



A region in danger !

Justice between environmental and economic aspects

Biodiversity from a climate **and social justice perspective**

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Introduction:

Biodiversity is defined as “the variety of life on Earth, including plants, animals and micro-organisms, as well as the ecosystems of which they are part. Biodiversity includes genetic differences within species, the diversity of species and the variety of ecosystems. It is the result of the interaction of species, including humans, with one another and with the air, water and soil around them. This combination of life forms—ecosystems, species and genetic varieties—has made Earth a uniquely habitable place and provides the goods and services that sustain our lives, such as clean air and water, food and medicine, fuel, fiber, and material for construction. Our cultures are founded upon the different environments in which they have developed.” .

The Mediterranean basin is one of the 36 biodiversity hotspots across the globe, covering an area of more than two million kms that extends from Portugal in the West to Jordan in the east and from Italy in the north to the Cape Verde Peninsula in the south. It is classified as the world’s third plant biodiversity hotspot as it is home to more the 25,000 plant species. This level of biodiversity is coupled with a cultural, linguistic, social, and economic diversity, which increases the importance of this region .

The Eastern Mediterranean is a major center of geological and climate changes, which led to creating remarkably different environmental factors that naturally impacted the development of plant biodiversity in the region. This region is the most suitable for field research since it was subject to thousands of years of environmental and human interactions .

Almost 12,000 years ago, climate and environmental conditions in the area known as “the fertile crescent,” located in present day Iraq, Syria, and Lebanon, were stable. Inhabitants of the region started domesticating plants and animals instead of fully relying on game as a source of food. They also experimented with genetic modification to get products that best suited their needs, which increased the level of biodiversity in the region and provided the inhabitants with the resources that allowed them to settle in the entire region.

With the development of human communities and population growth, human relations with nature started deteriorating. Agricultural activities and cattle breeding led to the emergence of new practices that disrupted the ecological system through depleting natural resources and adopting production modes that exceeded their capacity. The Millennium Ecosystem Assessment, a study in which more than 1,300 scientists who worked in 95 different countries participated, revealed the role of ecosystems in improving quality of life and allowing communities to prosper. Concerns over the decline of biodiversity led to the signing in 1992 of the Convention on Biological Diversity, a legally binding agreement comprised of three equally significant goals: the conservation of biological diversity, the sustainable use of its components, and the fair distribution of the benefits of genetic resources. The convention reflected the need to

stop taking biodiversity for granted and come up with the means that guarantee the continuation of life on earth.

Civilizations largely depend in their continuity and prosperity on the availability of natural resources, which in turn depend on environmental conditions. When human beings overwork those resources, they gradually decline and conflicts are more likely to erupt, hence leading to the downfall of civilizations. Also, when natural resources, like fertile lands, become scarce, because of population growth and unequal access to land, the impoverished settle in environmentally sensitive areas such as mountain feet, forests, and areas threatened with desertification. Population density in these areas, added to unsustainable use of land, leads to environmental decline and eventual scarcity of resources, hence causing the phenomenon known as "environmental marginalization" . Civilizations have, in fact, taken turns in protecting and harming the environment.

Population growth and rising consumption levels not only led to the deterioration of environmental resources, but also rendered resources available to each individual unequal, hence triggering conflicts that are naturally detrimental to all civilizations. The disruption of the harmony between human beings and the environment led to migrations from the countryside to the city in search for better living conditions. As a result, cities became the centers of economic activities while the countryside started suffering from a shortage in manpower and former farmers turned from producers into consumers. This shift from rural to urban space is arguably the major turning point in the relationship between human beings and their environment.

Population growth led to a rise in demand and natural resources were drained to meet this demand, hence causing problems pertaining to water, soil, forests, and the ecological balance. Based on the evaluation of 24 ecosystem services provided by biodiversity as part of the Millennium Ecosystem Assessment, it was revealed that 15 of those services are degraded. These include fresh water, marine life, air quality maintenance, disease regulation, and nonmaterial services such as spiritual and religious practices. The deterioration of biodiversity obstructs ecosystem services and makes them more vulnerable and less able to fight natural disasters. For example, disasters that hit coastal communities such as floods and hurricanes intensify the deterioration of damp habitats.

Accelerated climate change throughout the past decades, which resulted from overworking the land, pollution, and the decline of biodiversity, intensified environmental problems in the Mediterranean basin. Those developments, coupled with speculations about future climate changes, foresee grave threats to vital ecosystems such as water and food in the coming decades. While it is necessary for Mediterranean countries to adopt sustainable development policies that alleviate the impact of these changes, they still do not have the information required for doing so. This particularly

applies to the Southern Mediterranean, which is more affected by climate change and which lack influence strategies and a methodical monitoring process.

This paper examines three case studies that represent problems pertaining to biodiversity in the Arab region. The first case is about the depletion of marine life in the Western Mediterranean and the threat it poses to biodiversity with special focus on the impact of trade agreements between countries north and south of the basin on draining the resources of the latter and undermining its food security. The second is about threats to biodiversity and ecosystems in Lebanon. The third case examines the issue of the Bisri Dam project in Lebanon and the role of civil society in raising awareness about its environmental impact and the importance of biodiversity in general. The paper ends with findings related to the threat to biodiversity in the region and its environmental, economic, and developmental dimensions.

First: The impact of fishing practices on biodiversity in Morocco:

Morocco spans from the Mediterranean Sea to the Atlantic Ocean with a coastline that extends for 3,500 kilometers and a marine economic zone that reaches 1.12 million square kilometers. It is also considered one of the world's richest areas in terms of marine life and is home to 300 commercially important fish species . However, the deterioration of seas and oceans, resulting from the concentration of almost all economic activities in coastal areas, the depletion of marine life, and climate changes, led to the decline of biodiversity and threatens the extinction of several species such as monk seals, northern bald ibis, red coral, and yellow belly grouper . This section examines the problematics of fishing in Morocco, especially in terms of the depletion of marine resources and overfishing and their impact on social and economic conditions through examining the Hirak Rif Movement. It will also explore the role of fishing agreements with different European and Asian countries in the decline of biodiversity in Morocco.



Depletion of marine resources:

Fishing is one of the vital sectors upon which Moroccan economy depends. In 2019, the gross domestic product of this sector reached 17.3 billion dirhams and marine exports reached 22 billion dirhams (36% of food and agricultural exports and 8% of total Moroccan exports) . The fishing sector in Morocco also plays a major role in creating job opportunities with a workforce of more than 120,000 distributed among 457 offshore boats, 2,524 inshore boats, 17,338 traditional fishing boats in addition to more than

100,000 fishing-related land jobs. Marine products in Morocco vary between pelagic fish, whitefish, mollusks, and crustaceans, most of which are exported. Until the 1980s, fishing in Morocco relied on the inshore fishing fleet and different fish species were abundant. However, many species started declining especially with the emergence of foreign offshore fishing fleets.

Government policies, that included giving offshore and inshore fishing licenses to a privileged few, led to several problems. These include the depletion of many species such as octopus, swordfish, meagre, and porgy and the displacement of others such as sardines from north to south. These problems are mainly attributed to the presence of private foreign offshore fishing vessels that engage in overfishing, do not respect territorial waters, and do not abide by the share allotted to them by relevant authorities in Morocco. Those ships also use nets that are internationally prohibited because they destroy coral reefs that provide habitat for large numbers of marine creatures and do not respect the biological rest periods of several species such as octopus and cuttlefish. In addition, the ships contribute to degrading marine life because of throwing away unwanted fish back in the sea. In fact, these ships fish for expensive species such as large cuttlefish then throws the rest back, which negatively affects biodiversity and the sustainability of different species in addition to the depletion of particular species such as octopus and bluefish in dozens of Moroccan ports .

Some of those foreign vessels contain small labs for manufacturing fish meal in the absence of any form of monitoring since Morocco does not have the technology required to trace violations by overseas vessels. The monitoring process is only done through the Royal Moroccan Navy and the Royal Moroccan Gendarmerie in addition to one Moroccan observer on each of ship to make sure they observe the articles of fishing agreements signed with Morocco . In addition to overfishing, other factors contribute to the deterioration of marine resources such as using explosives, fishing in shallow water by local fishing boats, pollution, catching immature fish, underwater fishing, and violating laws that govern marine protected areas .

According to the Moroccan Court of Accounts (La Cour des comptes), floating drift nets are still used in the Mediterranean despite being banned in 2010. In its report to evaluate the HALIEUTIS Plan, ratified by the government in 2009, several boats kept using those nets despite the threat they pose to marine biodiversity, especially in the cities of Al Hoceima and Mediek . According to many experts and observes, the HALIEUTIS Plan, which aims at developing the fishing sector, intensified the crisis since it contributed to concentrating marine resources in the hands of both local and foreign capitalists who own advanced fishing vessels, which leads to the marginalization of traditional and inshore fishing. Moroccans do not also benefit from their marine resources since most products are exported and those sold in Moroccan markets are too expensive for average citizens. Consequently, consumption of fish in Morocco does not exceed 13.6 kilograms per person annually, compared to the global average consumption (20 kilograms) and the consumption of some neighboring countries such as Portugal (56

kilograms), Spain (45 kilograms), and France (35 kilograms). On the other hand, the decline of marine resources in Morocco is directly linked to climate changes resulting from rising sea surface temperatures , rising sea levels, and increased salinity and acidification of seas and oceans .

Fishing agreements:

Moroccan coasts have been coveted by several European countries since the 15th century, particularly Spain and Portugal. Several historians argue that marine resources were among the reasons the two countries invaded Morocco and occupied coastal towns including Ceuta and Melilla, which are still under occupation and are considered two of the world's oldest colonies. Following a series of defeats, the Portuguese lost all their colonies on the Moroccan coast, which consolidated Spain's position. Spain signed several agreements that gave it the right to fish in Moroccan waters and put a lot of pressure on Morocco to agree to sign them.

Since its independence, Morocco signed several agreements that allowed foreign, especially European, countries to fish in Moroccan territorial waters in return for money. The first of fishing agreements between Morocco and the EU was signed in 1988 and the last was put into effect on July 18, 2019. The latter allows 128 European vessels, 73% of which are traditional, to fish in Moroccan waters for a period of four years. Morocco also signed similar agreements with other countries outside the EU such as Japan and Russia . Morocco is always pressurized by countries with which it signed those agreements. This pressure amounted to the destruction of Moroccan goods passing through Spanish territories in addition to pressure related to the dispute over the Southern Provinces and human rights.

The Hirak Rif Movement:



The marginalization of the Rif region, located in northern Morocco, for several political and historical reasons led the locals to migrate outside the region, engage in one-way smuggling, or cultivate Indian cannabis. Despite the profitability of cannabis and

remittances sent by locals living abroad, the region is still suffering from underdevelopment and the exploitation of small farmers by the cannabis mafia .

The fishing sector in the Rif employs around 7,000, 3,200 of whom are fishermen (1,900 in coastal fishing and 1,300 in traditional fishing boats). Like in the rest of Morocco, the fishing sector in the Rif is controlled by lobbies that deplete marine resources in collaboration with corrupt administrative officials. The tragic death of fish vendor Mouhcine Fikri in 2016 following the confiscation of his swordfish merchandise gave rise to a popular movement that lasted for several months and put forward a set of economic, social, and environmental demands pertaining to the fishing sector. The movement called for reforming the fishing sector, protecting marine resources, penalizing lobbies involved in violations, and empowering small fishermen and other workers in the sector whether on board fishing vessels or at harbors .

The Hirak Rif Movement saw the participation of large numbers of Moroccans across the country and several national and international right movements and trade unions declared their solidarity with protestors. However, the movement was met with violent repression on the part of the authorities and many of the protestors received jail sentences that amounted to 20 years for some of them. Some of the protestors were released following a royal pardon or after doing their time while others remain in jail till the present moment.

Second: Biodiversity in Lebanon:

Despite being a small country with an area of 10,452 square kilometers, Lebanon is known for its plant biodiversity and its strategic location at the intersection of the old world's three continents makes it a biodiversity hotspot in the region. Topographic and landscape diversity led to the emergence of around 22 climate zones and different types of habitats and allows several species of animals and plants to grow there. Lebanon is home to several semi-natural habitats that adapted to human activities and is where domestication started 10,000 years ago . According to biodiversity studies, Lebanon is home to more than 2,612 species . Current estimates note the existence of around 400 native plants in Lebanon, Syria, and Palestine, 92 of which are in Lebanon. The percentage of native plants in Lebanon (21%) is high compared to other Mediterranean countries. Lebanon, like other Fertile Crescent countries, is known for its agricultural biodiversity for it is rich in crop wild relatives (CWR) and local species and also produces different types of crops that provide a wealth of genetic resources which can be utilized both in the present and the future. These plants/ crops are used in agriculture for food and/or fodder. In addition to ornamental, medical, and wild plants, more than 80 types of food products are cultivated in Lebanon, including wheat, barely, lentils, onions, garlic, and several fruit trees such as almond, pear, peach, and pistachio. In addition, several wild plants are used for food such as leafy greens.

Lebanon is also home to a wide variety of animal species that reveal the influence of the genetic groups from the three continents in addition to a number of unique native species . Several species that existed during the Roman era are extinct such as tigers, deer, wild goats, and cattle that still exist in neighboring countries in addition to other species that recently went extinct such as the Syrian brown bear. The East Mediterranean is home to several native species of bats, birds, and butterflies and was where the domestication of animals started in the ninth millennium BC. Cattle, for example, played a major role in social development and constituted a basic component of different forms of human activities .

This wealth of genetic resources allowed the creation of successive civilizations in the region. For example, Phoenicians exchanged raw materials and manufactured goods with neighboring regions on the old world, which in turn contributed to their ability to utilize their resources and build a strong economy. They exported wood, wine, honey, olive oil, spices, grains, fruits, and herbs, among others. They could have also played a role in spreading several animal species such as chicken, donkeys, cats, and rabbits or the cultivation of several plants across the Mediterranean basin such as citrus fruits, pomegranates, sugar cane, flax, and others. It is through this area that biodiversity extended to the rest of the Mediterranean and that is why protecting natural resources is not only important for the region, but for the entire world as a whole.

Due to population growth and climate changes, the protection of biodiversity and ecosystems became indispensable to achieving food security and alleviating the damages caused by natural disasters, diseases, and climate changes. However, the main component of biodiversity, that is genetic resources, is remarkably deteriorating. Biodiversity in Lebanon is witnessing a rapid decline in biodiversity owing to several human factors that include lack of awareness, soil degradation, and overgrazing . Because of their importance for agriculture and agroforestry, genetic resources are essential for protecting the economy and adapting to climate changes in different ecosystems. It is noteworthy that 60% of the world's ecosystems are declining or used in an unsustainable manner. According to the Food and Agriculture Organization (FAO), the world has lost 75% of the genetic diversity of agricultural crops since 1990 and that is why the sustainable utilization of genetic resources becomes an urgent requirement for the achievement of food security, which is considered one of the major challenges the world is currently facing . According to estimates of world population, revised in 2017, the current population of the world is 7.6 billion and is expected to reach 8.6 billion in 2030, 9.8 billion in 2050, and 11.2 billion in 2100 . This means growing pressure on food production systems . The growing need to handle the deterioration of food security and alleviating the damaging effects of climate change led users of plant genetic resources to look into new qualities that would make the utilization of these resources sustainable . This led to the discovery of the biggest range of adaptive qualities in crop wild relatives (CWR) because they have not gone through the domestication process .

Conservation and sustainable management are essential for maintaining biodiversity that would meet future needs in agriculture, agroforestry, and consumption, and climate change makes this need more urgent. Facing those challenges requires using different methods that rely on recent developments in molecular genetic characterization of animal and plant genetic resources and dynamic interactions between genes and the environment. Despite those developments, genetic decline continues to erode comprehensive genetic resources and genetic diversity of crops and animals. It is noteworthy that the potential of genetic resources is still not fully utilized.

Third: Activism in the Bisri Valley:

The Bisri Valley is one of the few biodiverse areas remaining in Lebanon. It is an important transit for birds migrating to Africa, Europe, and Asia and is home to long-lived trees, rare species of native plants and wild animals, and historic landmarks from different eras. It is also the biggest fertile plain in Mount Lebanon. The Bisri Valley is, therefore, a vital place on the environmental, cultural, and economic levels. It is a protected site based on a decree by the Ministry of Environment and which covers the Awali River starting from the Barouk Mountain through its tributaries in the Bisri Valley and until its drainage basin . On October 10, 2012, the Lebanese government ratified the Water Supply Augmentation project based on a plan submitted by the Ministry of Energy. The project included the construction of several dams without conducting the required scientific and legal research. In addition to the Bisri dam, the project included dams in Brissa, Balaa, and Bakaata in addition to the Jannah Dam on Nahr Ibrahim River.

When work on the project started, the damaging impact of construction on biodiversity in Lebanon was extremely shocking for environmental organizations in the country. Those organizations initiated several campaigns against the project, some of which succeeded while others failed. Failure is mainly attributed to lack of awareness among the people about the vital role biodiversity plays in their lives on one hand and political corruption and the sectarian system on another hand.

When it was time to start working on the Bisri dam and the Lebanese government approved a loan from the World Bank for that purpose, environmental organizations started changing their strategies while building on their previous campaigns that managed to attract people's attention to the hazards of building dams. New strategies included using art and songs that highlight the importance of protecting the environment and biodiversity. Protests against the dam started when the mayor of Al Midan village sent a statement to the Council for Development and Reconstruction. Objections were also submitted to the State Council. Environmental organizations and a group of activists from the region started making trips to the Bisri Valley to collect data as well as raise awareness among locals. This was followed by the creation of the National Campaign to Protect the Bisri Valley.

Social networking websites played a major role in underlying the threats the dam poses to biodiversity. Photos of rare species of animals and plants were posted on social media as well as photos of animals that will be endangered after building the dam such as otters in the Awali River, honey badgers which are among the most distinguished species in the valley, and rock hyraxes which contribute to the conservation of the ecosystem through their role in forest regeneration and which are currently an endangered species as a result of urban encroachment and the construction of dams. The campaign also shed light on the importance of the Bisri Valley as a transit for migrant birds, such as storks, hence underlining the magnitude of the damages sustained by the ecosystem if the dam is constructed. Several activists in the campaign marched in shrouds to protest the cutting of long-lived trees and posted photos of the actual cutting on social media and different media outlets. The campaign organized a number of talks that raised awareness among locals on the importance of biodiversity as well as their right to protest against projects that have a negative impact on their environment and the existence of laws that make protecting the environment their duty . T.E.R.R.E Liban, one of the NGOs that led the campaign, made a short film about the possible alternatives to the Bisri Dam and posted it on social media. All those activities received extensive media coverage and the struggle for the Bisri Valley gained momentum across the country.

The National Campaign to Protect the Bisri Valley also underlined the dangers of evaporation to be caused by the dam on the pine forest in neighboring Bkassine, the biggest pine woodland in the Middle East. This led to an increase in the number of supporters of the campaign. Several experts volunteered to offer legal and scientific evidence of the impact of the project as well as highlight the government's inability to finalize the Ecological Compensation Plan . Experts also highlighted the fact that the dam will be constructed in an earthquake zone, hence threatening the valley and all surrounding villages in addition to the way the dam violates sustainable development goals, especially goals number 6, 14, and 15, and several international agreements. Several lawyers volunteered to defend activists who were targeted by the authorities and took legal measures to stop the cutting of trees .

On March 4, 2019, several activists staged a protest in front of World Bank offices in Beirut to highlight the threat the project poses to biodiversity in Lebanon. The movement against the dam also declined the Ministry of Energy's invitation for a meeting on June 2, 2020 and described it as a sheer formality . As a result of campaigns launched in defense of the Bisri Valley, the issue of the dam featured prominently in the October 17 revolution. The protests, together with the campaign, played a major role in the World Bank's decision to cancel its funding for the Bisri dam project . This led several political parties that initially supported the project to retract and submit a draft law to the Lebanese parliament to turn the valley into a protected area. Municipalities of villages surrounding the valley also decided to reject the project even though some of them had approved it earlier. After the World Bank withdrew from the project, several

suspicious fires started in the valley and volunteers from the region took part in putting them out.

Despite obstacles, activism against the dam managed to save the Bisri Valley and conserve the fertility of the plain, especially at a time when Lebanon is already suffering from an economic crisis and when any damages to the valley would have posed a grave threat to the country's food security. In fact, campaigns launched to stop the construction of the dam constituted a precedent in the history of activism and civil society in Lebanon, especially as far as the role played by environmental organizations is concerned. However, a few setbacks were identified including the organizations' inability to document all the activities in which they engaged to stop the project, an experience which can provide guidelines for future activism in Lebanon and which can be utilized in other struggles. Added to that is the fact that several of those organizations competed among themselves and at times did not coordinate with each other. Full coordination would have resulted in a faster response to developments and a higher level of efficiency.

Conclusion:

Biodiversity plays a major role in conserving life on earth since it maintains ecological balance and offers protection from natural disasters and diseases as well as being a major component of economies and the foundation of human culture and civilization . Biodiversity is, however, facing many threats that result from violating environmental criteria that should be observed on domestic, regional, and international levels. These criteria are included in the United Nations Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the United Nations Convention to Combat Desertification, which all emerged from the 1992 Rio Earth Summit. However, world economic powers such as the United States, the European Union, and China put a lot of pressure on countries in the Global South and impose on them bilateral agreements that indirectly violate those criteria and allow the former to exploit the natural resources of the latter. This is the case of the fishing agreements in Morocco and other partnership agreements between European countries and the Southern Mediterranean . These agreements also violate the Cartagena Protocol on Biosafety, a supplement to the Convention on Biological Diversity that stresses the necessity of observing biosafety standards upon transporting or importing any living organisms, whether animals or plants, and providing full information about their use in the destination country/countries.

In the same vein, the European Union pressurized the Southern Mediterranean into joining The International Union for the Protection of New Varieties of Plants (UPOV) , which is based on the liberalization and commodification of genetic resources in the south as a requirement for gaining access into European markets and entering into partnerships with European countries. This makes complete transparency regarding negotiations about deep comprehensive free trade agreements urgent and lack of it constitutes a threat to the fate of the entire population of the region. It is also important to conduct studies that evaluate the impact of those agreements on development goals and social, economic, political, and cultural rights of citizens before starting negotiations.

In the same vein, it is important to subject all parties to such agreements to regular monitoring to make sure that their laws and legislations are in line with international biodiversity agreements. It is also important to include environmental assessment policies in the constitutions of Southern Mediterranean countries to allow setting a clear legal and constitutional framework through which disputes between involved parties can be resolved to guarantee the achievement of environmental justice and through which agreements can be evaluated. This will allow parties impacted by agreements to file complaints in which they highlight how those agreements violate the rights of individuals and communities. This will also play a major role in stopping funding organizations from manipulating environmental agreements under the pretext that

they are international entities that are not subject to local jurisdiction in countries in which they fund projects.

In fact, projects funded by financial institutions, such as the World Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and the African Development Bank, are among the most detrimental factors to biodiversity. Policies related to the conservation of biodiversity differ from one institution to another and societal participation, whether before or after starting a given project, is not prioritized. The Bisri dam offers an example of how financial institutions, the World Bank in this case, do not abide by biodiversity agreements and do not give precedence to environmental assessments.

On the other hand, countries need to abide by the Ramsar Convention on Wetlands of International Importance through stopping all forms of encroachment on wetlands including the construction of touristic resorts or drainage for urban expansion. Wetlands should also be included in domestic legislation to guarantee protecting them from any projects that do not put biodiversity into consideration. Policies that overlook biodiversity need to be revised not only in terms of their environmental impact, but also their role in obstructing the achievement of relevant 2030 sustainable development goals .

In light of growing threats to biodiversity, it is necessary to create an activist front that is strong enough to put pressure on both governments and international institutions to stop projects that are seen to harm the environment. The first step is raising awareness on the importance of biodiversity and conducting thorough studies on environmental resources in each country to be followed by policies and strategies that guarantee protecting them on the long run. This should be accompanied by campaigns to obliterate environmental illiteracy so that citizens can know the vital role biodiversity plays in their lives and how violating it is bound to have a negative impact on their social, economic, cultural, and environmental rights. This could be done through organizing workshops and orientation sessions about biodiversity as well as including biodiversity in school curricula and religious sermons.

It is noteworthy that knowledge and awareness are not enough to make activism effective since they need to be coupled with active engagement on the ground and cooperation between individuals, relevant institutions, and non-governmental organizations on domestic, regional, and international levels. This could be done through forging alliances and launching joint campaigns that can constitute a lobbying bloc, which can resist all policies and practices that harm the ecological system. Scientific research is also indispensable to give environmental movement the required leverage. Such leverage will not be possible without groups of lawyers that can handle all lawsuits and legal issues related to projects that affect biodiversity.

The media can play a major role in raising awareness about the importance of biodiversity. The same can be done through social networking websites, which are

currently more widespread than traditional media outlets. It is also important to look into previous local and international experiences on biosafety and share them with citizens who can learn from them and apply them to their contexts. All the above needs to be complemented with comprehensive strategies applied by all relevant sectors in each country to guarantee the conservation of biodiversity and including it in the 2030 plan for sustainable development goals. Environmental movements and activists are to monitor the performance of the government to make sure those strategies are efficiently implemented and to underline any possible deviation from the common goal of providing human beings with environmental resources that are both safe and sustainable.