the SDG indicators are too unspecific or insufficient for tracking NDC progress. For example, greenhouse gas emissions are not included as an SDG indicator in the global framework (Bouyé, B., Harmeling, S. & Schulz, N-S. 2018). Therefore, in addition to utilization of the SDG global indicator framework, additional indicators are needed to effectively and cohesively monitor both agendas. As part of this research, identification of the targets, goals, data points and/or indicators within the NDC, Third National Communication and within specific plans and policies that comprise Lebanon's climate policies were identified to further provide a basis for developing an integrated indicator framework. The final product should be a combined list of indicators that incorporates the SDG global framework complemented by additional indicators that are climate focused, and germane to the goals of the specific plan/policy. These are identified in Annex II, Table 2 'other potential indicators' for the SDG targets that are relevant to climate change. Of note, the NEEAP also contains a set of input and output indicators for each proposed energy efficiency measure, however these indicators are too specific, granular, and/or qualitative for inclusion in an integrated SDG /NDC indicator list.

**Annex II, Table 1: NEEAP KEY INDICATORS FOR THE BASELINE YEAR 2010 & INTERSECTION WITH SDG 7 GLOBAL INDICATOR**

Indicator	Unit	2010	2020	SDG Global Indicator?
Electric power intensity	GWh/GDP (MUSD)	0.396	N.A.	YES -(SDG 7.3.1)
Gross Annual Electricity Generation	GWh	15,039	N.A.	No
Imported Electric Power	GWh	1,249	N.A.	No
Exported Electric Power	GWh	0	N.A.	No
Projected growth rate for demand for electric power	%	7%	5.81%	No
Primary energy consumption at the national level	Mtoe	6.069	N.A.	No
Share of Electric power of primary energy consumption	%	53.9	N.A.	No
The marginal cost of producing on kWh	%	0.202	N.A.	No
Electrification Rate	%	100	100	YES (SDG 7.1.1)

**Annex II, Table 2: SDG Framework Alignment & Potential Additional Indicators**

SDG	Indicator
7.3 By 2030, double the global rate of improvement in energy efficiency	7.3.1 Energy intensity measured in terms of primary energy and GDP
	<p><b>Other Potential Indicators:</b></p> <ul style="list-style-type: none"> <li>○ Total GWh for primary energy (including electricity generation, transmission and distribution)</li> <li>○ Total GWh for end-use energy (including building, industrial and public sectors)</li> <li>○ Electric power intensity (NEEAP indicator)</li> <li>○ Gross annual electricity generation (NEEAP indicator)</li> <li>○ Imported electric power GWh (NEEAP indicator)</li> <li>○ Exported electric power GWh (NEEAP indicator)</li> <li>○ Projected growth rate for demand for electric power % (NREAP indicator)</li> <li>○ Primary Energy consumption at the national level- Mtoe (NEEAP indicator)</li> <li>○ Share of electric power of primary energy consumption % (NEEAP indicator)</li> <li>○ Marginal cost of producing in kWh (NEEAP indicator)</li> <li>○ Electrification Rate % (NEEAP indicator)</li> <li>○ % change in power demand through energy efficiency measures (NDC)</li> </ul>

## Annex III: SDG List

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>PEOPLE</b></p>	<p><b>1 NO POVERTY</b></p>  <p><b>Goal 1. End poverty in all its forms everywhere</b></p>	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
		1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
		1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
		1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
		1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
		1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions
		1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>PEOPLE</b></p>	<p><b>2 ZERO HUNGER</b></p>  <p><b>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b></p>	2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
		2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
		2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
		2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
		2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
		2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
		2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
		2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

### 3 GOOD HEALTH AND WELL-BEING



#### Goal 3. Ensure healthy lives and promote well- being for all at all ages

- 3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
- 3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births
- 3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
- 3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
- 3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol
- 3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents
- 3.7 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
- 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
- 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
- 3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate
- 3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all
- 3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States
- 3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

### 4 QUALITY EDUCATION



#### Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

- 4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes
- 4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education
- 4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university
- 4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
- 4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations
- 4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy
- 4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development
- 4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all
- 4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries
- 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States

PEOPLE

5 GENDER EQUALITY



**Goal 5.**  
Achieve gender equality and empower all women and girls

- 5.1 End all forms of discrimination against all women and girls everywhere
- 5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
- 5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
- 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate
- 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life
- 5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences
- 5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws
- 5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women
- 5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

PEOPLE

10 REDUCED INEQUALITIES



**Goal 10.**  
Reduce inequality within and among countries

- 10.1 By 2030, progressively 10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average of the population at a rate higher than the national average
- 10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
- 10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard
- 10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality
- 10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations
- 10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions
- 10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies
- 10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements
- 10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes
- 10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent

<b>PLANET</b>	<p><b>6</b> CLEAN WATER AND SANITATION</p>  <p><b>Goal 6.</b> Ensure availability and sustainable management of water and sanitation for all</p>	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
		6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
		6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
		6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
		6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
		6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
		6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
		6.b Support and strengthen the participation of local communities in improving water and sanitation management
<b>PLANET</b>	<p><b>7</b> AFFORDABLE AND CLEAN ENERGY</p>  <p><b>Goal 7.</b> Ensure access to affordable, reliable, sustainable and modern energy for all</p>	7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
		7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
		7.3 By 2030, double the global rate of improvement in energy efficiency
		7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
		7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support

**12** RESPONSIBLE CONSUMPTION AND PRODUCTION



**Goal 12.**  
Ensure sustainable consumption and production patterns

- 12.1 Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
- 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
- 12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
- 12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
- 12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products
- 12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities

**13** CLIMATE ACTION



**Goal 13.**  
Take urgent action to combat climate change and its impacts

- 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- 13.2 Integrate climate change measures into national policies, strategies and planning
- 13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- 13.a Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
- 13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities



**Goal 14.**  
**Conserve and sustainably use the oceans, seas and marine resources for sustainable development**

- 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution
- 14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans
- 14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels
- 14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics
- 14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information
- 14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation
- 14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism
- 14.a Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries
- 14.b Provide access for small-scale artisanal fishers to marine resources and markets
- 14.c Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want



**Goal 15.**  
**Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
- 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
- 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
- 15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
- 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
- 15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed
- 15.7 Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products
- 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- 15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
- 15.b Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation
- 15.c Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities

## 8 DECENT WORK AND ECONOMIC GROWTH



**Goal 8.**  
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

- 8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries
- 8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
- 8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
- 8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
- 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
- 8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training
- 8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
- 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
- 8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products
- 8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all
- 8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries
- 8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization

## 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



**Goal 9.**  
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

- 9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
- 9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
- 9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets
- 9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
- 9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending
- 9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States
- 9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities
- 9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020

## 11 SUSTAINABLE CITIES AND COMMUNITIES



**Goal 11.**  
**Make cities and human settlements inclusive, safe, resilient and sustainable**

- 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons
- 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
- 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage
- 11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
- 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
- 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
- 11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning
- 11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels
- 11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials

## 16 PEACE, JUSTICE AND STRONG INSTITUTIONS



**Goal 16.**  
**Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

- 16.1 Significantly reduce all forms of violence and related death rates everywhere
- 16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children
- 16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all
- 16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime
- 16.5 Substantially reduce corruption and bribery in all their forms
- 16.6 Develop effective, accountable and transparent institutions at all levels
- 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels
- 16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance
- 16.9 By 2030, provide legal identity for all, including birth registration
- 16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements
- 16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence & combat terrorism & crime
- 16.b Promote and enforce non-discriminatory laws and policies for sustainable development

**17 PARTNERSHIPS  
FOR THE GOALS**


**Goal 17.**  
**Strengthen the  
means of  
implementation and  
revitalize the global  
partnership for  
sustainable  
development**

17.1 Strengthen domestic resource mobilization, including through international support to developing countries, to improve domestic capacity for tax and other revenue collection
17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of ODA/GNI to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries
17.3 Mobilize additional financial resources for developing countries from multiple sources
17.4 Assist developing countries in attaining long-term debt sustainability through coordinated policies aimed at fostering debt financing, debt relief and debt restructuring, as appropriate, and address the external debt of highly indebted poor countries to reduce debt distress
17.5 Adopt and implement investment promotion regimes for least developed countries
17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism
17.7 Promote the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms, including on concessional and preferential terms, as mutually agreed
17.8 Fully operationalize the technology bank and science, technology and innovation capacity building mechanism for least developed countries by 2017 and enhance the use of enabling technology, in particular information and communications technology
17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation
17.10 Promote a universal, rules-based, open, non-discriminatory and equitable multilateral trading system under the World Trade Organization, including through the conclusion of negotiations under its Doha Development Agenda
17.11 Significantly increase the exports of developing countries, in particular with a view to doubling the least developed countries' share of global exports by 2020
17.12 Realize timely implementation of duty-free and quota-free market access on a lasting basis for all least developed countries, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from least developed countries are transparent and simple, and contribute to facilitating market access
17.13 Enhance global macroeconomic stability, including through policy coordination and policy coherence
17.14 Enhance policy coherence for sustainable development
17.15 Respect each country's policy space and leadership to establish and implement policies for poverty eradication and sustainable development
17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries
17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships
17.18 By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts
17.19 By 2030, build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product, and support statistical capacity-building in developing countries

## References

- Bouyé, B., Harmeling, S. & Schulz, N-S. (2018). Connecting the Dots: Elements for a Joined-Up Implementation of the 2030 Agenda and Paris Agreement. World Resources Institute. Retrieved from <https://www.wri.org/publication/connectingthedots-ndc-sdg>
- Bouri, Elie & Assad, Joseph. (July 2016). The Lebanese Electricity Woes: An Estimation of the Economical Costs of Power Interruptions. *Energies*. Retrieved from <https://www.mdpi.com/1996-1073/9/8/583>
- Energy and Environment Partnership (EEP). (2017). Understanding the Role of Women and Girls in Renewable and Energy Efficiency Projects. EEPS&EA. Retrieved from [https://eepafrica.org/wp-content/uploads/GendeStudy\\_final\\_full.pdf](https://eepafrica.org/wp-content/uploads/GendeStudy_final_full.pdf)
- Energy Research Centre of the Netherlands (ECN) and New Climate Institute. (2019). Ambition to Action SCAN tool. Retrieved from <http://ambitiontoaction.net/>
- Ministry of Energy and Water and Lebanon Center for Energy Conservation (MoEW/LCEC). (2016). The National Energy Efficiency Action Plan for the Republic of Lebanon 2016-2020. Beirut, Lebanon: MoEW.
- Ministry of Environment and United Nations Development Programme (MOE/UNDP) (2016). Intended Nationally Determined Contribution (INDC). Beirut, Lebanon: MOE. Retrieved from <http://climatechange.moe.gov.lb/Library/Files/Uploaded%20Files/Republic%20of%20Lebanon%20-%20INDC%20-%20September%202015.pdf>
- Ministry of Environment, Global Environmental Facility and United Nations Development Programme (MOE, GEF & UNDP) (2015). Lebanon's Third National Communication to the UNFCCC. Retrieved from <http://climatechange.moe.gov.lb/viewfile.aspx?id=239>
- Shihadeh et al. (2012). Effect of Distributed Electric Power Generation on Household Exposure to Airborne Carcinogens in Beirut. American University of Beirut: Issam Fares Institute for Public Policy and International Affairs.
- United Nations Development Programme, Global Gender and Climate Alliance. (2013) Global Gender and Climate Alliance Asia and the Pacific. Policy Brief 4. Retrieved from <https://www.undp.org/content/dam/undp/library/gender/Gender%20and%20Environment/PB4-AP-Gender-and-Energy.pdf>
- United Nations Development Programme- CEDRO Team. (2018) Sustainable Impacts of Energy Projects on Livelihoods, Education, and Health. PowerPoint Presentation. Lebanon. Retrieved from UNHCR: <https://data2.unhcr.org/en/documents/download/66478>
- United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) (2018). Turning promises into action: Gender equality in the 2030 Agenda for Sustainable Development. Retrieved from <https://www.unwomen.org/en/digital-library/publications/2018/2/gender-equality-in-the-2030-agenda-for-sustainable-development-2018#view>
- United Nations Statistics Division. (2019). Sustainable Development Goal indicators website: SDG API. Retrieved from <https://unstats.un.org/sdgs/>