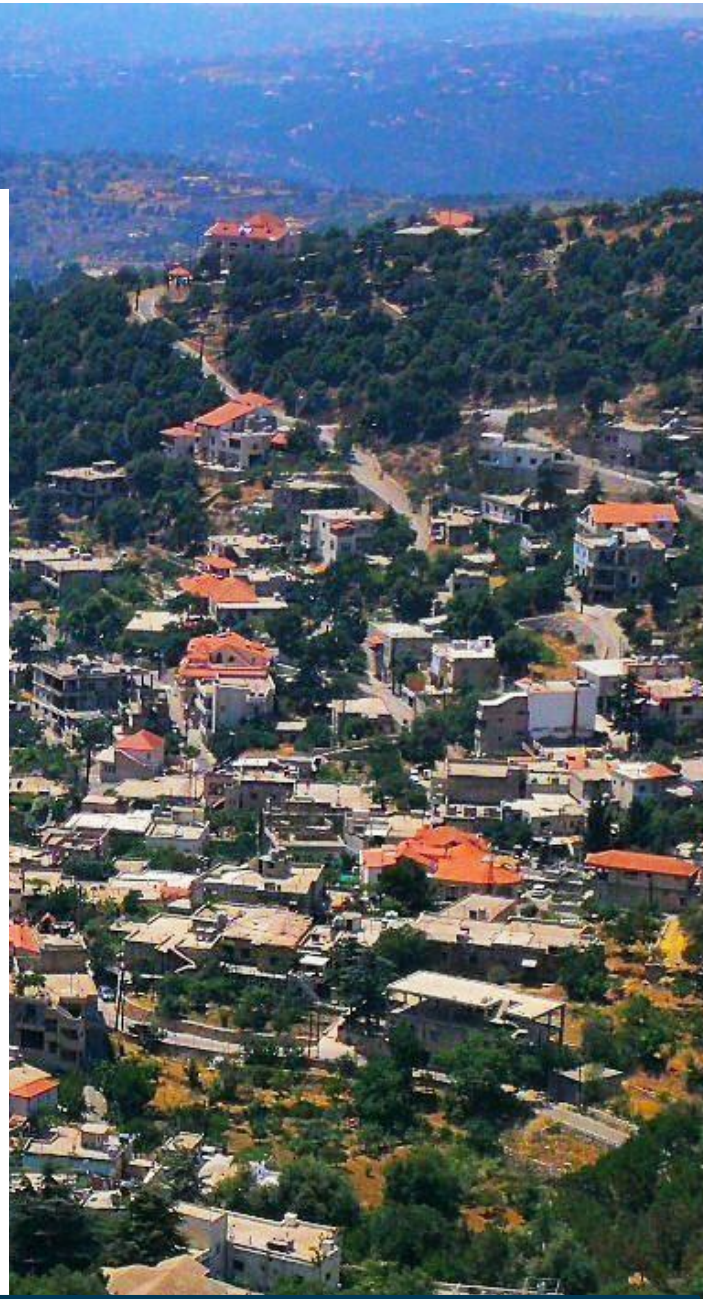


100% Lebanon:

A Green Economic Recovery Vision



DECEMBER 1720

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Logo
Name

100% Lebanon

An economic recovery vision for Lebanon based on global sustainability trends

This document is a live document that aims at generating a discussion among the various Lebanese stakeholders, such as civil society, private sector, government institutions, among others; with the hope that a unified vision can be created to drive Lebanon's economic and environmental recovery.

“Lebanon, the land of diversity”

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100% LEBANON

A Sustainable Development Vision for Lebanon for economic and environmental recovery

1- Why have a vision

There is ample research done by a number of national and international entities on the importance of national visions to drive development. Countries with higher growth rates in the past decades have developed national strategic visions.¹ Visions have become a necessity for the success of any institute, be it a country, corporation, or non-governmental organizations. Visions provide the direction of travel that everyone should work towards. When it is clear where we all want to be in the long-term, we would know what actions we need to take on the short-term. There are many examples of countries with successful visions, including developing countries, like Costa Rica, Chile, South Korea, Malaysia, Singapore, among many others. Having a vision does not ensure success, as many other factors come into account, but national visions have been documented to be an effective tool if done correctly. In a diverse country like Lebanon, where society is not homogenous, a vision that the Lebanese can come around might be what this country needs.

There are different kinds of visions that have been developed by various entities, but most successful visions had certain elements in common, which are:

- Visions have to be holistic, tackling various aspects of a national development, including economic, social, institutional, judicial, administrative, etc. This paper is focused on the economic aspect, and therefore is not recommended as a full vision, but a start for something more holistic.
- Visions have to be inclusive and drive the work all actors of society, government, private sector, civil society, religious bodies, etc.
- Therefore, these actors have to feel ownership of their vision by being part of the vision development process.
- Visions have to be clear and simple to communicate for all actors to understand it. The key messages from the vision should be short and clear catchphrases. For example, the climate change vision in Costa Rica is achieving net zero emissions by 2050, which became a target for every institution in the country.
- Visions have to be inspiring to drive momentum among all actors. All actors of society have to find the vision convincing and able to fulfill their ambition. This does not mean the vision is unrealistic. It should be based on solid science and research, and at the same time push the boundaries to capture the imagination of society.

Lebanon is a country with multiple leaders, not only on the political level, but also on the civil society level. This is clear from the 17 October movement, where after one year from its start, no clear leadership has emerged. With weak enforcement capabilities by the government, and the ability of any major political party or civil society group to derail any effort that they feel is against their aims or interest, having an extensive, well organized, and inclusive vision development process, including a national dialogue, is necessary to ensure ownership of whatever vision formulated. This process has to ensure that each main stakeholder input has been ensured and

¹ <https://www.idea.int/sites/default/files/publications/national-visions-matter-lessons-of-success.pdf>

adequately utilized to guarantee the widest possible ownership, which is a critical factor in the success of any vision for the country. The design of the vision formulation process is, therefore, as important as the vision itself.

Another distinguishing factor for Lebanon is the identity crisis. Lebanese are not only Lebanese, but also identify themselves based on ideology, sect, and ethnicity. Although this does not pose a problem in most other countries, the existing sectarian regime in Lebanon makes these identities sometimes take priority during national deliberations. Therefore, any national vision developed for Lebanon has to be inspiring and capture the aspirations of the Lebanese public in order to strengthen the Lebanese identity, and ensure adequate momentum for the implementation of the developed vision. In addition, a carefully designed and well-resourced communication campaign needs to accompany the launch of the vision for it to become a beacon of inspiration and a driving force for every Lebanese.

Unfortunately, Lebanon does not possess such a vision at the moment. The closest existing vision in Lebanon is the “Lebanon Economic Vision” developed by the international consulting firm, McKinsey, in 2017. This document was immediately criticized by various media outlets. Criticism included that it was not inspiring, not comprehensive, elitist, lacking actual vision, etc.² Many, or even most, Lebanese stakeholders have not heard of this vision, let alone been involved in its development. The vision is also not holistic, and only focused on the economic sectors. Success of this vision is yet to be seen, but previous similar consultancy-based exercises have not been fruitful, especially in the current political and socioeconomic environment.

2- How to use this document

The purpose of this document is to start an informal dialogue about the Lebanon we want, with the aim of producing a unified vision that can chart the way forward for the various groups in the country. A common inspiring vision can play an important role in filling the gap in a clear and capable leadership to restore Lebanon’s socioeconomic status. Therefore, this document is only a tool to help reach a common vision among the various groups. The zero draft does not aim to draft a full vision for Lebanon, and many elements will be missing. The technical topics presented initially are based on the expertise of the drafting team, and other elements need to be added to it over time. Even the existing elements are not complete, and just an initial draft to initiate discussions. Therefore, this is a live document that needs to continuously change in its existing elements and new ones to be added. The essential aspect of this initiative is to keep the dialogue on-going to improve the quality of the content and to continuously consolidate various views. Since this is an informal process, the outcomes of this dialogue could be used as an input for any future formal process conducted.

The informal process that will be followed in the development of a common vision is as follows:

- Initial zero draft is developed by a group of interdisciplinary experts in sustainable development.
- The vision will be distributed to various stakeholders from civil society, private sector, and public sector, for them to provide their input to the document and/or develop their own documents.

² <https://www.executive-magazine.com/opinion/mckinseys-uninspiring-economic-vision>

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- A series of dialogues will be organized, mainly through online webinars to dwell into the various existing and new elements of the document.
 - A group of experts will continuously consolidate various inputs provided to produce new drafts that will be distributed to all stakeholders.
 - Focus groups containing opposing views could be created to dwell on contentious issues in certain elements.
 - As certain elements mature and achieve unanimous buy-in across the various groups in Lebanon, these elements will be presented to decision makers and the general public.

A critical factor in the success of this initiative is equal recognition of all participants. Although this initiative has been triggered by a specific group, every new participant in this initiative should be recognized as an equal contributor, and should have equal ownership of the outcome. Therefore, the informal process described above does not have the only vehicle to develop this document further. Other groups can and should initiate their own debates, as long as consolidation between the different processes occur.

As mentioned earlier, there are many elements missing from this zero draft. It focuses mainly on sectoral economic development, namely energy, transport, material management, tourism, agriculture, and international affairs. Other elements missing include political, financial, social, judicial, institutional, and administrative development. These elements are key, and no will vision will be successful in Lebanon without addressing these elements. Heavily suffering from corruption, Lebanon will not be able to advance any economy vision without resolving this problem. Published research has shown a strong link between corruption and development, with one research concluding that a 1% increase in corruption would reduce growth rate by 0.72%.³ Although literature on this issue is not conclusive, but what is agreed upon that reducing corruption will help in development. Even the research team would argue that the reduction of corruption and political reform are precursors to the development of an economic vision. Therefore, we hope that in the near future, the remaining elements of the vision would be developed.

Another aspect that needs to be highlighted is the importance of having a vision for social development, which is usually neglected in national visions. As stated before, Lebanese public suffer from an identity crisis, especially from the existing sectarianism on both political and social level. Ending the sectarian regime in Lebanon has been a demand from various political and civil society groups, and long debates have been carried in relation to how these should be achieved. Some proponents believe that sectarian thinking should be removed from society before political reform, while others argue that sectarian political regime has been fueling sectarian thinking and is the source of corruption, and should be tackled first. In the thinking of this research team, a vision and strategy should be developed to end sectarianism at both levels simultaneously.

It is important to note that, although sectarianism is a key issue, a social vision has a wider scope and should tackle all aspects of human development, including formal and informal education, human rights, gender equality, health, sports, among others. Economic equality, for example, is rarely discussed in Lebanon, and only comes in the form of regional development. Lebanon is one of the most unequal countries in the world in terms

³ https://www.researchgate.net/publication/4969215_Corruption_and_Economic_Growth

of income, ranking 129 among 141 countries on the Gini coefficient.⁴ Therefore, economic development should not only be focused on growth, but also how this growth is distributed.

Finally, the different elements present in this document should not be treated as separate silos. Interlinkages between the different elements need to be considered, and specific discussions need to be organized on these interlinkages. For example, the social equality issue is an aspect of a social, economic, and administrative development. An administrative issue, decentralization, another subject of long debated in Lebanon, is about ensuring equal distribution of wealth. The development of small and medium enterprises (SMEs) is another social equality issue that interlinks with economic development, among others. These interlinkages need to be clearly outlined and adequately addressed in order to achieve synergy among the different elements of a national vision.

3- Why a “Green Recovery”

It is not clear yet where Lebanon’s economy is at the moment, but real GDP is estimated to have declined by 6% in 2019, and it is forecasted to decline further by 19.2% in 2020. This contraction is projected to continue by a further 13.2% in 2021. Tourists’ arrivals fell by 71.5% in the first five months of the year in comparison to 2019, while private sector activity contracted by more than 50%. Construction permits declined by 67.9%, and cement deliveries went down by 55.7% in the first quarter of 2020.⁵

Nevertheless, Lebanon economic crisis provides a unique opportunity. The country is more or less in dire need to completely revitalize its economy, and the biggest question put forward is how. The decisions that will be taken today will lock Lebanon’s economy for the coming decades. An economic development strategy will drive investments in certain sectors that will set the course of these sectors for the next generation. Therefore, the economic strategy to be implemented should look into the economy of the future, and not just what has worked in the past. With a small consumer market, Lebanon’s economy follows global market trends. We do not set the trends, but we do follow them. Therefore, it is critical to look at international trends to see what the fastest growing sectors are, and how the different sectors are being shaped. This future outlook is not only an economic analysis but also a political one. Political decisions are constantly shaping the global economy, especially in major countries, as well as international agreements. Such international trends are usually missed in economic planning by either governments or private sector with sometimes detrimental consequences, and history is full with such examples with few of them mentioned below.

Maybe the most dramatic example is the political decision taken by the Chinese Ming dynasty in the 1400s. At that time, China had the biggest and most advanced fleet with around 3,500 ships, some reaching 120 meters long, and with a crew of up to 1,500 individuals. This was before Christopher Columbus was born, and his ship

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<https://www.undp.org/content/dam/lebanon/docs/Governance/Publications/Assessing%20Labor%20Income%20Inequality%20in%20Lebanon%E2%80%99s%20Private%20Sector.pdf>

⁵ <http://pubdocs.worldbank.org/en/525341554825472233/mpo-lbn.pdf>

was only 19 meters long. Naturally, China at that time was able to dominate the world oceans, conducting several large expeditions under the admiral Zheng He with up to 317 ships sailing at once. Nevertheless, at some point in early 1400s, the imperial court decided to focus internally, destroyed all its ocean-going ships, and banned the construction of any new ones. Many theories exist on why the Ming dynasty took this political decision, but we can only imagine what type of world we would be living now, if China has focused on its international expeditions at that time like Europe did.⁶

We do not have to look that far to find other examples, trends like the rise of the combustion engine, digital camera, and smart phones have rapidly decimated the once-booming industry of horse carriages, film-photography, and telephone land-lines, without these industries foreseeing the upcoming change. These are obvious examples due to technological advancement, but new trends are being shaped constantly in every sector without it having to be a similar technological or political turning-point as the examples provided. Therefore, in the development of Lebanon's economic vision, experts in each sector have to sharply look at international trends and try to figure out how the world will be in 2050 to decide in which direction Lebanon needs to go.

The international sustainable development community, which this research team is part of, has been engaging in the various global debates related to the topic, including international treaty negotiations under the United Nations (UNGA, UNFCCC, CBD, WTO, Montreal protocol, etc.), bilateral free-trade agreements, intergovernmental bodies (OECD, WEF, G20, G7, etc.), regional bodies (EU, EuroMed, African Union, Belt and Road Initiative, etc.). Although global economic trends are not necessarily driven by these platforms, substantial resources and effort are being shaped by the outcomes of these debates.

This is particularly true for the sustainability agenda. Millions of organizations, businesses decision makers, celebrities, religious institutions, and many others wake up every day with the aim to address global sustainability challenges, be it climate change, pollution, loss of biodiversity, among others. For the United Nations Sustainable Development Goals (SDGs), a global network has been set, called the Global Compact Network that includes various stakeholders from big business, government, civil society, celebrity community, etc. with the aim of implementing the SDGs agenda. The network has national chapters, including a chapter in Lebanon, and its membership includes all the major companies in the country. This is just one network within one platform. There are many other vehicles used to implement the SDGs, including the formal one, where each government has to periodically report at the UN High Level Political Forum (HLPF) its progress in implementing the SDGs. In the private sector, there is the "We Mean Business" coalition, which is a group of 1,372 companies worth 24.8 trillion US dollars working to address climate change and sustainability in general.⁷ Almost every major multinational corporation, such as Google, Apple, IKEA, Facebook, General Motors, and many others, are now spending billions of US dollars in order to shift the global economy into a low-carbon one. International agreements and sustainable development policies (national or private) did affect markets in the past, and are expected to increasingly do so into the future.

⁶ <https://www.independent.co.uk/news/world/americas/500-years-ago-china-destroyed-its-world-dominating-navy-because-its-political-elite-was-afraid-free-trade-a7612276.html>

⁷ <https://www.wemeanbusinesscoalition.org/>

For example, the European regulation on the Registration, Evaluation, and Authorization of Chemicals, known as REACH, which took effect in 2007, requires businesses to provide safety data for its chemical substances manufactured, used and commercialized, shifting the burden of proof from legislators to the chemical industry. This means any chemical substance produced or imported to Europe had to comply with REACH. The sustainable development community that was engaged in the negotiation of REACH from the early 2000s have warned the non-EU chemical industry and countries that export chemicals to Europe that they need to prepare for the upcoming regulation. The community was able to see how the market will be impacted. As the European Chemical Agency, ECHA, put it: “No data, no market”.⁸ The impact of REACH was on the global chemical market. Major economies, like China and the United States, were able to adjust. China produced a counter legislation that became known as the China REACH. In the United States, major chemical companies, like Dow Chemicals, hired dedicated teams to adjust to REACH. Developing countries that required ample time to adjust to the new regulation were the hardest hit, with some Arab countries calling it a conspiracy against their chemical industry. Europe is a major import and export region for Lebanon, and keeping track of European legislation, like REACH, is essential.

Keeping track of international trends is challenging and requires rare expertise. One way for Lebanon to ease the process is to work with international civil society. International civil society movements are not only closely tracking global trends in their areas of expertise, but are pushing their own concepts that are becoming mainstream with time. For example, the concept of “Zero Waste”, which civil society has been calling for since the 1980s, and is based on the idea that to deal with waste, governments have to look at the flow of material through human society from extraction, to production, to consumption, and all the way to disposal. The Zero Waste concept was very alien to decision makers and the UN system in the beginning. Now, the concept of the ‘circular economy’, which is the terminology accepted by states and the UN system for the Zero Waste concept, is now at the forefront of waste management discussions at the global level and in some regions, like the EU. Another example, is the idea of limiting global temperature increase due to climate change to below 1.5°C. Before the Paris Agreement was out, civil society, small island states, and few other countries were accused of not being realistic calling for this limit. Most of other countries and stakeholders, including the United Nations, preferred the more achievable limit of 2°C. When civil society and like-minded countries succeeded in introducing the 1.5°C limit to the Paris agreement, it became mainstream, and an acceptable limit for most.

In the below sections, the research team dwells into different sectors of the economy in Lebanon with a specific focus on sustainability, not only because it is within the expertise of the research team, but also there is an overwhelming global trend towards sustainability in almost every economic sector that Lebanon can benefit from. The research team believes that if Lebanon does not invest in the newly developed concept, “Green Recovery”, at some point Lebanon will have to redirect its development towards sustainability, but at a higher cost. Therefore, why not do it right from the first time, especially with the overwhelming evidence that the Green Recovery could have same if not better economic benefits than the alternatives. The research team would argue in the below sections that a Green Recovery economic vision is best suited for the particularities of Lebanon.

⁸ <https://www.qima.com/reach-testing/eu-compliance-requirements>

The Green Recovery is a new concept that came in 2020 as a response of some governments and international groups in relation to the COVID-19 economic set back. The concept is, as stated above, to have an economic recovery plan based on sustainability. In July of this year, the European Union agreed on its green recovery plan, also named the EU's green new deal.⁹ This green recovery plan is the largest single sustainability pledge ever done, sending a clear signal where Europe is going. Just like REACH legislation, this new deal will also impact countries that are not up to the European sustainability standards.¹⁰ It is not just the EU, but many governments are doing same, such as New Zealand, Chile, South Korea, among others. The OECD has been keeping track of governments engaging in green recovery, and providing support when possible.¹¹ The IMF also published a special series on fiscal policies in response to COVID-19 based on the green recovery.¹² Lebanon, which is currently looking for support from the EU, OECD, World Bank and IMF, can gain credit among these entities if the country adopts a green recovery strategy as part of its reforms. A report published by Cambridge Economics commissioned by the We Mean Business coalition, titled "Assessment of Green Recovery Plans after COVID-19", has shown that green recovery plans have better returns on income, jobs, and GDP than business-as-usual stimulus packages.¹³ In all geographies modelled in this report, including the EU, the US, India, Japan, and global economy, green recovery plans were more effective than the usual approaches.

Therefore, the selected Lebanon's vision elements below have been developed with a specific focus on the sustainability principle, taking into consideration the sustainability goals of the SDGs, the Paris Climate Agreement, the Convention of Biological Diversity and few others. The research team is well aware that Lebanon's vision elements should not be viewed only from a sustainability lens, and other issues have been taken into consideration, such as social issues. As mentioned in the second chapter of this document, the elements of this document aim to initiate a national debate, and we hope that these elements would be developed further, especially using other perspectives and considerations.

It is important to know that integrating sustainability and sustainable development into Lebanon's economic vision is something not new. Various efforts are being conducted already, and the following examples are just a few of what exists. At the time this document was drafted, the United Nations Development Program (UNDP) has initiated a project to 'climate-proof' the existing economic vision for Lebanon. Also, the Ministry of Environment is developing a long-term climate strategy, which is considering several scenarios, including a 1.5°C temperature limit compliant pathway. As mentioned before, the Global Compact Network Lebanon is mainstreaming the SDGs goals, and Green Mind association in collaboration with the UNDP has developed a Lebanese business platform to work on climate change, called Lebanon Climate Act.¹⁴ At the same time, the Ministry of Industry in Lebanon, has produced in 2017 a 2025 vision for the sector that is based on sustainable development.¹⁵ Even the deputy Prime Minister in the previous Hariri government has been appointed as the

⁹ https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

¹⁰ <https://www.theguardian.com/environment/2020/may/28/eu-green-recovery-package-sets-a-marker-for-the-world>

¹¹ <http://www.oecd.org/coronavirus/en/themes/green-recovery>

¹² [file:///C:/Users/user/Downloads/en-special-series-on-covid-19-greening-the-recovery%20\(1\).pdf](file:///C:/Users/user/Downloads/en-special-series-on-covid-19-greening-the-recovery%20(1).pdf)

¹³ <https://www.wemeanbusinesscoalition.org/wp-content/uploads/2020/10/Green-Recovery-Assessment-v2.pdf>

¹⁴ <http://lebanonclimateact.org/>

¹⁵ <http://www.industry.gov.lb/getattachment/PublicationsAndStudies/Lebanon-vision-en.pdf?lang=en-US>

SDGs Ambassador. The key issue remains, will such a framework be consolidated into a unified sustainable development vision that receives full political backing at various level, as well as buy-in from the private sector and civil society.

4- Lebanon: The land of diversity

Ahead of diving into sectoral elements, it is important to have an understanding of the bigger picture looking at the comparative advantages of Lebanon, analyzing the country's uniqueness, and identifying an overall brand for the country that can inspire the Lebanese identity and drive momentum towards a unified vision. Lebanon has been described in so many ways before, the gateway to the East, Switzerland of the East, Paris of the East, land of the cedars, among others. Most of these descriptions have been made based on geographic location, topography, and historic political and trading relationship between Beirut and European powers. At the present time, most of these descriptions do not have the same resonance.

Lebanon old role of being the gateway to the East due to its strategic location and unique openness to the West is not that unique anymore. Turkey promotes itself now as a gateway to the region and whole of Asia, injecting substantial resources to develop its transit hubs. The United Arab Emirates also is building on this role with its free trade zone and logistical hub. Morocco is building on its relationship with the United States and Europe to be the gateway to Africa. All of these countries are investing heavily in their seaports and airports, transit infrastructure, streamlining policies, ease of doing business, etc. They are progressing at a fast pace, while the conditions in Lebanon are deteriorating. Another comparative advantage that Lebanon is known for is its skilled work force. This is true and still stands until now, especially in certain sectors. Nevertheless, in this issue as well, many other countries in the region are investing in improving the skills of their work force, including in countries with cheaper work force due to lower cost of living, like Egypt, Turkey, and Morocco, moving the competition from skills to cost of labor.

Other not that well known sectors where Lebanon is considered to be strong in among the countries of the region are its educational and health system. Nevertheless, these two sectors are heavily impacted by the current economic and pandemic situation, and their status is declining rapidly to the extent that the private hospitals syndicate is sending regular warning that the health system is on the verge of collapse. At the same time, other countries in the region are also heavily investing in these two sectors, especially in the Gulf region. Qatar has established an educational city that contains a number of globally renowned universities. The small Gulf state has also developed a number of state-of-art medical city complexes, rapidly making it a leader in the sector.

Even Lebanon's main economic sector that the country has depended on for so long, namely tourism and banking sectors are in a complete mess at the moment, and not just recently. The financial crisis has been building over the years, and many have been expecting it. The same applies for tourism, which traditionally relied mainly on tourists from the Arabian Gulf, but now their numbers have declined for various reasons discussed in the tourism section.

It is not clear how fast these two sectors will rebound. Current lack of trust in the Lebanese banking system is very high and regaining the previous level of trust will require a long time, if ever. The sector has not seen the worst of the crisis yet. Existing depositors' bank assets have been kept safe so far although with reduced values. Decision makers are constantly reassuring depositors that their life-savings will be 'protected'. Nevertheless, the situation can change at any moment, and clashes between the banking system and the government is on the rise. In relation to tourism, a new vision and strategy needs to be put in place to address the challenges. What is clear is that the tourism model that worked for Lebanon before will not work in the future, as explained in the tourism section.

Therefore, taking into consideration all the above, Lebanon needs to have a fresh look on its comparative advantage and what makes it unique. With the size of 10,542 km² Lebanon is the 35th smallest country in the world, and the smallest sovereign state on the mainland Asian continent. Despite its small size, Lebanon has a rich and diverse natural and social heritage. Actually, it is to a certain extent astonishing to list the richness that exists in such a small area that possibly does not exist in any other location in the world. If there is any word that would sum up the uniqueness of Lebanon, it would be the world diversity.

Geographic diversity

Looking at any geological map of little Lebanon, it is full of patches of different types of rocks and sediments, spanning several geological stages, while its geomorphology has four main zones: The seashore and coastal plain, Mount Lebanon, Bekaa valley, and Anti-Lebanon mountain range. The seashore varies from rock to sandy patches, cut at few points by steep cliffs. The coastal plain is mostly narrow that widens at some points, especially in Akkar. Lebanon has narrow continental shelf that rapidly goes to depth of 1,500 meters. Mount Lebanon, rich with rain and biodiversity, has very rugged terrain, with deep valleys and steep cliffs, creating micro climates and isolated locations. Beqaa valley is an elevated fertile depression, with an average altitude of 900 meters and a soft slope, while Anti-Lebanon mountain range are less rugged with no deep valleys and drier.

This diversity as well its location on the Eastern Mediterranean, on the most Western part of Asia and between Europe and Africa, gave Lebanon a diverse climate ranging from coastal Mediterranean climate to more continental climate in the Beqaa valley. Lebanon has four distinct seasons, and during the same season the weather defers considerably between the coast and the top of the mountain ranges. More could be said about the geographic diversity of Lebanon, and this information is well known, but is usually taken for granted.

Fauna and flora diversity

The diversity of Lebanon's complex terrain, varying altitude and diverse microclimates, as well as its geographic location has also resulted in a magnificent diversity of animals and plants. Lebanon is the point where the European and African environment meet. It is one of the few countries in the world that has the biodiversity of both, Europe and Africa. It is the place where the Syrian lion, an animal associated with African environment, and Syrian bear, an animal associated with the European environment, coexisted. Mount Lebanon had a similar biodiversity of Europe with bears, wolves, wild boars, etc.; while Beqaa valley was similar to the swamps and savanna of Africa with lions, leopards, and gazelles. If we calculate the number of species per kilometer squared in Lebanon the results would be astonishing. The report "Biological Diversity of Lebanon", published by the UN Environmental Program and the Ministry of Environment under the Convention of Biological Diversity, lists more

than 9,000 species of plants and animals, with several species being endemic to Lebanon.¹⁶ This is estimated to represent only 20% of existing species, i.e. the number of species in Lebanon should be above 45,000. The United States native animal and plant species number is 21,000; while in Germany the number is 72,000. Considering the size of these two countries, Lebanon definitely stands out. In addition, many wild relatives from which certain crops have been domesticated exist in Lebanon, making it an important gene-pool for food security. Lastly in relation to biodiversity, Lebanon is one of the three main bird migratory routes between Europe and Africa. Unfortunately, Lebanese do not adequately realize the uniqueness of this magnificent natural event.

Diversity of people and cultures

Phoenicians, Egyptians, Hyksos, Mitanni, Hittite, Philistine, Aramaeans, Assyrians, Babylonians, Persians, Macedonians, Seleucidan, Romans, Arabs, Seljuks, Crusaders, Ayyubids, Mongols, Mamluks, Ottomans, Armenians, British, and the French are civilizations that have ruled, passed through, or have reached Lebanon in one way or another. In addition, several local emirates of Ma'an and Shihab rose and ruled the country under Ottoman rule. Not to forget the vast and far reaching Lebanese migrants that have returned and brought with them a new piece of culture, such as the Argentinian Yerba Mate in Mount Lebanon, or the Mexican beer sold in every bar. All of these created a rich history and diverse culture in Lebanon. Even genetically, Lebanon has big diversity, which can be seen in the spectrum of hair, eyes, and skin color among the people in the country. The rugged terrain and inaccessible valleys made Lebanon a refuge for minorities, creating micro-cultures. This diversity is also reflected in its cuisine, and certain dishes vary from one village to another to the extent the effort of mapping all dishes in Lebanon can seem to be endless. Coastal cities, with excellent ports and routes to Europe and North Africa, enabled Lebanese to learn the skill of linking with new cultures and societies. Beirut became one of the first cities with both Western and Eastern cultures in the region. Then there is the diversity of ideologies, beliefs, and religions that many Lebanese consider as a problem that is dividing the country.

Each element of diversity mentioned above is impressive. Combining all elements of Lebanese diversity and squeezed into 10,452 km² makes the research team argue that no other place of similar size is as representative of the planet. Combining this observation with the fact that the country is situated between the three continents of the old world, if the planet is one country, Lebanon would be its best representative capital. Therefore, Lebanon should become a global symbol of diversity, and as such, diversity should be at the heart of the Lebanese identity and a unifying factor, rather than divisive.

The diversity identity could also be applied in the development of the economic vision, starting with the idea of needing to diversify the Lebanese economy beyond the focus on the banking system, remittance, and tourism. This is in line with the recent calls by every political party and civil society to invest in the productive sectors, like agriculture and industry. The traditional thinking where the focus should be on key "cash cow" economical sector inherently carries with it risks. While the chosen sectors will grow, the other sectors will fall back, and when the 'chosen ones' stop delivering at some point, the economy gets stuck. With a diversely skilled human resources Lebanon should embrace the other well-known economic concept "diversifying its portfolio", and develop all

¹⁶ <https://www.cbd.int/doc/world/lb/lb-nr-05-en.pdf>

sectors equally in all regions of the country. Hence, the research team has chosen the battle cry for the country's vision: "100% Lebanon: The land of diversity".

5- Energy sector

A reliable energy sector is a priority for any successful economy, and despite enormous investments this sector is still unable to satisfy Lebanon's needs. The electricity system still lacks generation capacity, current power plants are old and need replacement as fast as possible, and energy demand is expected to increase by 3% annually. The sector is the biggest contributor to import costs, with refined petroleum imports reaching 3.47 billion USD in 2018, or 16.5% of all imports, most of it being paid for by the government or is subsidized, crippling the government's budget.¹⁷ To meet this growing demand and at the same time reduce this huge import bill, Lebanon has developed an energy strategy that aims at achieving an energy mix of 30% renewable energy (conditional on external finance) and most of the rest is supplied by natural gas energy (66%) by 2030. The aim is to use to potentially existing national gas to replace the imports. The Ministry of Energy has also produced an energy efficiency strategy for the years 2016 – 2020.

The first thing that pops up in these strategies is that they do not provide a long-term vision on where we will be and where the global energy sector be in 30 years. Putting a short- and medium-term plan till 2030 is very important, and required. Nevertheless, investment in energy infrastructure will lock us beyond just 10 years. Energy projects we invest in today will last at least 25 years, and hence Lebanon should have an understanding on the general direction of this sector, globally and then nationally.

Starting from the global level, the most impactful international agreement on the energy sector is the Paris climate agreement. This agreement overall objective is to limit global temperature increase to preferably below 1.5 degrees Celsius. To have a good chance in achieving this limit, greenhouse gas emissions globally need to reach net zero by around mid-century. Since burning fossil fuel is the primary source of greenhouse gases, the energy sector will require a complete transformation within the coming 40 years. Experts argue that the world needs to achieve almost 100% renewable energy for electricity production by 2050, if the Paris climate agreement is implemented fully, and current momentum suggests that the world is going in that direction. Even in the United States, where the Trump administration is opposing action on climate change, actions done by individual states, cities, and businesses have been able to compensate substantially. Joe Biden's Presidential campaign has committed to achieving zero emissions from the power sector by 2035. Even if the Paris 1.5 limit is not reached, momentum towards decarbonizing the economy done by millions of climate activists around the world can trigger a massive energy transformation in the coming period.

Renewable energy is the fastest growing energy source, and its growth rates have exceeded the most optimistic estimations by far. Now renewable energy comprises 26% of the world's electricity demand, and according to the International Energy Agency (IEA), which has been constantly underestimating renewable energy growth in the past, expect renewable energy to expand by 50% by 2024. This four-year growth is equivalent to the total

¹⁷ <https://oec.world/en/profile/country/lbn>

electricity capacity of the United States. Continuously falling prices of renewable energy and improvements in technology indicate that as we go forward renewable energy capacity will grow even faster than predicted again. Renewable energy is already cheaper than any other energy sources in the majority of the world countries, and with the many green recovery plans that many countries are putting forward to negate the socioeconomic impact of COVID-19, renewable energy is predicted to grow even faster. There are conflicting views on where renewable energy will be in 2050, and based on previous experience, renewable energy growth has constantly been underestimated as mentioned earlier. Most projections have put renewable energy between 66 and 90% of electricity projections in 2050, while several studies have shown that achieving 100% renewable energy by 2050 is achievable technologically and economically, if the right political decisions are taken, and many believe they will.

The concept of 100% renewable energy is not new, and around 55 countries, and hundreds of multi-national companies have committed to achieving this target by latest 2050. The RE100 group is a group of more than 260 companies that have committed to 100% renewable energy before or by 2050, including Apple, BMW, Facebook, General motors, Google, etc., and their number is continuously increasing. Even hundreds of cities are also adopting a 100% renewable energy targets, such as Paris, Vancouver, San Francisco, etc. The reasons why all these countries, cities, and companies are aiming towards 100% renewable energy varies, and it is not only for the environment. In many countries around the world renewable energy is cheaper than fossil fuels, and it does not have the price volatility that fossil fuels have. If anything, the price of renewable energy is going down. By adopting a 100% renewable energy target, they can align their infrastructure early to accommodate as much renewable energy as possible, such as building a smart transmission grid. This way, they would have market advantage when renewable energy leads the energy market.

At the moment, Lebanon does not have this long-term view of where the country will be by 2050, despite the above global developments. Nevertheless, the Ministry of Environment is working with UNDP on a long-term climate strategy looking that will analysis several pathways Lebanon can take to reduce its emissions, include a 1.5 degrees Celsius pathway. When this long-term climate strategy is released, it would be interesting to see the potential for the country, and how this document will be integrated into Lebanon's energy strategy. Unfortunately, existing research is not being looked at seriously. This April, the World Bank (WB) to Electricité de France (EDF) produced a report on behalf of the Ministry of Energy and Water (MEW) and Electricité du Liban (EDL), titled "Least cost generation plan for 2020 - 2030", which detailed the optimal techno-economic investment plans for 2020-2030. The report found that the least cost generation plan is going for 40% renewable energy target by 2030, instead of its 30% conditional renewable energy target. Despite the fact that a 40% target by 2030 would save Lebanon money, this finding has been dismissed so far. It is important to also note that Lebanon has decided to join a group of countries called the Climate Vulnerable Forum (CVF), which is a group of countries committed to lead on climate change action, including committing to 100% renewable energy by latest 2050. Although Lebanon joined the CVF, it has so far shown no sign that it will implement its decisions, which are voluntary.

In relation to fossil fuels, the sector will continue to grow, but at a slow rate. Therefore, it will be losing market share to renewables, and by 2030, renewable energy will surpass coal to become the largest power source. In addition, the volatility of fossil fuel prices adds risk into investment in the sector. At certain low prices many oil and gas extractions become unprofitable. Anything under 40 US dollars per oil barrel shuts down several fields.

In 2020, oil prices reached the never recorded low of negative 40 US dollars. This means the oil producing company would give you money if you take its oil. So far prices are driven by economic activity, but in the near future, growth of renewable energy will also start impacting the price of oil. Therefore, the issue stranded fossil fuel assets is becoming a hot topic. Many oil and gas companies are starting to assess how much of their fossil fuel reserves could become obsolete and have to write them off their books if action on climate change and renewable energy installation increases. Analysis show that one third of the current value of big oil and gas companies, or 900 billion US dollars, could become stranded.¹⁸

In the case of Lebanon, we still do not have proven oil and gas reserves, and the search continues. Even if there are reserves, the question is if they would be profitable or not. Looking at our neighbors in Cyprus and the government of Israel, profit from gas extraction in the Eastern Mediterranean is profitable, but not as much as many Lebanese perceive. According to initial 3D seismic surveying, Lebanon is estimated to have around 25.4 Tcf, much lower than the 96 Tcf that the ex-Minister Jibril Basil announced. Oil estimates put the amount less than 660 million barrels, which is equivalent to less than 10 years of Lebanon's oil consumption.¹⁹ For oil, at the depth which explorations are happening, production will not be profitable unless the price per barrel of oil rises to above 50 US dollars, if not 80. Therefore, at current price of oil, Lebanon cannot benefit from its oil reserve, and it would be cheaper to import its oil needs. In the best-case scenario, even if we find economically viable natural gas reserves, the profit will be less or equal to one billion US dollars per year, which is equivalent to what our neighboring countries are earning annually from their natural gas in the Mediterranean. In 2030, which is the earliest timeframe for Lebanon's yet to be proven fossil fuels to deliver profit, one billion US dollars would be equivalent to only around 1% of our GDP. So far the picture does not look good. The first drilling conducted in block 4 in April 2020 failed to uncover a meaningful gas field, and the same result could be the fate of all other blocks. The fact that energy companies have decided to suspend all their activities in Cyprus is a proof that reserves in the Eastern Mediterranean are low and unprofitable under current global market conditions. Therefore, the research team does not recommend putting high hopes for Lebanon's oil and gas sector. We should not stop exploration efforts, but building an economic vision based on unrealistic projections and high-risk assets will not deliver a good outcome.

Based on all the above, the research team recommends that the future energy vision for Lebanon should consider a 100% renewable energy target. What is for sure is that Lebanon should be more ambitious on renewable energy, especially that research has shown that an increased renewable energy target would be the cheapest pathway for Lebanon. Other than it is the cheapest and most environmental, renewable energy ensures energy security by reducing the dependency on imports. It is also decentralized energy and can be installed across the country, unlike fossil fuel projects which are very centralized increasing their vulnerability to terrorism attacks and acts of war. Renewable energy could be tailored for a house, a building, a farm, community, a city, etc. The fact that renewable energy could be installed at small scale allows for small and medium enterprises (SMEs) to work in renewable energy, adding a social equity dimension. Many components of renewable energy could be locally produced, boosting national industry. It is also diverse, including solar,

¹⁸ <https://www.ft.com/content/95efca74-4299-11ea-a43a-c4b328d9061c>

¹⁹ <https://www.bytheeast.com/2020/06/18/lebanons-gas-boom-dead-in-the-water/>

wind, geothermal, wave energy, and hydro. A study conducted by UNDP shows potential for geothermal energy in Lebanon, which is a cheap, safe, and continuous source of renewable energy. This diversity adds to the energy security dimension of renewable energy. In addition, renewable energy generates more jobs per kwh than conventional sources of energy. Solar energy can produce up to twelve times more jobs than fossil fuels. In Lebanon, the renewable energy sector employs more than 10,000 individuals already, which is substantially higher than what the oil and gas sector in Lebanon is projected to employ. This number of renewable energy employment has been due to the boom of renewable energy triggered by financial incentives introduced by the Central Bank of Lebanon, showing how a single decision can affect the energy market. For all of the above reasons (reduced imports, energy security, income equity, community energy, job creation, etc.) makes increasing the renewable energy target an ideal choice for Lebanon.

1- Transport

Like the energy sector, the transportation sector is a key enabler for economic development. Ineffective transportation and logistics sector will lead to an ineffective economy. Although transport encompasses a wide scope, nationally and internationally, the focus of the research team in this section on national land transport, with the hope that the section would be expanded further through the debates to follow. The land transport in Lebanon suffers from several challenges, such as low-quality roads (around 15% of roads are considered good), high traffic congestion (including on main highways), lack of urban planning, weak public transport, among others. Lebanon also lacks crucial land transport infrastructure, especially rail and non-motorized modes of transport facilities. In terms of roads, Lebanon ranked 121 out of 138 in terms of quality of road infrastructure. According to the World Bank, the land transport sector inefficiencies are costing the Lebanese economy more than two billion US dollars every year or 5 to 10% of GDP.

Most land trips in Lebanon is conducted with the private car with estimates ranging from 80% to more than 90% of trips conducted by the private car. In comparison, only 50% of trips are conducted by both, private and public cars, in the Netherland, while 27% of trips are done by the bicycle. This over-dependence on the private car in Lebanon is well documented and understood to be the main challenge in the land transport sector. Still, very little has been done to address this specific problem, and most land transport infrastructure spending has been focused on expanding the road network, which has been proven to be ineffective in solving traffic jams, as the wider the roads, the more private car use is encouraged.

As most other sectors, the land transport sector lacks a comprehensive vision and strategy in Lebanon. Most plans have been focused on specific public transport projects, and the majority of these project have not been implemented yet. The World Bank did approve a bus transit project between the two urban centers, Beirut and Tripoli, in 2018, which is still to be implemented. Therefore, there is a need for a vision outlining where land transport should be on the long-term (by 2050) that drives the overall development of the sector. The first thing that comes to mind is the diversification of the land transport sector by strengthening alternative modes of transport other than the private car, prioritized in descending order as follows: non-motorized modes of transport such as biking and walking (especially within urban centers), mass public transport (including trains and buses), car sharing programs (including service cars and private carpooling programs), motorcycles, and finally the taxi and private cars. In addition to the modes of transport, there should be an effective Transport

Demand Management (TDM) strategy in place to reduce as much as possible the length and frequency of trips conducted by individuals through various methods. A TDM strategy would also help Lebanon predict transport demand in the future, and know what trips are being made, by who, and for what purpose, assisting in various socioeconomic strategic thinking and planning beyond the land transport sector.

Such a long-term vision is not new, but it has never been put in a comprehensive strategy in Lebanon, and rarely the topic of TDM has been seriously discussed, and the same applies for non-motorized modes of transport. TDM strategies include creating pedestrian areas, favoring sidewalks to roads, and putting infrastructure for non-motorized modes of transport. Urban planning plays a big role in reducing length and number of trips in urban areas by ensuring that key services could be provided in each section of an urban center that is a walking distance away. This has the additional benefit of encouraging decentralized family-run shops instead of big malls, which strengthens SMEs as well increasing income equality. For example, in Spain shops above certain size, such as shopping centers, malls, and mega stores, have to close on Sundays to restrict the mall culture and encourage a better street life supporting family-run shops and SMEs. Lebanon has excellent weather most of the year, similar to other Mediterranean countries, which is ideal for street-life culture. In certain regions, like the Arabian Gulf, the weather and society favor a mall culture, as most of the year it is too hot for the public to be outside for long. Studies have proven that social engagement in open public spaces has enormous benefits for the well-being of communities.

Also, a big reason for the overdependence on the private car in Lebanon is social attitude. The car is a symbol of social status in Lebanon, creating a social barrier for using alternatives. Therefore, a TDM strategy should also include a strategy to change social attitudes towards the car, and make alternative modes of transport more desirable for the Lebanese public. Now, using public transport in Lebanon is considered a sign of low social-status, unlike Europe where the use of public transport is considered, not only more convenient, but also being a good citizen. Changing attitude towards the car should be done in two ways: Making the use of car less favorable and making public transport more convenient than the private car. For example, having dedicated lanes for public transport inside and between urban centers will make trips shorter by using public transport. Not allowing random parking and do metered parking as it exists in some parts of Lebanon will also put cars at a disadvantage. Nevertheless, creating a reliable, descent and effective alternatives to the car is essential before forcing the public to reduce the use of the private car.

Wrong social attitudes in Lebanon is not only towards the private car, but also towards motorcycles. Most Lebanese look at motorcycles not as a legitimate mode of transport, but more as a hobby, a dangerous tool, or even noisy. In many countries, including Italy, Spain, and many Asian and Latin American countries, the motorcycle is an important mode of transport that has reduced pollution, causes less traffic, and is more convenient than the car. In Thailand, 85% of all households own a motorcycle. In Europe, the highest use of motorcycles is along the Mediterranean coast, where the weather is favorable for their use. Italy is the seventh country in the world in terms of motorcycle use per capita. Most car trips are done with only one or two individuals in them, wasting road space and gasoline. A motorcycle can transport the same two individuals with less space and emissions, reducing traffic and pollution.

In Lebanon, motorcycles and motorcycles users are not only frowned upon, but are also subject to biased treatment. Traffic law enforcement has mainly focused on motorcycle owners. Even there has been decisions by

the Ministry of Interior Affairs and Municipalities to limit the use of motorcycles to certain hours per day except those with a special permission for work purposes. This decision was taken based on some robberies being conducted via the motorcycle. Blaming the tool for the crime is due to the general biased social attitude towards motorcycles that are perceived as not civilized means of transport for not civilized individuals, although this attitude is changing.

The diversification away from the private car is not a new trend, but a well-known essential strategy to have an effective land transport sector. Nevertheless, there is a new global trend emerging in relation to the type of private car used. Although the use of non-motorized and public transport take priority over the private car due to environmental, social, and economic reasons, there will still be a substantial number of trips conducted by the private car. These cars will produce a lot of harmful emissions, including the climate change inducing carbon dioxide. In fact, transportation is responsible to more than 24% of carbon dioxide emissions. Therefore, in the effort to achieve the Paris agreement goal of net zero emissions as early as 2050, there is a global trend to abandon the internal combustion engine and switch to electrified modes of transport. This switch is happening faster than anyone predicted to the extent that the Economist magazine published an article in 2017 hailing the upcoming death of the internal combustion engine.²⁰

There is a continuous debate happening on how fast this switch will happen, but there is agreement that within 20 years, the electric car will have dominance in most markets. Both, countries and companies, are committing to a 100% electric fleet as early as 2023. Uber and Unilever pledged to a 100% electric fleet by 2030. Actually, around 90 companies have committed to similar targets and have joined the EV100 initiative to accelerate the shift. At the same time, more than 22 countries, 12 U.S. states and a growing number of cities world-wide have put deadlines for banning the use of the internal combustion engine in passenger vehicles. This includes the biggest markets like China, India, France, Japan, Germany, California, United Kingdoms, and Canada, which is enough to trigger a complete change to the industry.

This will have huge repercussions on many sectors of the economy, including petrol stations, car repair and maintenance shops, fossil fuel sector, mechanical engineering colleges, etc. In the long-term vision, countries have to prepare for this shift to ensure that the economy is not affected and certain professions are not marginalized. We should not wait for it to happen and let it catch us by surprise, as many countries and chemical industries did when Europe was producing the REACH legislation. Lebanon must start preparing the infrastructure and adjust certain professions for this shift, starting with deciding on when Lebanon will achieve this shift, and the change in demand for certain services in order to regulate the number of new entrants in certain professions that expect a career of not less than 30 years in their profession. If a person specializes in repairing and maintenance of the internal combustion engine this year, he/she would expect to be working in this profession by at least 2050, where possibly there will be no internal combustion engines left.

Electrification of transport is not happening only in the private car. Globally, most new trains are electric, as well as all high-speed trains, trams, and subways. Many countries are introducing electric buses for public transport

²⁰ <https://www.economist.com/leaders/2017/08/12/the-death-of-the-internal-combustion-engine>

or ones that operate on hydrogen energy. Even for land freight, electric trucks are currently being developed for commercial use. This change will also impact greatly the electricity demand, and in a country like Lebanon, where electricity generation is already not meeting demand, this has to be integrated into the energy sector planning. As discussed in the energy sector section, achieving 100% renewable energy would not be only good for the electricity sector, but also land transport.

2- Tourism

Tourism is one of Lebanon's key economic sectors that has been growing steadily before the recent events and still employs more people than any other sector, but has never recovered to its peak in 2010, due to the Syrian crisis. Lebanon's tourism sector is reaching an important milestone, where it has to completely rethink the tourism model in the country. As mentioned earlier, the tourism sector in Lebanon has been focused on attracting Arab tourists, especially in the Gulf. It has been mainly shaped to cater for wealthy Gulf tourists with fancy luxury hotels, posh restaurants, and extravagant events directed towards the Gulf audience. Nevertheless, the sector has been suffering due to the regional conflicts within the Gulf and between the Gulf countries and certain factions in Lebanon. Saudi Arabia had a travel ban to Lebanon, which was lifted in early 2019. Despite the ban lift, Lebanon failed to attract back high number of Gulf tourists during the summer of 2019.²¹

Gulf tourists have favored Lebanon as a tourist destination in the past, because they are familiar with its Arab language and culture and at the same time Lebanon's tourism infrastructure and services was superior to other Arab countries. Nevertheless, this comparative advantage does not hold as much as it used to be. First, many other Arab countries, like Jordan, Egypt, and Morocco, are developing their tourism infrastructure and services fast. In many locations in these countries, the service quality has exceeded the level existing in Lebanon. Marrakech in Morocco has all the luxury that Lebanon can provide and is cheaper. Also, with more and more students from the Gulf going to study in European university, as well as engagement with western culture through social media, tourists from Gulf are becoming increasingly comfortable with European destinations for tourism. Turkey, the UK, France, Spain, and Germany are becoming primary tourists' destinations for people in the Gulf. Eastern Europe is also emerging as a destination for Arab tourists. All of these countries are seeing the potential and have put in place specific strategies and campaigns to attract Arabian Gulf tourists.

Adding to all of this, political conflicts and low oil prices is also straining the economy in the Gulf, reducing the ability of Gulf tourists to spend during holidays. The war in Yemen and the blockade on Qatar has diverted substantial resources to military and political spending. The IMF has said that Saudi Arabia needs the cost of oil to be 80 US dollars to balance the government budget. This year, the Kingdom increase its VAT from 5% to 15% and has instructed all ministries to cut their budgets by at least 20%. Therefore, Gulf countries are not as comfortable as much as they used to be, and hence for all the above reasons, Lebanon has to diversify its tourism market urgently.

²¹ <https://thearabweekly.com/lebanon-fails-woo-gulf-tourists-despite-lifting-travel-ban>

Globally, tourism is the largest and fastest growing service sector accounting for around 10% of global GDP and growing by 6.5% annually. Eco-tourism share of that is rapidly rising due to increased awareness of climate change and environmental impact, with 35% of international touristic trips being booked as eco-holidays, amounting to more than 700 billion US dollars annually, and this number is rising rapidly. In 2009, this number was only 77 billion US dollars, showing the scale of rapid growth of eco-tourism. Research has also shown that the higher the household income, the more they prefer to book an eco-tourism holiday. In the United States, 16% of low-income households are likely to book eco-tourism trip. This number percentage goes up to 57% for high income households. Regions that are more aware to environmental issues, such as western countries, have also higher likelihood to book eco-tourism holidays. Nevertheless, eco-tourism preference has been rapidly on the increase in many key developing countries, like China, South Korea, Latin America, South Africa, among others.

Tourism in Lebanon will continue to play a major role in Lebanon's economy, if not the most important role. In the opinion of the research team, tourism is still the most promising sector for the country, despite the decrease in the number of Arab tourists. In the past few years, a shift in the tourism sector has been happening organically in the country. The number of tourists from western countries has been steadily increasing, reaching more than 50% of all tourists in 2017. They also have the highest average length of stay compared to tourists from other regions. Also, Lebanon has been witnessing an increase in eco-tourism, which has led to the establishment of several new eco-tourism spots in the past few years. The potential of eco-tourism in Lebanon is enormous, and existing eco-tourism has not yet scratched the surface. With this global eco-tourism potential in the world, Lebanon has so far been missing on an enormous gold mine, especially that eco-tourism is favored by the most important and growing tourist target group, namely western countries and emerging economies. Therefore, Lebanon urgently requires a supportive coherent eco-tourism strategy to capture this potential.

Analysts of the tourism sector in Lebanon have highlighted various weaknesses in the sector, most importantly the lack of a brand image and a coherent long-term vision and strategy. Brand image play an important role in global tourism, such as the Malaysian brand model, "Malaysia Truly Asia", selling the country as a representative of the Asian continent. In this issue more than any other, Lebanon's identity, comparative advantage, and source of strength, which is being the symbol of diversity comes into play. The research team believes that "Lebanon, the land of diversity" can be a successful brand image for Lebanon, highlighting the incredible diversity in culture, biodiversity, history, etc., and fits into the eco-tourism potential in the country. Each point of diversity is a tourism niche by itself, and can be built on further.

Historical tourism

Archeological tourism in Lebanon has played an important role historically, but has not yet reached its potential. The focus has been on big archeological hotspots, like Baalbak, Aanjar, Byblos, Saida, Tyre, etc. It is fragmented and does not tell a story of Lebanon's history that connects the dots between the various sites. The National Museum in Beirut does have a chronological display, but this has to be matched on the ground all over the country. Lebanon needs to build a coherent historical tourism program and map, highlighting every civilization that passed or influenced Lebanon, giving a richer experience for tourists. Even certain civilizations that passed through Lebanon without leaving any concrete archeological site could be highlighted through specific projects. To give an example, in the United States, archeological hotspots of Native Americans are very limited, and

specific Native American villages and wild western towns have been reconstructed to immerse tourists in historic experience.

Cultural tourism

Lebanon possess a wealth of untapped cultural tourism potential. As outlined earlier, Lebanon possesses a diversity in heritage, traditional practices, beliefs, etc. Cultural tourism includes experiencing this diversity. Cultural tourists can experience traditional life in the mountains, understanding how people live there, their practices, their architecture, etc.; which are completely different than in the Beqaa valley. Creating programs in each region and rural area for tourists to experience the diverse Lebanese culture would also support rural communities and marginalized areas. Such programs could be creating bread and breakfast programs with cultural activities in specific small villages that still adhere to traditional means of life. Usually, these villages are the poorest and in most need of development.

Nature tourism

As mentioned earlier, due to its location, topography, and diverse micro-climates, Lebanon biodiversity is phenomenal, which is also a touristic asset. The focus in nature tourism in Lebanon has been focused on few nature reserves and some geological formation like Jeita Grotto and Ballaa sinkhole. Nature tourism can also include the countless isolated valleys in the country, where eco-huts could be constructed in the middle of forests and along rivers. One big niche nature tourism potential for Lebanon is birdwatching, benefiting from the world-famous bird migration route above Lebanon. Already neighboring countries are benefiting from this potential, which Lebanon can easily do, knowing the expertise existing in the country and the connections they have with the international birding community. Lebanon should also seek to benefit from the fact that both, the African and European biodiversity meets in the country, and create specific programs to capture this uniqueness. Hiking in nature is increasingly becoming popular among Lebanese, and has potential to attract more international tourists, especially if an appropriate branding campaign is conducted. Initiatives like the Lebanese Mountain Trail have proven to be successful, and other initiatives could be created.

Culinary tourism

Lebanese food is globally renowned, but the true potential of Lebanon's culinary tourism has not been reached yet. Few dishes, like tabouleh, homos, mtabal, manakeesh, sweets, etc., are known, but the variety of food dishes in Lebanon is countless, such as the various stews, casseroles, wild plant dishes, etc., and a specific tourism programs could be built around it. The diversity of nature, culture, and community isolation spoken about earlier, allowed food recipes to change from one village to another. A person can spend years in Lebanon and not be able to try every dish in the country. Even individuals who have lived all their life in the country get surprised from time to time with a new dish from another region.

Extreme tourism

Extreme tourism is defined by extreme and tough sports and activities conducted in nature. Lebanon, despite its small size, has an exceptional diversity in such sports and activities, such as skiing, diving, caving, rock and mountain climbing, canyoning, rafting, kayaking, windsurfing, kitesurfing, paragliding, among others. This diversity in a small area is an asset that can built on for tourism. We should go beyond the usual marketing statement for Lebanon that you can ski and swim in the sea in the same day, and highlight the diversity of extreme sports and activities that could be conducted. This niche market can have its own marketing strategy,

targeting enthusiasts in these sports and activities within their respective communities, allowing for easy and low-cost marketing reach.

There are many other types of tourism in Lebanon, such as urban and nightlife tourism, religious tourism, medical and health tourism, agrotourism, etc. The research team did not expand on these, as they are more known and researched than the ones expanded. What is important that all these types of tourism could be combined under the brand image of “Lebanon, the land of diversity”, and could be connected together through various programs. Showing this diversity of tourism combined together is necessary to make Lebanon attractive for a single country visit. In the past, many tourists coming to Lebanon used to continue to Syria and other destinations, seeing Lebanon too small for a full-trip. Tourists would visit the big highlights in the country and move on to other destinations. That is one of the reasons why tourism went down in Lebanon after the uprising in Syria happened. By showing this diversity in Lebanon, we market tourism in the country, not only as enough for a full-trip, but also requires several trips to experience the richness of the country.

If Lebanon decides on the above strategy, following the brand image of “Lebanon, the land of diversity”, with a specific focus on eco-tourism, there needs to be a major switch in infrastructure investments and natural beauty conservation. The country should move from big resorts construction to boutique hotels, eco-lodges, bed and breakfast, etc. Instead of pouring cements along river banks to build fancy restaurants, nature retreats with minimal intrusion could be established. The government needs to increase the number of protected areas, and be more stringent in conserving biodiversity. In the past few years, boutique hotels, eco-lodges, and B&B have increased significantly, which is an indicator of where the demand is going. These places have also continued to operate successfully within the coronavirus pandemic due to natural social distancing in such places, unlike massive resorts, showing the resilience of this market.

1- Agriculture and food security

The agriculture sector is usually viewed as an economic sector, valued in terms its contribution to GDP, rural development, and job creation. Nevertheless, agriculture is also an issue of national food security, an aspect usually ignored, except in countries with negligible food production, like the Gulf states. This year, the issue of food security has become prominent due to the disruption of global trade by COVID-19. Due to reduced global trade, food security became a problem in several countries. Lebanon is even hit harder due to the economic crisis, putting limits on imports, and creating food availability concerns. Such disruptions are predicted to increase in number and intensity due to climate change. In the past, many key grain exporting countries, such as Russia, Ukraine, and South East Asia banned export of their grains in certain years prioritizing national demand, due to bad weather conditions reducing the harvest during that year. Climate change is predicted to increase the frequency and intensity of such disruptions, which will lead to a global shortage and increased prices in grains. This is only one aspect out of many that climate change can impact food security.

The threat to food security is not only climate change, but also increase in demand. In 2050, the world will have between nine and ten billion individuals with better economic status, increasing the demand for food between 60 and 100%. For a business-as-usual scenario, this will require additional agriculture land at least two times the size of India, which is simply not available. Due to the above two critical reasons, the agricultural sector will

require to undergo a transformational change, in order not to hit a brick wall in future. There are many proposals on how this change should come into place, with some focusing on technological advancement in hydroponics, genetic modification, among others; while others believe that technological advancement will not be enough, and require a holistic food security approach, changing completely how we think of agriculture. Therefore, looking towards the future, the issue of food security should be integrated into Lebanon's long-term vision, and not to expect current global food availability status to continue indefinitely.

There is another issue linking agriculture and climate change, which is the consumption of meat. Meat production is one of the main contributors to climate change and other environmental problems, especially deforestation and water stress. Meat requires much more water and land than plants to provide the same quantity of calories and nutrition. In the Amazons, cattle ranches are the main reason for the Amazon rainforest deforestation, which has become a global political issue. In 2019, the International Panel on Climate Change (IPCC) released a special report recommending a shift to a plant-based diets to help mitigate climate change. A 2018 study in the Nature journal stated that a significant reduction in meat consumption is essential to solve the climate change problem. This is supported by tens of thousands of scientists that call for the reduction in meat consumption for sustainability and food security reasons. The issue became more complicated with the World Health Organization (WHO) declaring red meat as a carcinogen, and recommending reduction in consumption of meat.

Although the issue of reducing meat consumption is still at the scientific and activists' level, like every other issue in the past that seemed too far to become serious policy, it will enter the political sphere in the future, and sooner than many might think, especially that environmental, health, and animal rights communities are unified on this issue. Already businesses are trying to capitalize on the topic by investing in synthetic meat, which is meat grown in the lab. The driver for this technology is not only environmental, but also animal welfare, and the private sector project that as we go forward, demand for synthetic meat to replace natural meat will increase. The technology still has far to go to be able to produce cheap meat, but the price, quality, and taste of synthetic meat is improving exponentially.²² The challenge with synthetic meat is that its supply will be limited to big corporations with the ability to develop the technology, putting food security in the hands of few financial interest groups.

Animal welfare is already affecting the political sphere of livestock production, especially in relation to the global trade in live animals. For example, reports of mistreatment of imported live animals in Lebanon and other countries in the region has triggered a debate in the European Parliament, with many parliament members, supported by many civil society organizations, recommending banning the international trade in live animals from Europe. As a result, the European Commission launched an inquiry into the issue of live animal transport to inform the European Parliament decisions in the future. Expectations are that import of live animals will be a more expensive and complicated issue in the coming few years, which will substantially impact on countries with a high level of live animal import, such as Lebanon.

²² <https://www.sciencefocus.com/future-technology/the-artificial-meat-factory-the-science-of-your-synthetic-supper/>

So how will agriculture most probably look like in 2050, if the world was successful in addressing the two main issues in the sector, which are environmental sustainability and food security? One issue that is for certain is that organic agriculture will have a substantial share of global organic agriculture. At the moment, only 1.5% of farmed land is done organically, but the sector is growing annually by 3 to 8%. In 2018, organic farming grew by more than 15% in France. The biggest markets for organic products are western countries and China. In Denmark, organic goods constitute 11.5% of the total food market. Between the year 2000 and 2015, organic farming grew by 460%, and this trend will only grow in the future. Several studies have been conducted to assess if the world could achieve 100% organic food by 2050. The challenge is that organic farming requires more land than intensive farming. With the growing demand for food by 2050, achieving 100% organic farming will be a challenge. Nevertheless, researchers agree that this vision could be achieved, if certain conditions outlined below are met.

The first condition to achieve 100% organic is to reduce food waste by at least 50% by 2050, which is a politically agreed target in the sustainable development agenda. Currently, the world wastes around one third of food produced, with North America and Australia wasting 42% of their food. Improving the efficiency of our food is possible with the current know-how. The problem why food efficiency has not improved in the past is simply because it was not a major issue. The second condition is to improve the yield of organic farming by optimizing the use of land and water, as well as innovation in the sector. The third condition is to adjust our diets by switching to a more plant-based diet, as evident by the trend presented above. At the moment, 40% of cropland is used to produce feed for livestock, which otherwise can be used for organic food production for direct human consumption. So far, Denmark and Bhutan are the only countries that have committed to 100% organic food production and consumption. Nevertheless, as the issues of food sustainability and security become more central stage, such commitments are expected to increase.

In Lebanon, the agriculture sector has been neglected for the past 30 years, lagging behind other sectors, while in all other countries in the region the sector has advanced significantly. Agriculture contributes only around 3.9% of GDP, and it does not receive more than 2% of public expenditures on average. It contributes to around 11% of the total active labor force, but mostly informal. The sector is not able to attract youth, where only 11% of producers are aged below 34 years, while 41% of them are aged 55 years or older, which signals that fresh graduates do not consider agriculture as a good career. There is still a lot of potential for developing the agricultural sector in the country, as only 43% of total useful agriculture surface is being cultivated. The sector is characterized with smallholder farmers, where the average farmland size is 1.4 hectares. 70% of utilized farmland are less than 1 hectare, and less than 4% are bigger than 6 hectares. Lebanon imports around 18% of its food needs, but its dependence on imported live animals, meat, and dairy products is high, due to its weak bovine sector. Lebanon imports 80% of its meat and 60% of its dairy needs, despite the fact that substantial meadows and pastural land exist. The bovine sector in Lebanon has not improved in the past decades, while countries in the region were able to achieve great progress in the sector despite some of them suffering from severe water and agricultural land scarcity, like Morocco and Algeria. The high import of live animals, dairy, and meat in Lebanon amounts to more than one billion US dollars, putting a major strain on foreign currency loss.

Recently, Lebanon decided to invest in the long-neglected productive sectors, which this research team strongly supports, and recommends to have a specific focus on livestock, especially bovine, to reduce the imports of live animals, meat, and dairy products. The research team recommends the adoption of a 100% organic farming by

2050, with a specific food-security strategy that addresses, not only food production but also consumption, through dietary demand management, aimed at reducing the consumption of bovine meat and other unhealthy and unsustainable food products. This strategy can include promoting traditional dietary practices that mainly rely on indigenous ingredients. The level of red meat consumption in Lebanese traditional diet has been preserved to key occasions, and usually not from cattle. Lebanon's traditional diet is mainly plant based, as evident in the main Lebanese dishes.

Having a 100% organic vision will provide Lebanon with the comparative advantage to capture a significant share in the fastest growing agricultural market. Also, the countries where the demand for organic products are growing represent an important export market for Lebanon, such as Europe, the Gulf, and emerging countries. With the highly skilled and innovative work force in the country, Lebanon can become a leader in organic farming practices, and thus playing an important role in the global advancement of the sector. An obvious benefit of organic farming is of course reduced pollution from chemical fertilizers and pesticides, which have practically destroyed the Lebanese rivers and lakes, such as in the Litani river. Therefore, switching to 100% organic farming, Lebanon will address several problems, and benefit various other socioeconomic issues, such as tourism, health, water availability, biodiversity, etc.

2- Material management

In a country with limited natural material, most of Lebanon's products are imported, or raw material is imported for manufacturing products domestically. We consume the products, and the waste generated is mainly landfilled. Then we import more raw material to do the same in an unsustainable cycle, increasing our import bill, and polluting our water and land. This material flow cycle, which is happening with many countries around the world, is not sustainable, and the world is slowly running out of resources. For decades, the environmental community has been calling to rethink this material flow cycle as a whole in a concept called Zero Waste, rather than looking at each section of the process separately. The traditional process to deal with waste and pollution is to separate the cycle into extraction, manufacturing, production, marketing, consumption, and waste disposal. Nevertheless, the waste management sector is heavily impacted by how products are manufactured, and thus the different steps of the process cannot be treated separately.

Due to increasing concerns about the failures of the traditional process, the global approach to manage waste and material is changing rapidly. One main trigger for this change is the great Pacific garbage patch that has become a big political issue on the failure of the system. Now, the concept of managing material through the whole cycle or zero waste has become mainstream, under the name the circular economy, adopted by the United Nations and countries. The circular economy has become a key part of the sustainable development agenda, and many countries and companies are putting substantial resources and efforts to implement it, such as the European Union, Japan, Xerox, Cisco, among others. In the United States, many states, counties, and cities have adopted the circular economy, with San Francisco city being one of the first to implement a Zero Waste strategy. The examples are too many to list all the global adoption of circular economy principles, but for certain that every year more and more are joining.

The process to implement a circular economy strategy includes looking at each product flowing in a certain economy, and redesign its manufacturing, marketing, and consumption in a way that does not generate harm and all raw materials are recovered. Currently, in many industries, products are rarely designed taking into consideration its end of life. By putting companies legally and/or financially responsible to deal with the end-of-life of their product, they have a financial incentive to make it sustainable. This concept, called Extended Producer Responsibility (EPR), has become mainstream, and is increasingly being adopted by countries around the world, including in Lebanon.

The circular economy concept goes beyond just EPR, and includes other principles, such as clean and sustainable production, proximity principle, reverse logistics, decentralized solution, etc. All these principles aim at reducing the use of toxic material instead of managing its end-of-use and allow the system to recover material more efficiently to be used as raw material by industry. Some countries are ahead of others, but no country or company has yet achieved a full circular economy, and they might never do. The aim is to maximize the recovery system, and in some places 90% recovery has been achieved. This requires a diverse set of actions, starting with the adoption of a 100% circular economy vision by 2050, such as the Netherland did, followed by appropriate policies and investments in infrastructure, social behavior, and capacity building.

It is not clear where the world will be in 2050, and how much of the economy will be circular, but the trend is growing every year, with expectations that it will accelerate due to the United Nations' sustainable development goals. It is important to note that the adoption of the circular economy principle is not only driven by environmental gains, but also economical. In a country like Lebanon, where most raw material is imported, maximizing material recovery from our products to be used by our industry reduces the import bill and supports local industry. Another economic reason for adopting circular economy policies is that they provide some local products with protection from external competition without breaking the WTO rules, and without following a protectionist policy. This issue is important for Lebanon that is seeking to enter the WTO agreement. The WTO rules requires that most nationally produced products cannot have preferential treatment to imported products, with the same level of taxation and standards being applied for both.

This is a strategy adopted by many countries. For instance, the United States banned all tuna products that are not certified dolphin free, in a policy to protect dolphins from unintentional catch. Mexico raised an objection in the WTO, stating that this policy is aimed at reducing the competition from Mexican tuna products that do not yet have dolphin-free certification. It is not clear if the United States did this policy to actually protect dolphins, protect its tuna products from external competition, or both; but a country adopting such policies need to prove that they have legitimate environmental or social reasons for adopting these policies. Another example is the one mentioned earlier, the European REACH legislation, which many countries considered as a protectionist policy, although Europe had legitimate environmental concerns to adopt the REACH directive. Eventually, the global chemical industry adjusted its production to comply with REACH, since the European market size justifies this adjustment.

In the case of Lebanon, the situation is different. By adopting circular economy policies to specify the standards of products flowing through the Lebanese economy, Lebanese industry will adjust to these standards, as the Lebanese market is their primary market. Many other industries, such as the Chinese industry, will not have an economic justification to adjust for a small market like Lebanon. This way, circular economy policies would assist

Lebanon in becoming more sustainable, and at the same time give advantage to Lebanese products. For example, Lebanon can provide tax incentives for recycled products or increase tax that contain toxic or non-recyclable substances. It can develop policy to require all soft-drinks, juice, and other refreshment bottles to be identical in shape and material to facilitate reverse logistics for recycling. The options are limitless and can be as advanced as required to ensure the maximization of material recovery, while still within the capacity of the Lebanese industry. Therefore, the Lebanese industry must be involved in the development of circular economy strategy, and they need to be provided with a certain grace period to adapt to the new policies.

Another key economic benefit is the establishment of a new industry, the material recovery industry, that will operate at every stage of the material flow process. End-of-pipe technologies to deal with material disposal, such as landfilling and incineration create limited amount of jobs, while the circular economy is more decentralized and requires the establishment of many SMEs in various regions of Lebanon, creating a multitude of job opportunities. Therefore, it prevents the concentration of wealth, increases income equality, and helps with the balanced geographical development across the country. The jobs created through the circular economy are diverse. Some require high education and experience, while others do not. The diversity of jobs required include, policy development, technical solutions to deal with certain products, toxic substance auditing in industries, operation of composting and recycling facilities, annual social behavior campaigns for source separation and sustainable consumption, among others.

There will be sectoral specific programs. For example, in the agricultural sector, a specific collection stream for agricultural waste that can mostly be composted to high quality fertilizer or ethanol for energy production, which is unattainable in the municipal waste stream. Collecting agricultural waste during the trimming period is also necessary to prevent forest fires. The burning of trimmed waste is the number one cause of forest fires in Lebanon, which is an increasingly big challenge due to climate change. Lebanon suffers from desertification and severe soil erosion. It is necessary to rehabilitate the soil and return to it the nutrients by using composted organic waste. In industrial complexes, resource recovery centers would be established for waste sharing. The waste of one industry could be raw material for another. For electronic devices and vehicles, each company needs to recover its products at the end of its life to recycle and/or manage its waste, similar to what is happening in Europe.

Another advantage of circular economy is that its cheaper than the alternatives. It requires mostly sound policy and laws, organization, and capacity building. Most of the facilities needed are decentralized and nationally produced, such as community recycling centers, composting facilities, waste recycling plants, among others. This again supports SMEs, increases income equality, and adds balance to regional development. The alternative solution proposed in Lebanon is incineration, which is more centralized, expensive, and imported. Incinerators are extremely expensive that they consume substantial amount of the budget to implement other policies, putting a disincentive against the circular economy, as research on the impact of incineration on recycling has shown in a European Commission report.

A 100% circular economy vision by 2050 for Lebanon has multitude of benefits, in addition to all the ones mentioned above. Most importantly, it would strengthen the productive sectors, which is a key strategic objective, iterated by all, in the coming economic strategy of Lebanon. It would benefit from the entrepreneurial and skilled human resources in the country. Circular economy would also reduce imports, which is another

priority for Lebanon's economy. Not to mention that the current solution on the table is waste to energy, which is incinerating the waste and recovering the energy, will be purchased via a loan, adding to the crippling debt that Lebanon suffers from.

Finally, circular economy would shift Lebanon's production and products to higher sustainability standards, with less toxicity and recyclable. The market for sustainable products is on the increase, and consumers are willing to pay a premium for such products especially in Europe and Gulf states, which are the primary markets for Lebanon's industry. European countries are leading in the circular economy, and as we go forward their markets will prioritize sustainable products, even banning unsustainable ones. The rich Gulf states are also rapidly improving environmental standards, which would give Lebanon a comparative advantage in its primary markets, increasing exports and strengthening Lebanon's industrial sector.

3- Overview of other considerations

The concept of sustainability and diversity could be applied in every aspect of Lebanese economy, and not only in the sectors identified above, such as financial sector, real estate, construction, water, telecommunication, information technology, etc. Below is initial input on some of these sectors from a sustainability and diversity perspective. Nevertheless, these sectors require further input from relevant experts.

Financial sector

The financial sector will have a major role that will affect all other sectors. The financial strategy should be aligned with the overall vision and ensure that financial flows do not go counter to the strategy. For example, the current subsidies put on a number of "essential" goods to alleviate the existing economic hardship are a subject of big debate. Experts say that by putting subsidies directly on goods will benefit the rich more than the poor who need it. According to research conducted, only around 20% of all subsidies benefit the poor, while the rest goes to individual who do not need it, suggesting providing direct financial support to families in need. In addition, red meat is one of the items subsidized by the governments, which if we want to follow the suggested vision above, this is considered a waste of resources. Red meat is mainly imported from outside and is not an essential good, especially considering the impact of red meat on health and the environment. The financial strategy by the government and the entire financial sector has to review all its policies, including the reduction of interest on deposits to encourage investment in the adopted vision. Both, the IMF²³ and OECD²⁴, have put a series of recommendations on how to align the financial sector with a green recovery strategy, encouraging their members to adopt them, after research has found that well designed green projects have a better short-term return and higher employment in comparison to conventional fiscal stimulus.

Actually, even in the Paris climate change agreement, article 2.1c, requires countries to align financial flows towards achieving the overall agreement goals. That is why in 2017 the Network of Central Banks and Supervisors

²³ <https://www.imf.org/en/Topics/climate-change/green-recovery>

²⁴ <http://www.oecd.org/coronavirus/en/themes/green-recovery>

for Greening the Financial System has been established, and now holds 66 memberships. Members include rich countries, like the European central banks, New Zealand, and France; emerging countries, like China, Brazil Mexico, and UAE; as well as small developing countries, like Morocco, Tunisia, and Thailand. Unfortunately, Lebanon has not joined this network, which can help boost the standing of Lebanon financial structure. Climate change is also a constant agenda item in the G20 and World Bank meetings, and they continuously work to align financial flows with the Paris Agreement. The World Bank has established a specific group to work on carbon pricing with the aim to establish a tax or other pricing instrument on carbon dioxide emissions in each country.

Adopting a 100% green vision for the country and aligning financial structures with this vision has the potential to attract enormous investors. Investors are already aligning their investment with the Paris agreement. For example, the network of investors, Climate Action 100+, has members worth more than 35 trillion US dollars who committed to shift all their investments into sustainable projects, including the biggest investor in the world, BlackRock. In addition to Climate Action 100+, another group, the Net-Zero Asset Owner Alliance, established in 2019 by the support of the United Nations, includes the world's largest pension funds and insuring companies, directing 2.4 trillion US dollars of investments have committed to a net-zero emission portfolio by 2050. Other initiatives exist and new ones are being established, providing an increasing investment potential in green projects that countries, like Lebanon, can benefit from.

Water

Although water is not an economic sector, it is an important socioeconomic enabler, especially in agriculture, industry, and tourism. Although Lebanon has more water resources than most other countries in the Arab region, it is still considered a country suffering from water scarcity, with less than 840 m³/capita/year. Therefore, in 2010 the Ministry of Energy and Water produced a national water sector strategy to satisfy water demand, which is expected to increase from around 1,400 mcm/year in 2010 to 1,800 mcm/year in 2035. The strategy looked at diverse options to achieve this demand, including the recharge of groundwater, reduction of losses, more efficient consumption, and increased storage of surface water, mainly through the construction of dams. Nevertheless, the focus of implementation and investment in the sector has been on the construction of dams, leading to having this strategy dubbed as the dams' strategy. As a result, the strategy has been under severe attack recently, leading to the withdrawal of World Bank funding from one of the dams being constructed.

The problem with this strategy is more its development and implementation process. Construction of dams worldwide has created considerable public resistance, leading to the cancelation of many such projects, and for good reason. Dams have considerable high impact, and the flooded basin behind the dam is lost area that could alternatively been used for other socioeconomic activities. Therefore, dams should only be as last resort, when they are absolutely necessary, which the water strategy has failed to prove. The water strategy lists 40 potential dams that could be established, and their construction has been mainly funded by external debt, adding to the financial burden on Lebanon.

Therefore, the implementation of the strategy should have been focused on low-cost, least intrusive, and high-gain options, starting with reducing loss of water by fixing and optimizing existing networks. The agriculture sector consumes more than 60% of all water used, and only around 6% of all irrigation is efficient drip technology. Most of agricultural irrigation uses canals (more than 70%). By replacing canal irrigation with drip irrigation, it is possible to save up to 20% of the water used in agriculture.

Lebanon also has high per capita urban water consumption based on its available water supply and GDP. Many developed countries rich with water resources, especially in Europe, use significantly less water per capita. Netherland per capita urban water consumption is 66% less than Lebanon. Countries in the Maghreb, such as Morocco, that suffer from severe water scarce, have been able to reduce per capita urban water consumption to match environmentally aware countries, like in Western Europe. Therefore, it is possible for Lebanon to achieve the same, increasing urban water consumption efficiency by 66%.

Based on the two example above in agriculture and urban water consumption, and to be in line with the green recovery vision, Lebanon should prioritize the development and implementation of a comprehensive water demand management strategy, looking on how we can maximize the use of existing water supply, before resorting to increasing its water supply. A water demand management strategy would also tackle behavioral change. There are many inefficient practices that the Lebanese do in their daily life, such as flooding the floor of residences with water when they need to clean them, which is a practice prohibited in many countries. Greece and Cyprus prohibit washing cars with water during drought seasons. There are a multitude of measures that could be taken to reduce water demand, and such a strategy would be least cost with the highest returns.

In relation to increasing water supply, Lebanon needs to prioritize least intrusive measures, such as rainwater harvesting, especially in urban areas, or reuse of wastewater after treatment. Currently, Lebanon treats only around 8% of its wastewater. This will not only increase water supply, but also reduce water pollution, which is costing Lebanon a lot. Several experts in Lebanon also recommend the recharge of underground water by drilling boreholes in specific locations. several of these solutions, such as recharging of aquifers, water network improvement, and wastewater reuse are part of the water strategy, but they have not been prioritized or adequately funded.

Marine resources

Lebanon's long coastline provides it with access to substantial marine resources. Most, if not all, of the fishing industry in Lebanon is artisanal. In 2014, Lebanon had 2,662 registered fishing boats. There is an enormous lack of data in relation to amount of fish caught and the exact situation of fisheries, including their important breeding and feeding grounds, which is hampering the development of vision and strategy for the management of the sector. Still, it is well known that the fisheries in Lebanon suffer from severe degradation, due to unsustainable fishing practices, habitat destruction, and pollution.

In relation to global trends in the marine resources sector, the concept of creating a network of marine reserves covering between 30 and 40% of territorial waters has recently become a leading tool in the management of marine resources. Creating no catch zones in key breeding and feeding grounds of fish has proven to replenish fisheries stocks, increasing average daily catch per fishing boat, even though the total area for fishing decreases by up to 40%. This is because marine reserves allow fish to reach their full mature size, which leads to higher egg yield, creating a spillover effect that repopulates the remaining area with commercial fish. Marine reserves are a key topic on the agenda of the upcoming Convention on Biological Diversity (CBD) Summit in 2021 in China that many countries are pushing for. A group of more than 30 countries, called the High Ambition Coalition, is

calling for the protection of 30% of land and oceans to be adopted at the CBD Summit.²⁵ It is not yet clear if countries will adopt this target during the CBD Summit, but the establishment of marine reserves for fisheries management will definitely increase in priority.

Another marine resource worth mentioning is the issue of high-seas fisheries. These marine resources existing in international water are global commons, which means they belong to everyone. The value of high-seas fisheries exceeds Lebanon's entire GDP, but so far, the access to these resources has been restricted to a small number of countries that have industrial fishing fleets capable to fish on the high-seas. Several of these countries have a lower GDP than Lebanon, like Ghana and Indonesia. Nevertheless, the sustainability of these renewable resources for future generations is the responsibility of all countries, especially those do not have current access to them, but could have in the future. This topic is increasingly becoming a priority topic in international arenas, such as the United Nations' Convention on Law of the Sea and the CBD. The reason for increased importance of the issue is the realization that the fishing in international waters are not being done sustainably and are slowly being depleted. Some countries, like Japan, have a global fishing fleet that covers all oceans, including in the Mediterranean Sea. Lebanon has not yet engaged in this debate, which should be reconsidered, knowing that Lebanon has the right to access these resources in the future.

Construction

The construction sector in Lebanon is more of an investment sector than a sector to satisfy construction demand. Lebanon has thousands of empty apartments, with one estimate in 2014 putting the number of empty apartments in Lebanon at 200,000, out of which 50,000 in Beirut. The reason for this is that construction of apartments is done for foreign investments than to cater for domestic housing needs. Most of the apartments built are either luxury apartments or big apartments of commercial quality to be sold to wealthy Lebanese and individuals from the Gulf. Also, many Lebanese immigrants and expats feel more comfortable to safeguard their savings in real estate rather than in the Lebanese banking system due to lack of trust in the stability of the financial sector. The crisis in Syria contributed to this practice as well, as many wealthy Syrians wanted to take their savings out of their country and decided to safeguard them through the purchase of real estate in Lebanon.

Such practice has several social, environmental, and economic disadvantages. First, it raised the cost of real estate beyond the reach of most Lebanese. This is evident in the discrepancy between rent costs and real estate prices. In some parts of the country, a 500,000 US dollars apartment is rented out at 600 US dollars, giving a rent yield of around 70 years. This means the owner has to rent the apartment for more than 70 years to get a return on investment. This is without calculating renovation and other costs that usually the owner has to pay. Even during the renting boom due to the influx of Syrian refugees, the average rent yield did not go below 22 years, which is still the highest in the region, according to a report by BankMed in 2014. Therefore, the current state of the real estate sector is creating a housing crisis for the poor and new couples in Lebanon, costing the government substantial amount of subsidies that could be avoided by reforming the sector.

²⁵ <https://www.hacfornatureandpeople.org/>

Second, Lebanon suffers from urban expansion, which is the name driver of habitat destruction. Urban expansion and quarries for construction material are the main driver of biodiversity loss in the country, impacting other sectors, such as tourism. Third, the big boom in high-rise development in Lebanese cities impacts the availability of green public space in major cities, which research show their enormous value for the overall well-being of urban residents. UN-HABITAT recommends a minimum of 9m² of green space per capita in an urban city, while Beirut has only 0.8m², earning it the title of the urban jungle of the Middle East.²⁶ Fourth, the high-rise boom in Lebanon also led to the destruction of valuable cultural heritage, such as traditionally built houses and unique architectural history, that add value for urban tourism.

The current construction sector has also substantial economic risk, since it is mainly driven by foreign investment interests, which can change at any moment, leaving a substantial amount of high-value asset stranded. Therefore, many experts describe the real estate sector in Lebanon as a bubble, and its impact has already been felt in the past few years, due to decline in foreign buyers. The political situation in the Gulf and low oil prices reduced the ability of wealthy Arabs to purchase property in Lebanon. Lack of confidence in the Lebanese real estate sector also reduced Lebanese expats and immigrants' real estate investments, fearing loss of value, which has declined in the past few years.

Lebanon needs to reform its construction and real state sectors to be driven by domestic housing demand rather than foreign investment, catering for low- and middle-income families. The American University of Beirut recommends the development of a national urban housing strategy to provide vision and guide decision makers to alleviate inequality and increase efficiency of space. Lebanon has a population density of 653/km², ranking the 18th most dense country in the world, which is projected to increase in the future. Therefore, the efficient use of space is crucial for the country. In 2009, the average size of a new apartments in Beirut was more than 300m², while in NY, Washington D.C., and San Francisco it is around 70m²; while in London it is 43m². Nevertheless, the trend is changing, with the average new apartment size in Beirut in 2017 going down 182m², showing a 39% decrease, but is still considered too high for a densely populated country like Lebanon. By adopting a national urban housing strategy would reduce the long-term risk of the current construction and real estate sectors in Lebanon, which outweigh the short-term gains of the current status.

Cannabis

Lebanon was the first country to legalize cannabis for medicinal and industrial use. The McKinsey economic vision puts the potential revenue of the cannabis sector to be at one billion US dollars per year, which is equivalent to the far reaching best case scenario that the oil and gas sector can generate in the country. Plus, the cannabis sector has additional benefits not accounted for, giving it to potential to generate revenues beyond the one billion US dollars. First, the cannabis sector will generate substantially more job opportunities than the oil and gas sector, especially in marginalized rural and farming communities, which are in dire need of development. Also, the industrial potential of cannabis goes far beyond the medicinal application and includes the production of industrial hemp.

²⁶ https://www.researchgate.net/publication/327156838_Lebanon_Cities'_Public_Spaces

Hemp, along with bamboo, is one of the fastest growing plants, and was one of the first plants to be spun into fabric. Hemp can be used in a variety of commercial products, such as paper, rope, textiles, clothing, biodegradable plastics, paint, insulation, biofuel, food, and animal feed. These are all new additional industries that can benefit from nationally produced raw material, reducing imports and increasing economic gains, including jobs. Hemp plastic, in particular, has a promising future with the world countries trying to find an alternative to fossil fuel plastic that has plagued lands and oceans around the world. Hemp plastic demand is projected to increase significantly, especially with some international companies like LEGO committing to phase out fossil fuel plastics and is looking at investing in hemp.

Despite some social challenges, Lebanon can potentially benefit from the recreational use of cannabis, especially that scientific research has proven that it is significantly less harmful than alcohol and cigarettes. Lebanon is the third largest exporting country of cannabis, and the illegal cannabis trade reached three billion US dollars at its peak. Colorado, a US state of similar population size as Lebanon, has legalized the recreational use of cannabis in 2014, and in 2019 the size of the sector has reached 7.8 billion US dollars, including a 1.75 billion US dollars in tax revenue for the state. Scientific research in Colorado has also shown that the legalization did not increase crime rate and could not be associated with negative social impact. Knowing the conservative nature of Lebanese community, one option could be legalizing the recreational use of cannabis for export purposes and domestically among foreigners and tourists, similar to the alcohol policy adopted by conservative Islamic countries in the Arabian Gulf. This would alleviate the concern of some communities in Lebanon, and at the same time strengthen the tourism sector, especially that the biggest tourists group is from Western countries, who generally have favorable attitudes towards the consumption of cannabis recreationally.

International relations

By adopting a green recovery vision, Lebanon has an opportunity to have international recognition for this role. In the past decades, Lebanon did not play a leading role in the international arena and has mainly been neutral in the key international intergovernmental conventions. By adopting the brand of sustainability and diversity, Lebanon can strengthen its relations with many important countries, especially the European Union, which is a key trading partner. Other countries that would welcome such a vision include United States, Canada, New Zealand, UK, and a growing number of developing countries that are concerned about the climate change impact on their national sovereignty.

Lebanon can also start playing a leading role in key international discussions rather than being on the sidelines, such as the conventions related to climate change, biodiversity, marine protection, desertification, ozone layer, chemicals, etc. Evidence has shown that playing a leading role in international sustainability arenas attracts funding, particularly from donor countries and intergovernmental institutions. By taking an active role in these arenas, Lebanon shows seriousness in its vision and adds actions to its words, increasing confidence among donor countries and agencies that funding Lebanon's vision will have high returns. These donors are constantly concerned that their funding is abused and struggle to get political commitment for the various sustainable programs they support. In addition to the potential increase in funding, Lebanon can also play a role in shaping international policy, and the history of international negotiations are full of examples where the smallest countries in the world were able to influence the course of negotiations.

4- Conclusion and way forward

A green recovery vision for Lebanon based on strengthening all the diverse economic sectors, especially the productive ones, has substantial socioeconomic benefits for the country. Providing such visions is the primary responsibility of political leaders, unifying various sections of society towards one long-term goal. Without such a unifying vision different sections of society and sectors can go in opposing directions. Delegating the production of visions to consulting firms will not work, as visions require pushing boundaries that only political leaders can do. That is why the McKinsey economic vision for Lebanon looks more like a strategy than a vision, as it lacks the overall destination where the country wants to be on the long-term, beyond economic profit in certain sectors. It also does not secure the buy-in of the various sections of society, which will create obstacles in its implementation.

The success of any vision would require the buy-in and engagement of all sections of society. Government commitment alone, especially in a country like Lebanon, where various sections of society have substantial influence on decision making, is not enough to secure the implementation of any vision and strategy. The vision has to be inspiring and meet the aspiration of the Lebanese public. Therefore, during its development, effective and meaningful multi-stakeholder consultations need to take place on various level. The consultation should be sectoral, sub-regional (by Cazas), with civil society groups, community leaders, etc. Adequate time must be given for these consultations no matter how long, as it will reduce the potential for obstacles in the future, speeding up the implementation process.

Previous experiences have shown that without stakeholder buy-in for a common vision, a consultancy firm approach has little chance to succeed. In the runup to the Copenhagen climate summit in 2009, where a new global climate agreement was supposed to emerge, two top climate foundations, ClimateWorks and European Climate Foundation, along with a number of other foundations in the US, China, and India, as well as the European Union gave substantial resources to McKinsey consultancy firm to produce a report that would guide the UN Framework Convention on Climate Change and its country members towards achieving a new climate deal. Intense consultations were conducted at top level, and the report produced provided development pathways for key countries with mitigation and adaptation plans, including costs. The amount of invested in bringing the various sections of civil society on board of such a plan was a fraction of what was invested in this report. As a result, the Copenhagen climate summit was a failure, due to fragmented civil society.

For the Paris climate summit, the approach was different. Resources were prioritized for engaging various section on civil society. Coalitions for businesses, investors, countries, NGOs, among others were created. A global communication campaign was conducted to bring community leaders on board. The Vatican produced an encyclical on the protection of the planet. Even fossil fuel companies were engaged. As a result, the Paris climate agreement was reached that provided an overall inspiring vision on where the world should be and mechanisms that countries and businesses can use to develop pathways afterwards towards that vision. The vision produced, which is limiting global temperature increase to below 1.5 degrees Celsius and achieving net zero emissions in the second half of the century, is an extremely difficult goal to achieve. Still, it provided the inspiration required to drive change. In the past five years after the Paris agreement has been reached, various initiatives, programs, long-term plans and projects have organically emerged with the aim of achieving the Paris vision, and new

initiatives are popping on regular basis. Whether the world will be able to achieve the Paris vision is not clear, but it is driving action like never before.

A similar inspiring vision in Lebanon can also organically and strategically drive development. It would provide justification for specific projects that otherwise would face severe opposition. A vision and an aligned strategy would show the necessity for selected projects within an overall framework that usually local communities and civil society are not aware of. That is why a comprehensive vision and strategies should be the initial approach rather than focusing on specific projects. Currently, in Lebanon, even when strategies exist, the process of communicating these strategies have been focused on specific technological solutions. For example, the national water sector strategy became the dams' strategy. The integrated waste management strategy became the waste-to-energy or incineration strategy.

An inspiring vision must be accompanied with a strong international and national communication campaign to further gain buy-in to this vision. The campaign should target all sections of society before and during the vision's implementation. It should also target the international community and diaspora to provide international recognition. This is not only necessary for the successful implementation of the vision and the attraction of international tourists, but also to provide the fragmented Lebanese society with a national unifying identity that they could be proud of, which is unfortunately missing at the moment.