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LAND USE CHANGES IN NATURAL RESOURCES AND RURAL AREAS: GREAT THREATS FOR SUSTAINABLE DEVELOPMENT IN IRAN

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Abstract

Nowadays observe a huge amount in changing land use patternes in natural resources and rural areas toward establishing vacation homes (second houses), touristy restaurants and hotels, recreational centers, etc. in them that caused destroying these unique valuable lands and great threats for sustainable development in Iran. In most places of Iran, the acreage of productive lands is limited and balancing food security and economic development are two important and critical goals for policy makers and governmental authorities. The global consensus had shifted towards the view that environmental conservation was not in conflict with development. Today, natural resources are exposed to increasingly numerous interests and demands, which sometimes generate conflicts. We must protect nature not only for us but for the whole planet. If it is questionable to say that communities are really only practical to protect the environment, there is no doubt they are the main victims of environmental degradation. Sustainable development and successful management of the natural resources and rural areas lands would not be achieved unless demands of rural communities are addressed. For doing this study utilized qualitative approach with its tools for gathering information such as participatory observation, discussions, maps, documents and pictures. Main locations of study were four provinces that changing land use in natural resources and rural areas toward establishing vacation homes touristy and hotels, centers etc. in them are relatively more stronger and visible in Iran, namely Tehran, Golestan, Isfahan and south Khorasan provinces. In this article discussed various aspects that caused of changing land use patterns in natural resources and rural areas in Iran. At the end present final and exigency acquired model on the ways of confronting to these land-use changes for accessing to sustainable development goals and criteria in Iran.

Keywords: Land use change, Natural resources, Rural areas, Vacation homes, Sustainable development, Iran

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1. Introduction

In most places of Iran the acreage of productive lands is limited and balancing food security and economic development are important and critical goals for policy makers and governmental authorities (Moein et al., 2018).

The global consensus had shifted towards the view that environmental conservation was not in conflict with development (Adhami et al., 2018).

Due to factors such as climate characteristics and limited acreage of productive lands in Iran, it is very important to protect such resources from excessive encroachment of urban areas and humanmade surfaces (Moein et al., 2018). Today, natural resources are exposed to increasingly numerous interests and demands, which sometimes generate conflicts (Gandin, 2012). Perhaps the scale of worldwide urbanization has created too great a physical distance and psychological separation between life in the city and life in the countryside for most people (Paulino, 2014). We must protect nature not only for us but for the whole planet. If it is questionable to say that communities are really only practical to protect the environment, there is no doubt they are the main victims of environmental degradation (Gandin, 2012).

Sustainable development and successful management of the watershed would not be achieved unless demands of rural communities are addressed (Adhami et al., 2018).

Social change processes are experienced as human impacts. In many developing countries, local residents were not always aware of the extent and nature of land use change, and had difficulty attributing social changes and their impacts to the land use changes that underlie them. Furthermore, the felt impacts of land use change appeared dependent on a person's awareness of that change, and on their beliefs about the causes of social change (Kathryn and Williams, 2012).

In both urban and rural spaces, the logic of capitalist accumulation produces concentration and dispersion, whose intensity and asymmetry are explained by the nature of a given country's internal power relations (Paulino, 2014).

Rural land use is changing rapidly in many parts of the world. While shifts from agricultural to non-agricultural land uses. All types of land use change have the potential to significantly impact rural communities through both positive and negative socio-economic change, often accompanied by social contention and debate. While policy makers seek to promote positive benefits of rural land use change and reduce any negative impacts, these efforts may be complicated by conflicting views among stakeholders and the general public regarding the impacts of land use changes. Understanding the reasons for different views on the impacts of land use change is crucial to developing appropriate responses to community concerns (Kathryn and Williams, 2012).

Regional land use change is the outcome of many small scale drivers and changes, with decisions made at an individual or property scale influenced by regional, national and global norms, environmental change, policy and market forces. As such, the extent and impacts of change may be highly variable across even relatively small areas (Kathryn et al., 2012).

The complexity of rural land use change means that identifying socioeconomic impacts of this change can be challenging, requiring methods that are suited to untangling the range of factors at play (Kathryn and Williams, 2012).

Beyond the complexity of land use change itself, those endeavoring to understand socio-economic impacts of rural land use change are further challenged by the different ways people experience impacts of change. An intervention such as a change in land use leads to processes of social change, but that these social change processes do not equate to social impact: instead, the impacts of social change processes will vary for different people depending on their situation. For example, a change in the number of people living in a community may be experienced as a positive impact by some residents and a negative impact by others. This means that understanding and addressing social impacts of land use change is highly complex, as impacts will vary depending on both the nature and extent of land use change and the way people experience the social changes that result from this land use change (Kathryn and Williams, 2012).

Multiple land use changes are often occurring at once; these together with other factors contribute to social change, which in turn is experienced in varying ways by different people. As such, attribution of social change is uncertain; residents may attribute negative or positive experiences to a land use that is not causally associated with the relevant socio-economic change. Despite this, there is little evidence that factors such as awareness and attribution are being considered in social impact assessment (Kathryn and Williams, 2012).

We must focus primarily in rural land use change on two aspects of socioeconomic change: changes in population, particularly population decline and turnover; and changes in employment (Kathryn and Williams, 2012).

It exclaims that real people who protect nature are local communities themselves. Since neither policy nor financial or technical assistance benefits local communities, the efforts of each peasant, villager, farmer or rancher is considered the only real action to protect the environment (Gandin, 2012). Current socio-ecological systems combined local knowledge with scientific viewpoints to choose conservation measures, which guarantees success in implementation level. Assessing possible alternatives by stakeholders cause realistic results, which is obvious in some studies (Adhami et al., 2018).

Local participative processes are thought to help overcome opposition in changes in rural land use. In this regard, Social learning is a challenging target in participative processes during policy implementation (Rouillard et al., 2014). The key to achieve the goals of sustainable development and water and soil conservation depends on people who directly are contacted with these sources (Adhami et al., 2018). Nowadays we see a huge amount in changing land use patterns in natural resources and rural areas toward establishing vacation homes (second houses), touristy

restaurants and hotels, recreational centers etc. in them that caused destroying these unique valuable lands and great threats for sustainable development in Iran.

With regarding to above mentioned issues, specifically, this study attempts to answer the following question:

1. What are the main causes for changing land use patterns in natural resources and rural areas toward establishing vacation homes (second houses), touristy restaurants and hotels, recreational centers etc. in them in Iran?
2. What are main threats of this unfavorable phenomenon for sustainable development in Iran?
3. What are the main planning implications of decision makers for confronting a city based on competition resolution programs between urbanization and agricultural productivity of this destructive phenomenon for sustainable development in Iran? (Figure 1).

Figure 1. Land use changes in natural resources in Golestan province, north of Iran. Changing forests and hills to farm lands and emerging new rural areas and human settlements in these regions during three decades ago (by author. October 3, 2019).

2. Urbanization and Land-use Changes in Environments of Iran

Iran as a dry country with limited water and soil resources is also facing several problems for protecting fertile lands and agricultural. It is estimated that urban growth is responsible for degradation of 10 km2 of farmlands per day in Asian cities. Urbanization, as one of the most drastic forms of land-use change, substantially alters the structure of natural ecosystems and modifies their related functions (i.e. services) and processes. Urban growth process is mainly evident in urban boundaries, where fertile and productive lands provide valuable resources for agricultural activities. Therefore, as a worldwide concern, the conflict between urbanization and agricultural land protection is a challenging issue for planners to manage. Such concerns about notorious environmental consequences are caused not only by the area, but also by the spatial arrangement of urbanization process. In other words, policies that only concentrate on the reduction of the area of urban growth, may result in undesirable outcomes on welfare and equity of residents, and in contrast, excessive urbanization processes are also responsible for many environmental impacts as well.

Conversion of natural and semi-natural ecosystems into impervious surfaces is associated with many other biophysical processes such as salinization, soil compaction, organic matter decline, soil sealing and soil biodiversity decline, which collectively lead to loss of many valuable soil functions and their corresponding services for crop production (Moein et al., 2018; Figure 2).

Urban growth processes in Iranian environments are mainly initiated from rural centers, which are largely surrounded by farmlands and fertile soils. Such proximity between these two utilities can cause conflict between multiple stockholders of different interests, which is normally associated with removal of agricultural fields and productive lands to provide space for more urban construction. In this regard, during the last four decades, the country has experienced 40% of growth in its population size and urbanism rate, which are also projected to continue during the upcoming decades. Urban expansion on agricultural land-use intensity is associated with a reduction in agricultural land-use intensity and GDP in industrial sector negatively affects farmland intensity (Iranian Bureau of Statistics, 2019).

For example, in Vietnam farmers received any economic profit from urban growth projects and socioeconomic livelihoods are affected by such conversion processes. Farmers have the possibility to convert their agricultural lands into non-agricultural ones with a possible higher income; however, they will face many challenges in sustaining non-agricultural utilities. Areas of open land were detected that can be changed to urban structures without trade-offing urban compactness against agricultural productivity. (Moein et al., 2018).

Appropriate management of urban-agriculture interactivities can contribute to food security based on a low threshold of built-up land necessary to grow important crops in urban environments. Based on the above-mentioned report, reducing land-use competition between urbanization and agricultural productivity is necessary for maintaining cities sustainability and food security in the future. Comprehensive land-use planning studies that attempt to reduce conflicts between multiple stockholders are important means for sustainable development of a region and effective management of its land resources. Therefore, by adopting a comprehensive approach toward socio - economic and ecological dimensions of the environment, land-use planning studies attempt to optimize the configuration of land features and also to reduce conflicts between different stockholders (Moein et al., 2018).

It should be noted that a realistic, practical and sustainable strategy for reducing land-use competition cannot completely prohibit urban growth, but the spatial pattern of future urbanized lands could be regulated based on detected competition zones. By establishing appropriate socio-economic and cultural-

recreational attractions in areas with lower levels of competition, the pressure of future population growth can be shifted to areas with higher suitability for urbanization and lower competitions with farmlands (Moein et al., 2018) (Figure 2).

Figure 2. Changing forests, mountains and hills because of growth in urbanization and demand of urban people in Zyarat village in Golestan province, north of Iran. This region was a nomadic zone solely until three decades ago, but nowaday it has shifted to one of the most expensive places for vaccations of rich and powerful urban people for establishing their second houses that often utilizing by them less than one month in a year. This unfavorable phenomenon also caused destruction forest, demolition hills plus increasing soil erosion and emerging floods in this unique region (By author. October 3, 2019).

3. Materials and Methods

One challenging factor in land-use conflict studies is the multidisciplinary nature of such issues, and thus, different stockholders from various influential parties are involved. In addition, the dynamic nature of interactions between land resources and human decisions is another barrier, which requires planning efforts to have a predictive dimension to ensure their accuracy and applicability. It should be noted that urban environments are complex systems with many feedback and feedback loops with their vicinities, and therefore, informed decision making processes are required to increase the efficiency land-use competition resolution programs in these regions (Moein et al., 2018).

For doing this study author utilized qualitative approach with its main tools for gathering information were participatory observation, discussions, maps, documents and pictures. Main locations of study were four provinces that changing land use patterns in natural resources and rural areas toward establishing vacation homes (second houses), touristy restaurants and hotels, recreational centers etc. in them are more stronger and visible in Iran, namely Tehran, Golestan, Isfahan and south Khorasan provinces. Author utilized various documents such as Iranian scientific magazines and journals, TV and radio programs, Iranian Bureau of Statistics, discussions with experts, professors and beneficiaries and field research by himself specially in above provinces. In below map, showed locations of this study as A, B, C and D. (Figure 3).

Figure 3. Map locations of doing this study -A, B, C and D- in Iran (Iranian Bureau of Statistics, 2019).

Changing natural hills and domain of mountains to gardens and second houses for vacations of rich and powerful urban people in west of Isfahan city and beside Zayandeh rood river in center of Iran. This unfavorable phenomenon occurred without law permissions of responsible organizations but gradually after 2-5 years later, rich and powerful urban people achieving their law permissions from responsible organizations by various ways (Figure 4). And destructing a mountain with its covering forest for exploiting mine in Golestan province, north of Iran (Figure 5).

Figure 4. Changing natural hills and domain of mountains to gardens and second houses for vacations of rich and powerful urban people in west of Isfahan city and beside Zayandeh rood river in center of Iran. This unfavorable phenomenon occurred without law permissions of responsible organizations but gradually after 2-5 years later, rich and powerful urban people achieving their law permissions from responsible organizations by various ways (By author. April 2, 2019).

4. Collaborative Management for Environmental Issues

The rural livelihood was directly dependent on rangeland and agricultural land, which effectively affected conservation operations. Based on th sustainable development scenario, productive and fertile lands with high potential for farmland activities must be protected against excessive encroachment of urban structures. In a temporal and gradual process should be undertaken to first decrease historical growth rates and then shift urbanization pressure to potential locations. Both composition and configuration of urban growth require attention to ensure efficiency of a corresponding policy (Moein et al., 2018).

Figure 5. Destructing a mountain with its covering forest for exploiting mine in Golestan province, north of Iran (By author. Summer 2018).

Many environmental issues have been solved in the last three decades through collaborative management. Based on environmental and land management incentives, in order to sustainable development, interdependence among involved stakeholders and obtaining local needs are necessary. Besides, it is assumed that environmental public problems are not amenable to control satisfactory except with development of collaborative solutions. Many environmental issues have been solved in the last three decades through collaborative management. Although collaborative planning may take considerable time, effort, information, and funding but proponents argue leading to advantages over traditional policymaking. One potential benefit is the creation of plans that are more readily implemented. On the other hand, various environmental and socio-economic conditions may lead to conflicts among stakeholders, strategies and policies that cause barriers to proper management. However, Watershed management encircles conflicts arising from opposing interests or needs of stakeholders. Hence, because of multitude watershed management objectives with increasing competition for watershed resources, single task decision-making process is replaced with conflict analyzing approaches specifically game theory. Based on environmental and land management incentives, in order to sustainable development, interdependence among involved stakeholders and obtaining local needs are necessary. Besides, it is assumed that environmental public problems are not amenable to control satisfactory except with development of collaborative solutions (Adhami et al., 2018).

Collaborative management has occupied main house in thought and practice of natural resource management since the 1990s. The collaborative management is a cooperation process to participate in information collecting, decision-making and accomplishment of projects leading to resolve complex society-environment dilemmas. Collaborative approach has been applied in various areas such as policy making, economic development, medical care, food security, natural disaster management, soil and water conservation, landscape management, and watershed management. Collaborative Watershed management is also crucial to guarantee the ecosystem sustainability. A collaborative watershed management is a process, which includes relevant stakeholders to watershed resources. They interfere in decision-making to achieve ecosystem-oriented goals, such as water quality improvement, soil conservation and pollution control (Adhami et al., 2018).

The impact of players on joint decisions is controlled by strength of each participant's position for or against each of issues and power of a player to influence an issue as well. Much of the guidance on watershed management stated that people as the most impressive group by management decisions should be "involved throughout" and should "shape key decisions" (Adhami et al., 2018).

With respect the above issues, the governors and policy makers in environmental issues must consider rural people participation and collaborative management in various and throughout stages of protcting natural resources and rural areas against land use changing in order to accessing sustainable development in Iran.

5. Results

This study discussing various aspects of changing land use patterns in natural resources and rural areas toward establishing vacation homes (second houses) and land farms in them in Iran. After utilizing a wide qualitative approach, and applying its tools for gathering information such as participatory observation, discussions, maps, documents and pictures, following results achieved. In this regard author classified them as below in Iran:

5.1. Legislative Barriers and Short Comes

- Old and insufficient laws for protecting forests, mountains and agricultural lands.
- -Insufficient attention of policy makers and governors to environmental issues.

- Various barriers (economic, social, cultural, legislative etc.) for accessing to rural people participation and applying collaborative management for protecting forests, mountains and agricultural lands

5.2. Urbanization and Its Unfavorable Consequences

- High rate in growth of urbanization and its unfavorable consequences for environment.
- Changing desires of rich and medium people for having at least a second house for their families in rural areas and environment attractions because of their vacation times, pollutions in cities, investment and saving their money, etc. It also must be considered that some of the rich people having two, three or more second houses in different regions of Iran.

5.3. Industrialization and Its Unfavorable Consequences

- High rate in growth of Industrialization and its pressures and unfavorable consequences for environment.
- Prioritizing growth of Industrialization to environmental issues by many policy makers and governors (Especially in extracting from mines in protected environment lands of plants and animals etc. destroying natural hills for establishing airports, factories etc. by many policy makers and governors).
- Prioritizing accessing to self – sufficiency on strategic foods (wheat, rice, oil seeds, meat, milk etc.) by policy makers and governors with whatever means and costs after Islamic revolution in Iran in 1979.

It must be considered that over than 85 percent surface of Iran is covered by deserts (Iranian Bureau of Statistics, 2019). In this regard, emphasizing for achieving to self – sufficiency on strategic foods caused many problems for natural resources such as changing forests to farm lands and decreasing acreage of forest from 18 million ha in 1979 to less than 12 million ha in 2019, high rate of increasing floods in all parts of country because of destroying forests, laying down most fields of the country because of high rate of exploiting underground water sources for farms and agricultural lands specially during last four decades.

In this regard 5000 of natural resources and agricultural professors and experts in various and related organizations and universities wrote a letter to president of Iran in 2006 and explained that emphasizing for achieving to self – sufficiency on strategic foods caused destroying and many problems for natural resources, and it is better that these essential foods prepared by imports from global food markets and neighbor countries. They explained that this action is very essential for protecting natural resources for future generations and accessing for sustainable development (SD) goals in Iran. But because of various reasons government of Iran didn't approve their letter suggestions and solutions.

For example in the study area in Golestan province, north of Iran, is highly rich in terms (of) natural resources and there is also high potential of agricultural productivity. By way of contrast, urbanization and drastic alternation of vacant lands and agricultural fields into impervious surfaces are the dominant trends in the area and such challenging situation has caused much competitions between protection of productive lands and the intensive urbanization process in the area. In this study area in Golestan province, north of Iran, distance to main roads in the area is selected as the most important factor influencing urbanization suitability for establishing second houses (Figure 1, 2, 4 and 5).

6. Discussion and Conclusion

Author in this study attempts to provide a holistic insight regarding current conditions of these four provinces (Tehran, Golestan, Isfahan and south Khorasan) and also a simulation environment for planners to evaluate the possible outcomes of their decisions on forests, hills, mountains and fertile soils for future urban growth patterns. Sustainability is related about how individuals should act towards nature and how they are responsible for the other and the future (Oyku Iyigün, 2015). The moral values and principles of sustainable development refer to three aspects: economic, social and environmental, interconnected in a future plan to improve the present state of the world (Busoi, 2015). Building sustainable communities is an important aspect of achieving sustainable development (Shiel et al., 2018).

In fact, the sustainable development subsumes three dimensions: economic, social and environmental. The concept of social development refer to “the orientation of a community / institution towards accomplishing of a desirable state, established as attainable objective by a process planned in time, result of a set of conjugate actions” (Anghel et al., 2014). In any event, debates over land use policies almost always take the form of production of the food that sustains them. Moreover, the pre-eminence of cities contributes toward reinforcing territorial hierarchy in favor of a correlation between demographic density and political power that reproduces this sense of territorial order within society. Thus, town and country are commonly perceived to be distinct and dissociated based on a quantitative population hierarchy. Such a dichotomy is unjustified given the origin and destiny of the resources involved and consequent interdependency of theses paces (Paulino, 2014).

By guiding urban growth trajectories into areas that are also less potential for agricultural activities, these locations not only have potential lands for urban construction that are consumed, but also farmlands are protected from severe encroachment of urban

structures. In other words, urban growth must be directed in these locations that are of low potential for agricultural activities and simultaneously these lands have highly potential for urban construction (Moein et al., 2018).

A range of social and psychological factors are likely to influence whether and how social change processes result in particular types of human impact. Some land use changes are more visible than others in a physical or perceptual-social sense, and there is evidence that awareness of land use changes is variable. Even where there is awareness of land use change, identifying the nature of the social changes that accompany it, and attributing experiences (impacts) to those changes is fraught with difficulty (Kathryn and Williams, 2012).

It may improve communication, exchange, and provide the leadership for reaching of compromises and some social learning. Also, fostering more in- depth reflection and learning during policy implementation is more challenging, and would require more flexible policy and institutional arrangements. For example, greater local autonomy for policy implementers to work outside regulations and organizational targets, and build long-term relationships with target populations could be beneficial (Rouillard et al., 2014).

The increasing reliance on collaborative stakeholder partnerships to address watershed and other environmental issues has led to growing interest in understanding how such collaborative efforts operate. Of particular interest in this new form of governance is stakeholders' collaboration called as best co-management practices (Adhami et al., 2018). The proposed framework must balance the human benefits (e.g., water supply, agricultural products, employment and increasing income) with environmental indices (e.g., soil and water conservation, reduction of NPS pollution, sustainable development and land use management). Prioritizing different areas of a watershed based on different interests provides numerous benefits to managers and it is a useful tool for the government when preparing regional development strategies (Adhami et al., 2018).

These areas, especially Golestan, Tehran and Isfahan provinces are also the most potential zones for agricultural activities in Iran, which are mainly due to the existence of fertile and productive lands and availability of water resources (rainfalls, rivers and underground waters). Such conditions have created much land-use competition such that planners in most of the cases have to find compromised solutions between the increasing demands for urban construction and protection of agricultural fields for future food security purposes (Figure 6, 7 and 8). Also in case of agriculture suitability surface, it must be considered factor layers including soil potential and accessibility to surface and underground water resources before changing utilization of land farms to new human settlements (Figure 6, 7 and 8). In these areas with natural attractions and sub-watersheds mountainous status, holly shrines, ancient cemetery and verdurous grasslands tourism development must be proposed and considered (Figure 6, 7 and 8).

Figure 6. Changing domain of mountains and natural hills to gardens and second houses for vacations of rich and powerful urban people in south Khorasan province in east of Iran. This unfavorable phenomenon occurred without law permissions of responsible organizations but gradually after 2-5 years later, rich and powerful urban people achieving their law permissions from responsible organizations by various ways (By author. 2018).

Figure 7. Destructing domain of mountains and natural hills for establishing gardens and second houses for vacations of rich and powerful urban people in Damavand city, Tehran province, capital of Iran. This unfavorable phenomenon occurred without law permissions of responsible organizations but gradually after 2-5 years later, rich and powerful urban people achieving their law permissions from responsible organizations by various ways (By author. November 18, 2018).

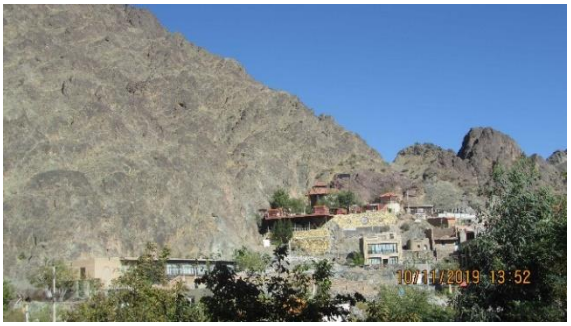

Figure 8. Destructing domain of Bagheran mountains range for establishing touristy restaurant and hotel in Birjand, south Khorasan province, east of Iran. This established in beginning without law permissions of responsible organizations but after 2 years later, owner got its law permissions from responsible organizations by various ways (By author. October 11, 2019).

In the end it must be emphasized that during establishing new urban regions, governors and policy makers must be considered several criteria including distance from main roads, distance from current residential zones, distance from the city center of province, distance from cultural-recreational centers and distance from economic-commercial sites for urbanization suitability mapping (Figure 9).

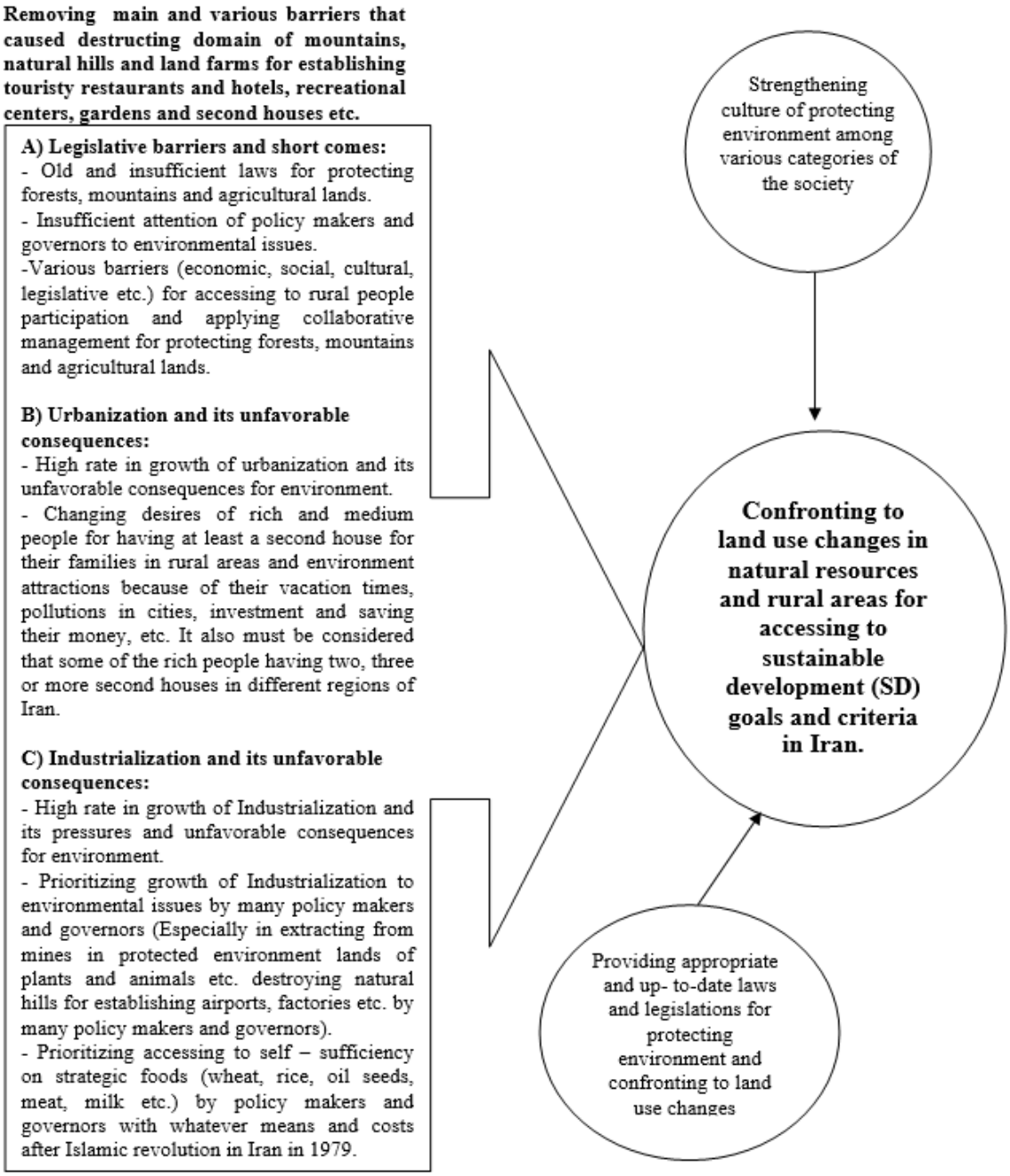

Figure 9. Final and exigency acquired model on the ways of confronting to land use changes in natural resources and rural areas for accessing to sustainable development (SD) goals and criteria in Iran.

Conflict of interest

The author declares that there is no conflict of interest.

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