DRUG POLICY & PUBLIC HEALTH

Adaptive Governance: A Sustainable Solution to Address MENA's Climate Challenge

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MENA region with a population of about 493 million people is one of the most populated regions in the world. This region has been very important in the international community due to its huge oil and gas reserves and sensitive geopolitical position. Throughout history, this sensitive situation has not been in favor of its residents, and the region has faced many conflicts and wars, such as the civil war in Yemen, Syria, Sudan, and Gaza.

In addition to the political situation, in the last few years, MENA has been exposed to severe climate changes. Phenomena such as drought, heat waves, sea level rise, ocean acidification, low rainfall, reduction of water resources, migration, and vulnerable populations have given critical conditions to this region. For example, temperatures in this region are warming twice the global average and will have a direct impact on water scarcity, so that according to 2019 data, sixteen of the twenty-five most water-stressed countries in the world are found in this region.

So far, the countries of the region, understanding these conditions, have taken several measures to prevent it from becoming more acute, but what is needed more than mere physical confrontation to reduce the effect of climate change, is to pay attention to adaptation to climate change and resilience efforts, which provide long-term stability for them. In the last few years, this goal has been achieved through the National Adaptation Plans (NAP) with UN approaches in MENA.

Examples of it can be found in the construction of dams in Morocco to combat drought, the optimization of irrigation water usage in Egypt to accommodate population growth and increased demand for reclaiming arable land, and the construction of centrally air-conditioned

towers in Gulf Cooperation Council (GCC) countries to cope with their hot and humid climate.

Adaptive governance

NAP is an opportunity for governments to address their future vulnerabilities and weaknesses gradually. To solve the challenges of climate change, there are different solutions, the main characteristic of which is the involvement of non-governmental units for their sustainable solution. The duty of governments is to find sustainable solutions to share governance in order to use the maximum potential of communities and non-governmental and private sectors. The involvement of the people will lead to more sustainable preservation of the environment and viable protection of the country's renewable resources. This process takes place through adaptive governance.

Adaptive governance in the field of climate change means the development of institutional and political capabilities to ensure the elimination or mitigation of increasing challenges and disputes caused by the adverse effects of climate change. Adaptive governance provides the context for institutional, political, and social arrangements that enable the implementation of strategies such as adaptive management or scenario building.

Adaptive governance can be implemented in two ways, implementing adaptive programs by the government or with the support of people, social and organizational institutions of civil societies. If the second method is chosen, this process includes utilizing internal and external capabilities, decentralizing decision-making power, and seeking to inform higher-level decisions from the bottom up. This process teaches governments to respect and pay more attention to the people and to be responsible towards civil society and moves the government structures in a direction that will maintain the stability of the society in the long term.

In this study, we examine the process of reviewing NAP through the synergy of the government and society from the three methods of civil society dynamics, local initiatives, and public promotion.

Civil societies and accountability

The activities of civil societies are one of the ways of progressing adaptive measures and an example of the joint activity of the government and society in adaptability and joint efforts in

fighting environmental and climate impacts. Civil society acts as an intermediary link between the people and the government. Through civil society, governments can become aware of society's expectations and needs, and in this situation, civil society plays the role of facilitator and follow-up of the process of transforming demands and data into sovereign and national decisions. In the field of climate change, civil society has the role of making governments responsible and facilitating the implementation of environmental infrastructure through government budgets or international grants.

Civil society in MENA, especially after the Arab Spring, has assumed new roles in making governments accountable. On July 15, 2015, in Lebanon, after the closure of the landfill in the Naameh and the accumulation of garbage in the streets of Beirut, it was civil movements that organized Lebanese citizens in street protests and launched the "You Stink" movement.

Apart from social protests, civil societies have played a facilitating role regarding climate impacts. In Yemen, "rural communities" have managed to install small solar-powered grids to provide cheaper and cleaner electricity to people on the front lines of the conflict amid Yemen's civil war. Tunisian environmental groups have made efforts to integrate thousands of informal waste pickers into the official sector in order to protect them from health risks and exploitation, and eventually, more than 200 local water committees in Lebanon operate independently of the Ministry of Energy.

Adaptive Compatibility

Due to being located in a dry and low rainfall area, the MENA region has a rich history of thousands of years of experience in adapting and coexisting with harsh environmental and climatic conditions and has passed these experiences from generation to generation. Some of these experiences are still implemented by natives at the local level, and some others have become obsolete, forgotten, and labeled unscientific in the cycle of modernization processes and digital technologies. Some of them include the use of traditional water wells called Qanat in Iran or the use of indigenous knowledge in the communities of Jiroft, Iran, to ensure the growth of their crops. They use a complex system with minimal water through earthen water ponds and dredging ponds and canals.

The compatibility of adaptive programs with local initiatives – sometimes even re-studying them has scientific value – can best bring together and empathize with local communities with

climate plans. Local initiatives are not only planned to reduce adverse environmental and climatic effects, but they have become the identity and native culture of local communities over the centuries.

Some environmental projects in third-world countries, especially in MENA, have been copied from Western approaches. These plans evaluate outcomes in terms of effectiveness, while indigenous peoples do not base their adaptation actions solely on economic calculations, but on a broader and more complex set of factors such as adaptation to specific indigenous and place-based cultures. Climate adaptation programs cannot be effective if they are not ethically compatible with indigenous peoples. Most importantly, the products of these quasi-Western adaptation programs may undermine the achievements of local communities, and in this case, the governments will not only be accompanied by the indigenous people, but will witness their civil or even violent resistance.

Qanat, Windcatcher, and traditional refrigerators are examples of local innovations from the past 3500 years to now. A qanat is a system consisting of several connected tunnels and wells, which are used to access underground water sources for drinking and agricultural water supply in hot and dry regions.

Iran is known as the cradle of qanat construction and there are about 22 thousand qanats, 11 of which are registered in the UNESCO World Heritage List. Due to the fact that the level of underground aquifers has been low in Iran for centuries, digging wells has not been enough to irrigate agricultural lands. To solve this problem, the ancestors of Iranians dug a number of consecutive wells and connected the water from them with each other through channels. The length of these canals in some qanats reaches more than 70 kilometers (44 Miles) and the depth of the wells reaches 300 meters (985 Feet). This initiative was surprisingly helpful to the problem of water scarcity and reducing its evaporation.

Its water transfer process is done without the need for mechanical systems (such as pumps) and only with natural energy. This is a type of Iranian architectural masterpiece, the scientific aspects of its study have been neglected even in Iran, and it can be generalized to irrigate other parts of the earth in dry and low-rain regions. One of its advantages is preventing soil salinity. Through Qanats freshwater from the mountain plateau is transferred to the lower-lying plains that have saltier soil. Thereby, the salinity of the soil is kept under control, which also helps in combating desertification. Using a qanat is the best way to reduce water losses in low

rain and desert areas and is a suitable way for climate adaptation.

Windcatchers are old Iranian air conditioners that took the hot air of the desert before the invention of electricity and directed it into the house in the form of cold air without any help from the mechanical system, without cost, carbon, and only with natural processes.

Windcatchers are towers that were built on the roofs of houses for ventilation and cooling. These towers are found in abundance in Yazd city, which is a desert and old city of Iran. The age of these clay towers, whose height sometimes reaches 33 meters (109 Feet), dates back hundreds of years. Reusing them with a scientific focus that removes their weaknesses can replace the consumption of millions of electrical voltages that are used in evaporative coolers or split air conditioners.

Education and public promotion

Education, public campaigns, and public promotion are other types of adaptive programs to adapt to climate conditions. When one of the effective options in intensifying the earth's heat waves is the use of carbon, educating people as consumers can be the key option to reduce or use energy correctly.

Education is an important factor in dealing with climate change. Education can encourage people to change their attitudes and behavior, to understand and deal with the consequences of global warming. In the process of education, people learn how to adapt to climate change. Education empowers everyone, but especially the youth of the MENA region, 55% of whom are under 30 years of age, to take action.

As with local initiatives, the use of tradition and identity helps governments to witness greater educational efficiency. More than 90% of the people of the MENA region are Muslims. Religion in this region is seen more than in other regions in daily life, behavior, business, clothing, and socializing with each other.

In the MENA region, climate education should emphasize terms that resonate with all actors in the region and instill a sense of commonality among participants. For example, references to Islamic values for environmental protection will be more effective than rhetoric about greenhouse gases and man-made climate change.

The use of Quran verses and sayings attributed to the Prophet of Islam (Hadith) is a valuable tool for public education to protect the environment and climate change. Even people in traditional societies pay more attention to these teachings than modern sciences. Using them for general environmental education is very effective. Fortunately, Islam has valuable resources and commandments to care for the environment. In a hadith, the Prophet of Islam said, “If the Final Hour comes while you have a palm-cutting in your hands, and it is possible to plant it before the Hour comes, you should plant it.” Also, in another hadith, he says, “If a Muslim plants a tree or sows seeds, and then a bird, a person, or an animal eats from it, it is regarded as a charitable gift (sadaqah) for him.”

Conclusion

For climate adaptability, governments have to choose ways to bring people along with them. All these ways can be used when the government has the desire to share its sovereignty with the people in the field of climate change.

However, the flexibility and reduction of climate impacts in MENA remains weak due to the unwillingness of governments to use social capital and interact with social actors, which is really the cornerstone of adaptive approaches in the field of water and climate. In the MENA region, adaptive governance strategies remain a low priority for political leadership, resulting in the adoption of low adaptive capacities and a lack of engagement of citizens with government officials.

This feature should be solved with training and help from developed countries and lead the rulers of the MENA region to find themselves beyond the implementation of some physical adaptation policy options such as the construction of desalination industries and modern agriculture, and to commit to adaptation policies from the bottom up with the help of the people and civil society.

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