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Evaluating the Sustainability of the Spatial Planning Documents in Iran from the Perspective of Green Economy Approach

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ABSTRACT

The ineffectiveness of the unidirectional approaches during recent decades has caused the world to encounter numerous challenges in sustainability and persistence grounds. Now that decades have elapsed since the sustainable development concept was first introduced, there are numerous operational and assessorial instruments within the format of methods of sustainability evaluation for tracking and reporting the performance of the developmental policies and plans. In line with the operationalization of this concept and codification of a framework for assessing and measuring the amount of economy's progress parallel to the sustainable development goals, the green economy notion was transformed into one of the primary courses of development and economy discourse. The green economy is defined as an equivalent for an environment-friendly, low-carbon, and low-emission economy that respects the ecological frameworks and capacities and supports the peaceful human-nature symbiosis. Based thereupon, the present study has been dedicated to the subjective evaluation of the spatial planning documents' sustainability status in Iran, including the "national criteria for spatial planning, passed in 2004" and "national guidelines and orientations of spatial planning, passed in 2017" from the perspective of "green economy" approach. In the end, as well, planning solutions' suggestion has been placed atop of the agenda for the actualization of green economy approaches in Iran's provincial regions. The study's main question has been organized about the subject that how much have planning efforts been able to take steps in line with the actualization of the sustainability goals from the perspective of the green economy approach. In this regard and within the format of the macro-level methodology "the framework of sustainability status evaluation" and "benchmarking through the composite index (CI)", several steps have been taken with two primary intentions of the comparative evaluation of Iran' provincial regions status and evaluation of the amount to which the green economy concerns have been taken into account in the spatial planning documents based on the provincial differences and good results have been attained. After codifying the green economy measurement model through subjective studies based on the meta-synthesis method and status assessment, it was made clear that Iran's provincial regions are not generally in an optimal status in terms of this index. The results of the spatial planning documents' subjective evaluation, as well, indicate that spatial planning guidelines have performed weakly in grounds of inclusive and welfare economy in terms of wealth distribution but the green economy goals have been met to an acceptable amount concerning instruction and health. Concerning the efficient and low-carbon economy, particular emphasis has been made in these documents on the innovation and use of modern global ideas and plans and the emphasis on economic growth and income is still on an industry like before. The main weakness of these documents is in their ineffectiveness in terms of resources' productivity, less attention to the reduction of pollutants and greenhouse gases' emission, and inability in responding to the climatic and ecological problems and crises.

Keywords: *sustainable development, spatial development plans' sustainability status evaluation, Iran's spatial planning documents*

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1. INTRODUCTION

The ineffectiveness of the unidirectional approaches to growth and development during the recent decades has caused the global community to face with numerous challenges, including environmental pollutions, severe ecological deficits, water resources crisis, climatic changes, economic and financial crises, inequalities and lack of land balances and other cases of the like and these have incumbently forced the global actors to shift their approaches towards sustainability. Now that decades have elapsed since the sustainable development concept was first proposed to guide the interventions and actions related to growth and development towards the path of sustainability, there are numerous operational instruments and assessorial frameworks suggested and codified within the format of the sustainability evaluation methods for tracking and reporting the performance and orienting the developmental policies, programs, plans and interventions in transnational, national and regional levels.

In line with the operationalization of the sustainable development concept, the green economy notion was first

applied in 1989 by a group of pioneer economists in environmental grounds to arrange the operational examples and agendas of sustainable development and codification of a framework for assessing and measuring the economy progress rate parallel to the goals of sustainable development within the format of a report for England's government. During the past several decades, especially after the publication of the UN's efforts and since 2011 on, the green economy notion became the primary course of development and economy discourse to fight the stagnation and supply long-term economic security and, simultaneously, lowering carbon and achieving the sustainable development goals and led to the codification of growth and development strategies around the globe and transformation of the policies towards such economic sectors as clean technologies, renewable energies, water services, green transportation, waste materials management, green buildings, and sustainable agriculture and forests. A green economy is defined as an equivalent to an environment-friendly, low carbon, and low emission economy that respects the ecological frameworks and capacities and supports the peaceful human-nature symbiosis. In line with the implementation of this concept and to enter the green economy concerns into the countries' economic development programs and run the green growth plans and strategies, many assessorial scales and frameworks have been arranged and published during the recent years; United Nations' development program (UNEP), "reports towards the green economy" by the Organization for Economic Cooperation and Development (OECD), as part of the member countries' larger agenda about the welfare and sustainability, World Bank's report and Global Green Growth Institute (GGGI) are amongst these endeavors. However, even with all the efforts made in this regard, many countries like Iran are not still enjoying appropriate scales for tracking and evaluating the sustainability status of their developmental policies, programs, measures, and interventions.

Based on the above-presented introduction and with the intention of maximal operationalizing and entering the sustainability-related concerns into the national spatial development policies and programs in Iran in the present study, the sustainability status of Iran's spatial planning documents will be subjectively evaluated herein from the perspective of the green economy. According to the fact that about forty years have elapsed since the initiation of the first efforts in the area of spatial planning in Iran and we are now about to begin the studies related to "the project of codifying national spatial planning documents", it seems that the results of the present study, though being preliminary, can open an orifice for positing and institutionalizing the green economy concept and approach in one of the most important of Iran's spatial development planning documents. Based thereon and to demarcate the studies' framework, the present study's agenda and goal have been allocated to the evaluation of the documents related to "national criteria of spatial planning, passed in 2004" and "national spatial planning guidelines and orientations, passed in 2017" and, finally, suggesting planning solutions for actualizing the green economy approaches in Iran's provincial regions. The main study question has been put forth and organized about the idea that to what extent have these efforts been able to take steps in line with the actualization of the sustainability goals from the perspective of the green economy?

Theoretical and Empirical Foundations Related to Green Economy Motion (Study Literature):

One decade after earth summit was held by UN in Rio De Janeiro, the global sustainable development meeting (Rio 10) and, recently in 2012, UN's sustainable development conference (Rio 20+) was held again. During these years, numerous international declarations have been made regarding sustainable development. Claiming to offer operational programs, agenda 21 asserts that sustainability lies in creating a balance between three pillars "economic progress and growth", "social equality" and "environment conservation". Following this agenda, UN and other writers have endeavored to offer numerous conceptual frameworks for perceiving and assessing sustainability; including the 5Ps conceptual framework (encompassing five aspects of the planet, people, prosperity, partnership and peace as announced in sustainable development goals (SDG) for 2030), sustainability circle suggested by the UN and ecologically sustainable design tool (ESDT) under the title of sustainable development matrix (comprehensive green development strategy, SLDI, 2010).

Even with all the efforts made for operationalizing this concept, little progress has been made in line with the actualization of the sustainable development goals due to the uncertainty of the agreed operational solutions and absence of a codified assessorial framework. Many of the countries are not still having appropriate scales for tracking environmental performance and reporting their sustainability status. Considering the above-presented introduction, the green economy notion was first applied in 1989 by a group of leading economists in environmental grounds (including Pearce et al[1]) to arrange the sustainable development's operational examples and agendas and codify a framework for assessing and measuring the extent of progress made parallel to the sustainable development goals within the format of a green economy blueprint for England's government. This is while no reference has been made in this blueprint to the green economy except in its title so it seems that it has been added after the codification of the blueprint to the title within the format of an afterthought.

In the continuation of the efforts in this regard, reports were later on again published in 1991 and 1994 under the title of the second[2] and the third[3] work plans, "global economy greening" and "sustainable development assessment". While the first report pointed to the necessity of the economic policies parallelism to the environmental principles, the intention of the later supplementary reports was the universal expansion of this message to confront problems like climatic changes, ozone layer destruction, tropical deforestation, and loss of the resources in the developing world. In 2008, this notion was again revitalized as a political reaction to the numerous and multilateral global crises (financial and global stagnation); in this regard, UN's environmental program (UNEP) supported the idea of "green stimulus package" for

[1] Pearce, Markandy and Barbier (1989)
[2] Blueprint 2: Greening the world economy
[3] Blueprint 3: Measuring Sustainable Development

certain regions wherein general and huge investments lead to green growth and founded the green economy programs in line with supporting the investment in green sectors; moreover, in April 2009, a report under the title of "global green new deal (GGND)", including a collection of economy recreation operational policies, was published by one of the green economy work plan's writers. Aiming at the fight against the economic stagnation as well as long-term security supply and economic conditions' improvement, the report invited the states to allocate a considerable quotient of their budgets to the green sectors with three primary goals of improving economy, uprooting poverty and reducing carbon emission and ecosystem destruction (Allen, 2012; Dalal-Clayton, 2013; UNEP, 2012; Boehnert, 2016).

In June 2009, at the same time with preparing for the UN's climatic change conference in Copenhagen, an interagency announcement was made for supporting the green economy as a solution for confronting with numerous crises. Furthermore, aiming at confrontation with poverty and achieving sustainable development, the UN's general assembly selected and introduced a green economy notion as one of the two special subjects of the Rio+20 conference that led to the drawing of a lot of attention worldwide in this regard. Green economy report (GER) of the UN's environmental program was published in 2011 in the continuation of these efforts. In December 2011, in cooperation with more than 40 expert organizations, including the UN's plans and organs, the UN's environmental management group published its general perspectives regarding the green economy under the title of "working towards an inclusive and balanced green economy". The green economy notion was authenticated in a conference in 2012 by UN (Rio+20) as an important path towards the achievement of sustainable development and confrontation with poverty that leads to the human welfare and social justice and, simultaneously, reduction of the bioenvironmental hazards. UN's green economy approach guides economic activities and investments towards a new generation of capitals: clean physical capital, natural capital, healthy and green workforce, and fair social institutions (UNEP, 2015, p. 4; United Nation, 2011, p. 71; Wanner, 2015, p. 22). During the past decades, especially after the UN publicized its efforts, the green economy effort became the main course of the development and economy discourse and led to the codification of growth and development strategies around the globe and transformation of policies towards such economic sectors as clean technologies, renewable energies, water services, green transportation, waste materials' management, green buildings and sustainable agriculture and forests (Raul Gouvea, 2013, p. 221; Dalal-Clayton, 2013, p. 9).

Like the ambiguous sustainable development notion, there is still no comprehensive and agreed definitions for green economy and green growth (UN, 2011, p.4). Although the majority believes even with the difficulty in separating this notion from sustainable development (Brand, U., 2012; Tienhaara, 2014) that green economy is a novel reinterpretation of the sustainable development concept (United Nations, 2012) and the new agenda and paradigm of the 21st century (Dalal-Clayton, 2013, p.10) that tries to offer creative solutions for confrontation with numerous global challenges within the framework of ecological capacities, the green economy theory signifies that the economic systems should be committed to ecological systems (Boehnert, 2016, p.397). In this framework and following the global economic crises, poverty and climatic changes, some writers like Nahman et al (2016) and institutions like World Bank (2012), UN's environmental program (UNEP, 2011) and UNESCO (2011, p.8) consider inclusive green economy and green growth as an "important instrument and path" for achieving the final goal of sustainable development, i.e. people's welfare meanwhile respecting the environment; environment-friendly, low carbon and low emission economy that respects the ecological frameworks and capacities leads to the creation of green jobs and entails competitive ruling (inclusive, participatory, accountable and transparent) and integrated decision-making. In a common and comprehensive definition, United Nations' global compact (UNGC) and UN's environment conservation program realize green economy as an economy with 1) lowest carbon emission rate, 2) resource efficiency and 3) social inclusion and consider it as aiming at improving the mankind welfare and simultaneously social equality as well as enhancement of the environmental concerns (UNGC, UNEP, Oxfam, & WRI, 2011, p. 6). Economic institutions like the organization for economic cooperation and development (OECD) and the international chamber of commerce (ICC), as well, define the green economy as a type of economy wherein "economic growth and improvement" and "environmental accountability" are parallelly taken into consideration and simultaneously support the social development (Bacher, 2011, p. 2; UNEP, 2012, p. 5). Some of the others like Moore et al (2014, p.17) as well as UNEP's green economy report (2012) have determined certain economic sectors (10 sectors) and consider the green economy as the opportunity for growth in grounds like energy and water services, waste materials management, low-carbon transportation and clean energy. Dissimilarly and aiming at guiding Britain's economy towards an economy with greener footing, the British environment department did not limit this notion to certain sectors of the economy and realizes it as a specialty for the whole economy that leads to the increase in growth along with environmental sustainability. This group's vista has been long-term sustainability enhancement, efficient use of natural resources, more resilience, and exploitation of the competitive advantages. FROME, (Rao, 2012, p.1) defines a green economy as not a fixed situation but a process of dynamic and constant change and evolution that causes mankind welfare and fair access to equal chances for all of the people and protects the environment and economic integration with an environment-wide capacity. Green economy coalition (GEC) realizes this notion as meaning a resilient economy that brings about better life quality for everyone within the framework of the planet earth's ecological limitations. Carfi and Schiliro (2012, p.1215), as well, realize it as an economy based on sustainable development with its result being an improvement of human welfare and social justice and, simultaneously, reduction of environmental risks and compensation of ecological deficits. Individuals like Xiaowei et al (2011, p.1367) define the green economy as an equivalent to a low-carbon economy with low energy consumption and low pollution and waste materials' production and state that it is people-oriented and supports the peaceful human-nature symbiosis.

Even with all the numerous existent definitions, the clear thing is that the "green economy" notion emphasizes on the

economic aspect of sustainability. Reference has been made in the recent report by UNEP about the green economy to the term "economy right" with the intention that economy can be considered as a supplementary strategy at the service of environment conservation meaning that the income growth and job creation should occur through public and private investments in such a way that they can lead to the reduction in carbon and pollution emission and increase in energy and resources productivity and prevention of the ecologic services and biodiversity losses. These matters are specifically important for poor people whose sustenance and security depend on nature (UNEP, 2011, pp.16-18). Resultantly, the movement towards a green economy should be transformed into the economic agenda and strategic policy for achieving sustainable development. This is while the green economy does not exclusively concentrate on the elimination of the environmental problems and extant shortages and this is one of the other aspects distinguishing this term from the comprehensive concept of sustainable development.

Conceptual Framework and Study Methodology:

In this section, following the documentary review of the subjective and objective studies existent about green economy and approaches and methods of its evaluation based on a meta-synthesis method, the conceptual-theoretical framework of the study is firstly offered and the study's methodological model is secondly introduced in line with the operationalization of this framework about the selected study case. In the end, as well, the selected study case and the reason for its selection will be subsequently presented.

Study's Conceptual and Theoretical Framework:

A review of the existent theoretical and empirical basics based on the meta-synthesis method led the authors to the determination of four primary indicators for green economy within the format of the study's conceptual model (as explicated in image 1). These indicators are "resources' efficiency and sustainable production and consumption, "efficient, low-carbon and dynamic economy", "inclusive and welfare economy" and finally "green jobs". These four indicators along with the subscales of each of them as well as the indices they offer for recognizing the problem, policy-making, evaluation, and supervision are amongst the most original issues that should be taken into account for the implementation of green economy and, in case that the performance of each economy is improved through these principles via adjusting these indices to the local and special geographical situations, it will be followed by economic growth along with environmental sustainability in the long run. It can be eventually asserted that green economy approach tries more subtle exploration of the sustainable development issues thereby to implement and operationalize its policies in all the communities and it intends that the transition from unsustainable (brown) and highly consuming economy towards green and sustainable economic patterns can be eased via adopting the green economy policies and strategies in all the policy-making levels (national, regional and urban) and exercising continuous supervision on the countries' economic progress and development process and exchanging their successful experiences in the international meetings.

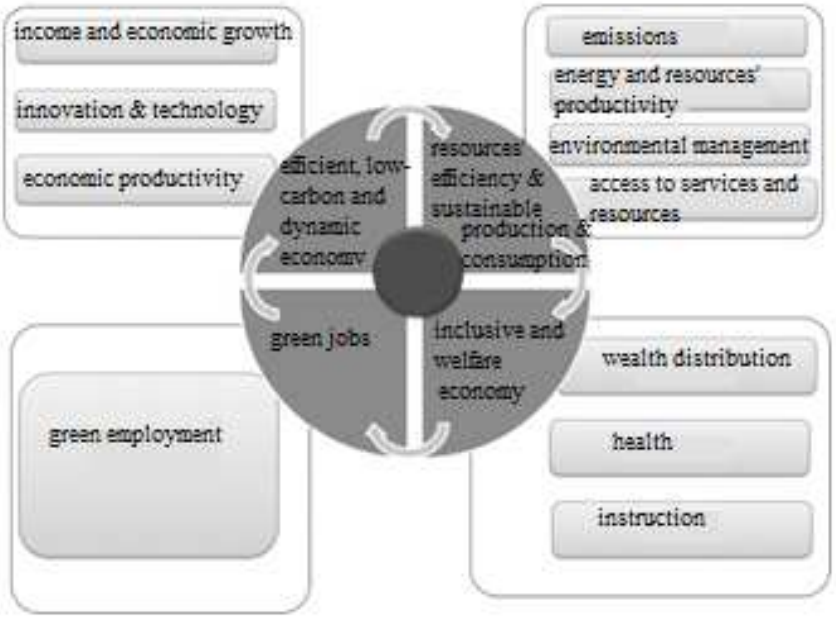


Image (1): A conceptual framework of green economy notion (proposed in this study)

Efforts will be subsequently made to offer an appropriate instrument for evaluation of the selected study case based on the green economy notion through codifying a model for evaluating and indexing this conceptual model.

Study Methodology's Framework:

As it was also explained before, the present study has been dedicated to the subjective evaluation of the spatial planning documents' sustainability status in Iran, including "the national

spatial planning criteria, passed in 2004" and "national spatial planning guidelines and orientations, passed in 2017" from the perspective of "green economy". In the end, as well, suggestions for planning solutions for the actualization of green economy approaches in Iran's provincial regions are on the agenda of the current research paper. The primary study question has been organized about the idea that how much have these efforts been able to take steps in line with the actualization of the sustainability goals from the perspective of the green economy? In this regard and within the format of the study's macro-level evaluative methodology and the codification method of "sustainability status assessment framework" and "benchmarking" through the composite index (CI), several consecutive steps have been taken as explained in an image (2) and some results have been attained.

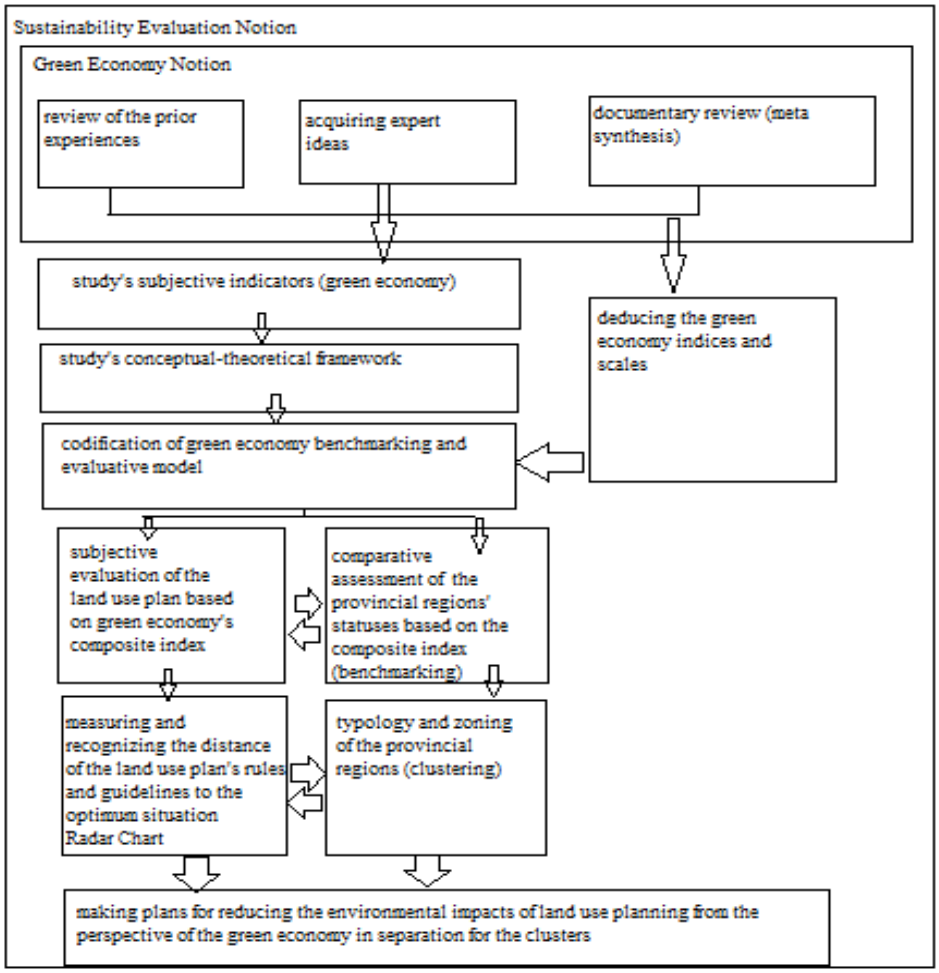


Image (2): the study's methodological framework and evaluation model

Codification of the evaluation and assessment model necessitates indexing the study's conceptual model. A review of the various texts enables the tracking of four primary sources regarding green economy indices (Neda'ei Tusi and Malek-Khani, 2018): 1) UNEP's green economy scales (UNEP, 2011) that include three topics (UNEP, 2012): A) scale related to the environmental subjects and goals that should be observed in the codification of the green economy policies and encompass such subjects as climate change, ecosystem management, resources' efficiency, waste materials' management and so forth; B) scales related to political interventions, including green investment, green monetary reforms, external profits' pricing, and ecosystem services valuation and C) scales related to (welfare and equality) effects that are applied for evaluations before and after the implementation of the programs and policies and embrace such topics as employment, economic performance, human and natural capital, access to the resources and health. The second report is related to OECD's assessorial green economy framework which has been offered as a part of a vaster agenda by the member states in the area of wellbeing and stability within the format of the report "towards green growth: monitoring progress" (OECD, 2011 and 2014). In this framework and after asking several questions about the economic-social grounds as well as the properties of the countries' economic growth, numerous scales have been offered for several typical groups; resources and environment productivity (including the energy and carbon productivity, resources' productivity, multivariate productivity, technology and innovation), natural assets (including natural resources,

renewable reservoirs, non-renewable reserves, biodiversity and ecosystem), quality of life from the perspective of environment (including health and environmental risks, services and environmental facilities), economic opportunities and political responses (including environmental goods and services, international financial stream, prices and transfers, regulations and managerial solutions and instruction and skill-teaching); the third report, as well, is pertinent to world Bank's framework (World Bank, 2012) which has been proposed and utilized for measuring the potential advantages of the green growth policies as an effective tool for implementing the system of economic and environmental accounting (SEEA). This framework includes three topics, namely economy (including the increase in the production factors, facilitation of innovation and knowledge and enhancement of the profitability), improved environment and society (including resilience against the natural and manmade accidents and crises and employment and poverty reduction). The last report is also related to the green growth scales of the global green growth institute (GGGI) which has been arranged to implement the green growth programs and strategies and enter the green economy concerns into the developing countries' economic development programs (Platform, 2013); in this framework, the scales are divide into two typical sets of the scales related to development and scales related to sustainability. The subject (1) includes the micro-development of such issues as welfare and economy and the subject (2) incorporates micro-sustainability of the issues like an ecosystem, resources, and climate. In this framework, there are also indices offered for assessing the scales of each set, as well. Table (1) reviews and sums the indices mentioned in the study's conceptual model as well as the assessment of their validity and reliability based on specialized interviews that led to the codification of the study's measurement model within the format of the green economy indices.

Table 1: benchmarking and evaluative model of green economy approach (proposed in the present study)

Topic	Subtopic	Index	Source of retrieving the index-related data
Inclusive and welfare economy	Wealth distribution	The employment rate (the ratio of the employees to the active population)	Indices of article 68 of the law on the fifth development program, 2014, Iran's statistics center
		Gini Coefficient	Gini coefficient is 2014, Iran's center of statistics
		The share of the individuals who live with less than one dollar per day	Indices of article 68 of the law on the fifth development program, 2014, ministry of power
	Health	Life expectancy (number of years)	Indices of article 68 of the law on the fifth development program, 2014, Iran's statistics center
		The ratio of the deaths in children below 5 to the total number of the mortalities	Indices of article 68 of the law on the fifth development program, 2014, Iran's statistics center
		Per capita of the active hospital beds in every province	Statistical yearbook of healthcare and treatment organization, 2015, Iran's center of statistics
		Per capita of the physicians in every province	Statistical yearbook of healthcare and treatment organization, 2015, Iran's center of statistics
		Population covered by the urban water network (percentage)	Indices of article 68 of the law on the fifth development program, 2014, ministry of power
		Number of active treatment institutions in every province (relative quotient)	Ministry of healthcare, treatment and medical instruction, statistics management, and information technology office, 2014
	Education	The literacy rate of the 6-year-old and older population	Education statistical yearbook, 2015, Iran's center of statistics
		The ratio of the students' number to the 7 to 18-year-old population	An eclectic compilation of the results of general population and houses census, Iran's center of statistics, 2011
		The ratio of the university students' number to the total population above 18 years of age	An eclectic compilation of the results of general population and houses census, Iran's center of statistics, 2011
Efficient, low carbon and dynamic	Income and economic growth	Per capita of the gross domestic product (without oil) (thousand RIALS), 2014	Iran's center of statistics
		The ratio of the added value in 2014 (million RIALS) to the population in 2014	Iran's center of statistics
		Province's share of the gross domestic	Iran's center of statistics

		product (thousand RIALS), 2014	
		The ratio of 2014's gross domestic product to 2009's gross domestic product	Iran's center of statistics
	Innovation and technology	Costs of research and development in workshops with research and development activities (million RIALS), 2010	Results of a survey on the workshops with research and development activity, 2010
		Share of each province in the country's wind power generation (the ratio of the nominal capacity of the turbines in every province to the total nominal capacity of the country's turbines)	Energy balance sheet, 2014
	Economic productivity	Workforce productivity (the ratio of the province's added value to the number of employees)	Iran's center of statistics, 2014
		The total amount of the province's added value to the whole province's intermediate consumption (billion RIALS), capital productivity	Iran's center of statistics, 2014
		Gross domestic product with oil (million RIAL), 2011	Investigation and rating of the GDP and added value of the country provinces' economic activities in 2011
		Total productivity (mean workforce productivity and capital productivity)	Iran's center of statistics, 2014
Resources' efficiency and sustainable production and consumption	Resources and energy productivity	Total province's added value to the whole water resources	Province's water potential, 2014
		Average per capita of home electricity (kilowatt-hour)	Indices of article 68 of the law on the fifth development program, 2014, ministry of power
		The amount of internal electrical energy sales in the industrial sector (kilowatt-hour) to the number of home electricity subscribers	Energy balance sheet, 2014
		The amount of internal electrical energy sales in the home sector (kilowatt-hour) to the number of home electricity subscribers	Energy balance sheet, 2014
		Total energy consumption in industrial workshops with ten employees and more to the industry's added value (%), 2010	Iran's center of statistics
		Amount of benzene used in the transportation sector (thousand liters) to the total population of the province	Energy balance sheet, 2014
		Amount of benzene used in an industry sector (thousand liters) to the added value of the industry sector (%)	Energy balance sheet, 2014
		Sum of the fossil fuels consumption in respect to the total added value of the province (%)	Energy balance sheet, 2014
	Access to the services and resources	Share of the population covered for the use of urban sewage in comparison to the total urban population (%)	Indices of article 68 of the law on the fifth development program, 2014, ministry of power

		Percentage of the households consuming piped water (urban and rural)	Indices of article 68 of the law on the fifth development program, 2014, ministry of power
		The ratio of the total length of roads network to an area	Indices of article 68 of the law on the fifth development program, 2014, ministry of road and urban engineering
		Internet influence coefficient (%)	Center for the management of the country's national internet development (CNID), 2012
	Emissions	Amount of the pollutant and greenhouse gases' emission resulting from the consumption of various kinds of fuel in the public sector (tons) in respect to the total provincial population	Statistical environment yearbook, 2015, Iran's center of statistics
		The social cost of pollution based on the mean share in the use of pollution-counteracting equipment	Tax research journal, 2015
		Amount of CO2 emission in the country's provinces (tons), 2011	Seasonal journal of environment and energy economy, 2013
		Per capita of carbon dioxide emission in the country's provinces (ton per every individual), 2011	Seasonal journal of environment and energy economy, 2013
	Environmental management	Water resources monitoring index in the country's provinces	Ministry of power, 2013
		Total area of the province's forests to the total provincial area (hectare)	Environment statistical yearbook, 2015, Iran's center of statistics
		The total sum of accessible water resources volume in comparison to the province's population (%) (million cubic meters)	Province's water potential, 2014
		Added-value of agricultural, foresting and hunting sector to the total added value	Statistical yearbook of national accounts, 2015, Iran's center of statistics
Green jobs	employment	The ratio of literate employees to the total number of employees	Iran's center of statistics, 2011
		Employees in the green job groups to the whole population	Iran's center of statistics, 2011

Introducing and Explaining the Reason for Selecting the Study Case: according to the report "100 strategic issues of Iran" (Islamic Consultative Assembly's research center, 2017), numerous economic issues and environmental and ecological crises are threatening the country. The most substantial of these problems are the water resources supply and transfer crisis, poverty, economic stagnation, air pollution crisis, biodiversity destruction, forests, and bio- and animal species. Also, negligence of environmental sustainability, destruction of the soil resources, health problems stemming from various kinds of pollution, energy productivity necessity, and recycling management ineffectiveness can be added to the abovementioned problems. These are amongst the risks and hazards that cause the future process of the country's sustainable development to face serious problems. Although some of the economic indices like the per capita of GDP have been increasing during the recent years, the investigation of the resources and energy consumption trends, generation of various kinds of pollutions and destruction of the natural capitals as explained by the truths depicted in diagrams (1) to (4) demonstrates that such development has been achieved at the cost of losing the natural capitals and resources and pollution production and such a type of development pattern cannot at all be sustainable over time.

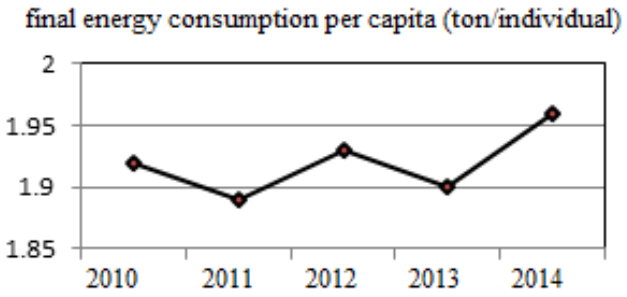


Diagram (1): time series of the final energy consumption per capita in-country

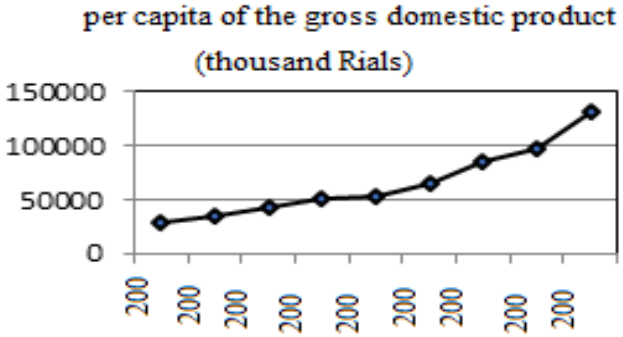


Diagram (2): time series of the GDP per capita in the country

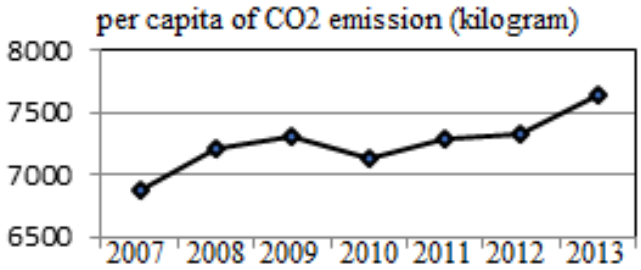


Diagram (3): time series of carbon dioxide emission per capita in the country

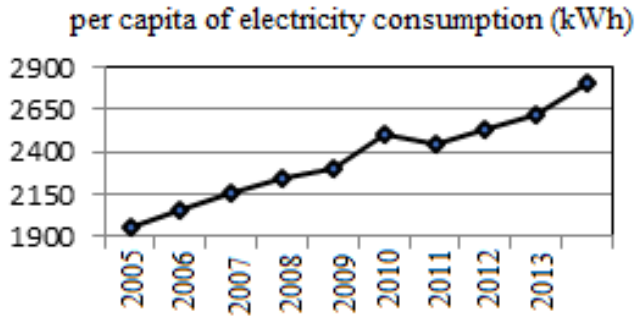


Diagram (4): time series of power consumption per capita in the country

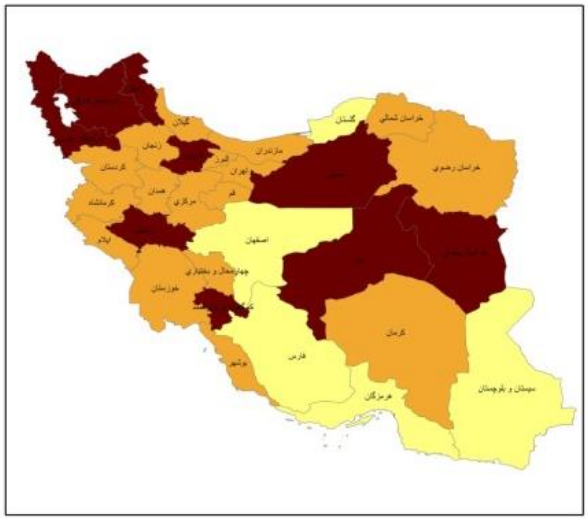
In the same way that sustainability approaches like green economy are used globally for fighting such economic and environmental crises, the solution to the confrontation with such a problem in Iran, as well, is through approaches like the green economy. Since macro-level plans like spatial planning have the highest influence on the country's planning system

and any change in the development pattern begins from these plans and infiltrates into the downstream plans, Iran's spatial plan along with the national criteria that were codified in 2004 and the spatial planning guidelines, enacted in 2017, has been placed atop of the present study's evaluation agenda. Additionally, considering the high priority of preparing a new spatial plan, it seems necessary to come up with suggestions for revising the strategies and orienting them towards the principles of sustainability and the green economy.

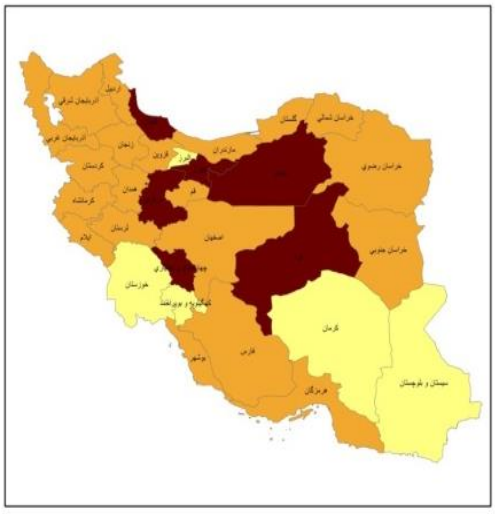
Analyzing and Investigating the Findings:

Iran's collection of spatial planning studies has dealt with planning operation to a lesser degree but they have resulted in deepening and nationalization of the spatial planning basics in the theoretical domain. The accumulation of spatial planning experiences and lessons under the conditions that the country's problems were not so much substantively different from the past in addition to a modern setting of the internal environment's conditions and expectations after the imposed war and also the experiences that had been gathered following the preparation and implementation of two development programs as well as the external changes stemming from the Soviet Union's collapse and the global evolutions led to an order by the cabinet during the second half of 1997 for performing the second round of the spatial planning studies. The results of the first stage of the recent round of spatial planning studies were completed with the offering of the sum of the first stage's studies, including the "basic national development theory" that was composed of the most original lines and orientations of the country's development as well as the "long-term spatial development perspective" and these altogether set the ground for taking major steps towards the codification of the spatial planning document. It was with the offering of the basic national development theory in the cabinet and the government's emphasis on the continuation of the studies that the collection of the "basic national development theory" was finalized in the sessions held by the "management and planning organization's spatial planning council" and became the basis of the spatial planning studies in the detailed stage. The studies' summing stage, as well, was in 2003 and the results were prepared for offering to the board of ministers. However, it was with the entry of the management and planning organization followed by the entire governmental system into the process of panorama codification in conjunction with expediency discernment council that the preparation of the fourth program's bill was followed by a pause in the offering of the spatial planning documents to the cabinet. In the meantime, the preparation of the two documents, namely national vision plan and the fourth development program's bill was a welcomed opportunity for applying the sum of the recent spatial planning studies for the maximal enrichment of these documents thereby to enter the spatial planning solutions into the programming operation (Khanifar, 2010).

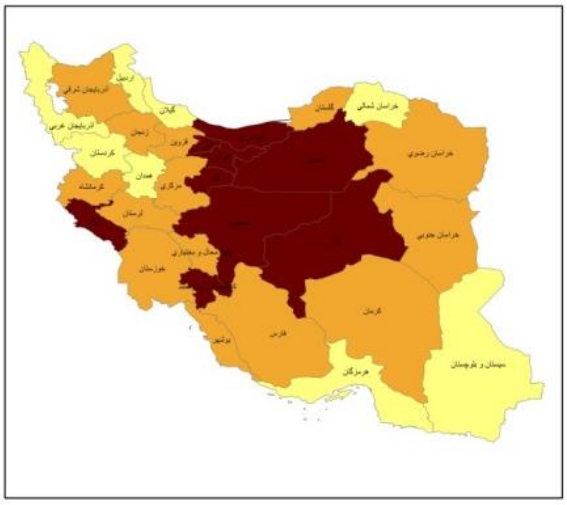
The evaluation of the statuses of Iran's provincial regions within the format of research and assessorial model in the first step in each of the four topics and subtopics delineated in the conceptual model resulted in findings that have been explained in images (3) to (6). In these maps, the more strongly colored (brown) regions have acquired higher scores in green economy topics and subtopics in contrast to the other regions. In the inclusive and welfare economy sector as portrayed in the image (3), provinces like Tehran, Semnan, Markazi, Yazd, and Chahar Mahal and Bakhtiari are in the superior cluster considering their educational, sanitary and healthcare infrastructures as well as better life quality. The spatial planning should think of various mechanisms for each of these clusters so that it can eventually lead to the national spatial planning and life level enhancement both in hygiene and treatment and in educational matters as well as in economic and sustenance-related issues.



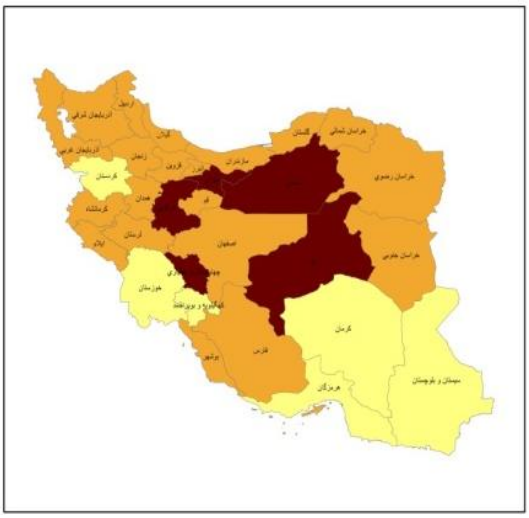
Provincial regions' scores in the subtopic "wealth distribution" from the topic "inclusive and welfare economy"



Provincial regions' scores in the subtopic "health" from the topic "inclusive and welfare economy"



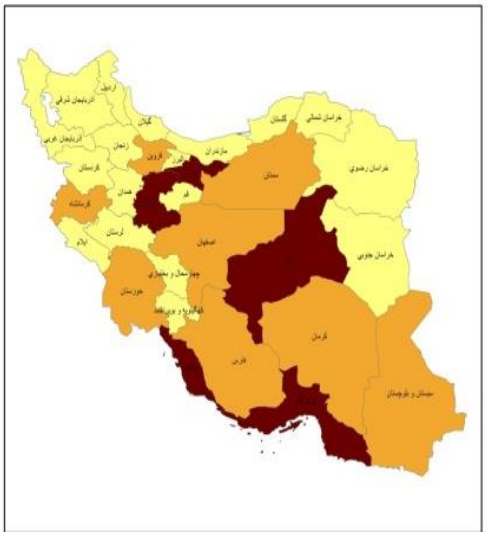
The score of the provincial regions in the subtopic "Education" from the topic "inclusive and welfare economy"



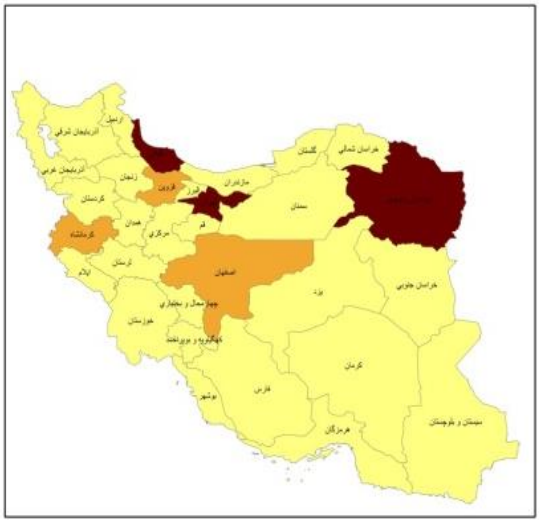
Sum of the provincial regions' scores in the macro-topic "inclusive and welfare economy"

Image (3): status assessment of Iran's provincial regions based on the proposed green economy assessment model concerning the first topic "inclusive and welfare economy"

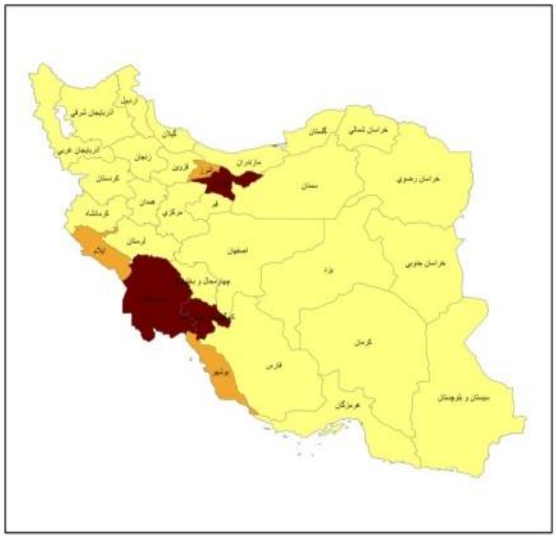
In the topic "efficient, low-carbon and dynamic economy", as explained in the image (4), Tehran and Gilan are enumerated amongst the most efficient provinces. Except for some of the provinces in the central regions, the other provinces have an unacceptable situation that needs serious planning and investigation.



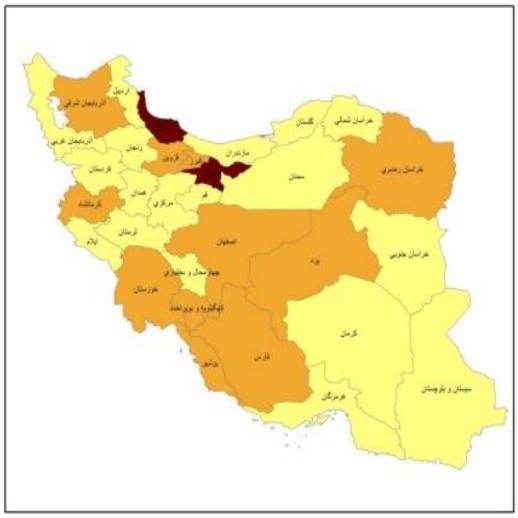
The score of provincial regions in the subtopic "income and economic growth" from the topic "efficient, low-carbon and dynamic economy"



The score of provincial regions in the subtopic "innovation and technology" from the topic "efficient, low-carbon and dynamic economy"



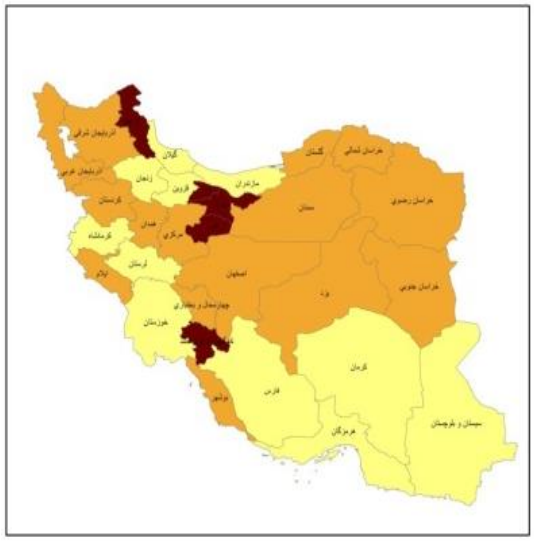
The score of provincial regions in the subtopic "economic productivity" from the topic "efficient, low-carbon and dynamic economy"



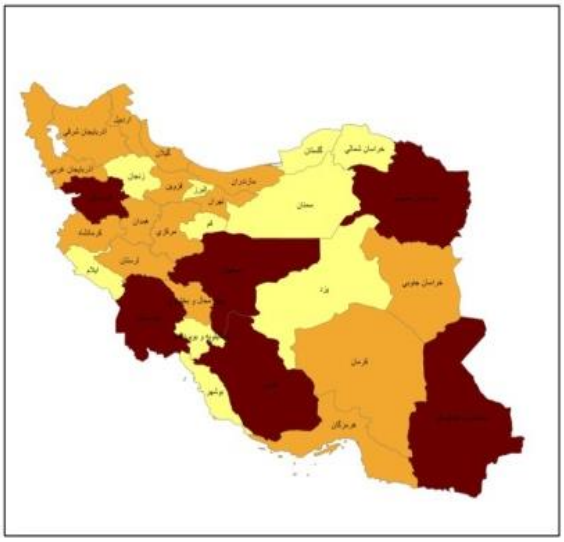
Sum of the provincial regions' scores in the macro-topic "efficient, low-carbon and dynamic economy

Image (4): assessing of Iran's provincial regions statuses based on the proposed green economy assessment model in terms of the second topic "efficient, low-carbon and dynamic economy"

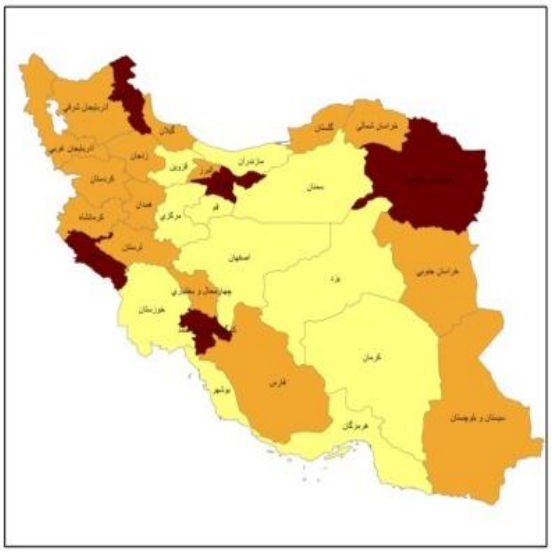
Based on the evaluations of the topic "resources' efficiency and sustainable production" as explained in the image (5), a vast part of the country's provincial regions, especially in the center and south, have weak performance in this topic. Only Tehran, Ardabil, Ilam, and Kohgiluyeh and Boyer Ahmad from the first cluster have shown an acceptable efficiency of the resources. The topic "resources' efficiency" which is one of the most important of the sustainable economy indicators needs serious attention countrywide as well as a shift of approach towards sustainable production and consumption.



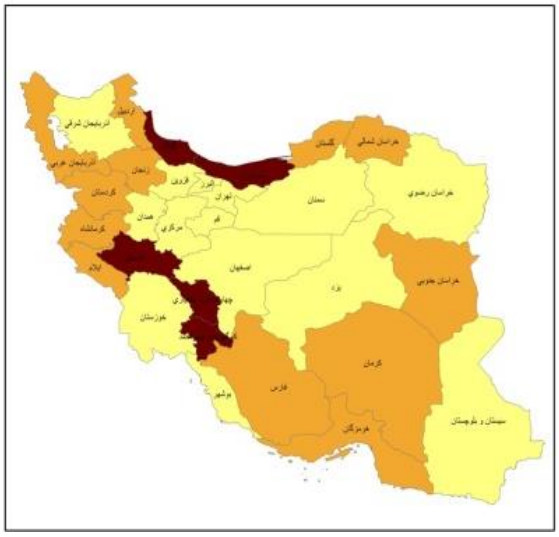
Provincial regions' scores in the subtopic "resources' productivity" from the topic "resources' efficiency and sustainable production"



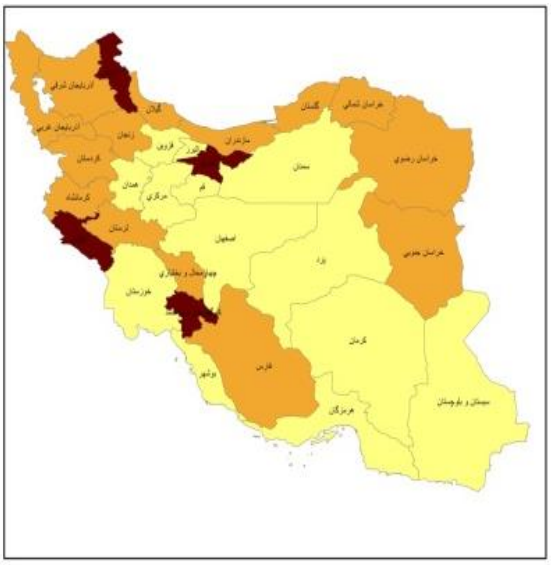
Provincial regions' scores in the subtopic "access to the resources and services" from the topic "resources' efficiency and sustainable production"



Provincial regions' scores in the subtopic "emissions" from the topic "resources' efficiency and sustainable production"



Provincial regions' scores in the subtopic "environmental management" from the topic "resources' efficiency and sustainable production"



Sum of the provincial regions' scores in the topic "resources' efficiency and sustainable production"

Image (5): assessing the status of Iran's provincial region based on the proposed green economy assessment model concerning the third topic "resources' efficiency and sustainable production"

As for green jobs and employment as explicated in the image (6), it can be concluded that provinces like Golestan, Hormozgan, Fars, Kohgiluyeh, and Boyer Ahmad, Markazi, Kurdistan, Kermanshah, and Ilam account for a greater share of green jobs. Provinces like Tehran, Alborz, Qom, Qazvin, and Zanjan are in the last and the weakest cluster in terms of green jobs. In the end, it becomes clear through the combination and superimposition of the aforesaid several scales of country's provincial region statuses based on the green economy index as explained in the image (7) that the scores country's provinces have acquired from each index can be divided into three sets. Provinces like Tehran and Gilan have acquired the highest scores and formed the strongest cluster. Provinces like Khorasan-e-Razavi, Isfahan, Kohgiluyeh and Boyer Ahmad, Khuzestan, Ilam, Kermanshah, Qazvin and Ardabil fall in the second cluster and the other provinces have accounted for the lowest scores. Considering the weakness and shortfalls identified by the green economy and its indices in each topic, each of the clusters needs special planning and offering particular solutions and guidelines for enhancing the provincial regions' statuses and eventually manifestation of the green economy on the country's macro-level economy body.

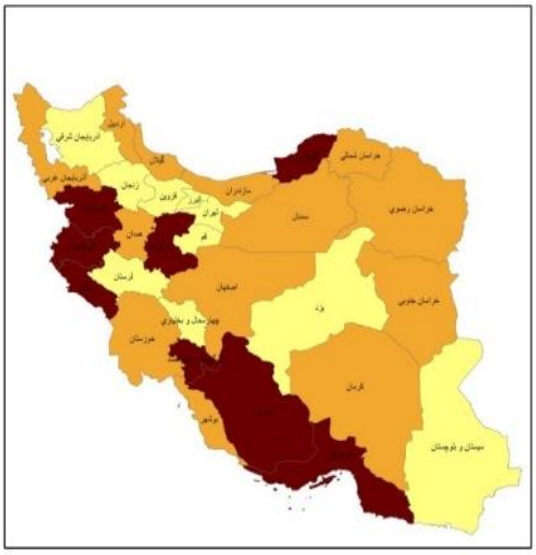


Image (6): assessing the statuses of Iran's provincial regions based on the proposed green economy assessment model concerning the fourth topic "green jobs"

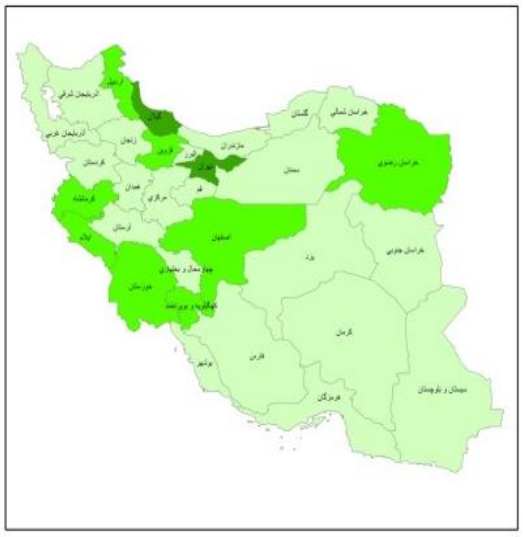


Image (7): benchmarking country's provincial regions based on the proposed green economy's composite index

The next step is devoted to the evaluation of spatial documents by adjusting the macro-level orientations of the spatial plan to the composite principles and indices of the spatial green economy. In this regard, the guidelines and rules of this plan were categorized into four sets so that they can be dealt with for planning and specialized proposition separately. The guidelines that are related to the type of activity and the role and mission have been placed in Part A; guidelines related to the intensity of the space used in Part B; orientations pertinent to the spatial activity and population scattering in Part C; and, orientations that deal with the method of the activities' juxtaposition in Part D and, finally, the criteria and method space use fall in Part E. eventually, the adjustment amount of these guidelines were assessed within the format of a checklist table in four sectors. In the next stage, evaluation radar chart was delineated based on the scores each sector of the spatial planning documents had acquired in terms of the green economy subtopics so that the weak points of the spatial planning guidelines can be clarified in regard of the implementation of green economy principles (image 8).

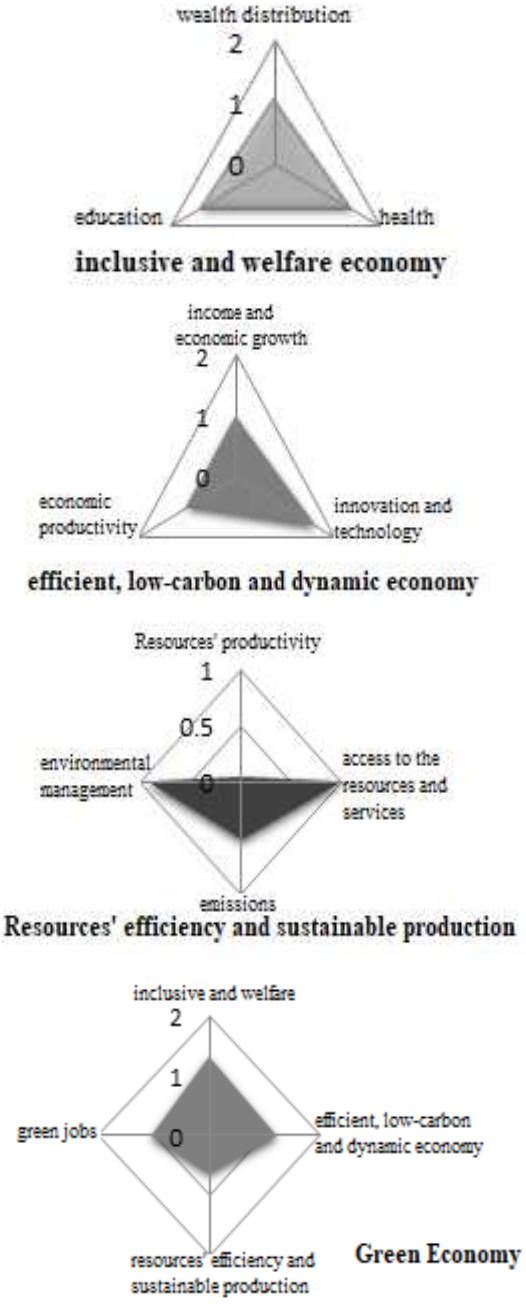


Image (8): results of evaluating the spatial planning guidelines and orientations based on the extent of adjustment to the green economy's composite principles

In summary, considering the obtained scores, all the topics have received scores below 1.5 indicating that there is a significant difference between the green economy's optimal and ideal status and the spatial planning's guidelines and

orientations. The inclusive and welfare economy acquired the highest score and satisfied the expectations more than the other topics. The repetitive guidelines of the healthcare and instruction sector for improving the quality of services and covering all the social classes as well as efforts for paving the way for the actualization of pervasive nationwide justice have acceptably dealt with this topic. In the other topics, as well, there is felt a need for revising and concentrating on the green economy principles and offering a paved way for change in the development and economy trends in the country.

Considering the properties and potentials of the various regions in the country, the results of the first step have been presented in the summing and solution-offering section; also, based on the pathologies performed within the format of evaluating the spatial planning guidelines, the solutions and suggestions will be offered for modifying the plan for filling the gap existent in the guidelines of the spatial planning so that it can reach the intended optimal situation in terms of green economy approach.

Conclusion and Offering Mid-Term and Long-Term Solutions for Iran:

Considering the pathology performed on the status quo of the provincial regions and subjective evaluation of the spatial planning based on this concept, the strategic goals have been arranged for the actualization of the green economy principles in the spatial plan as explained in the diagram (5).

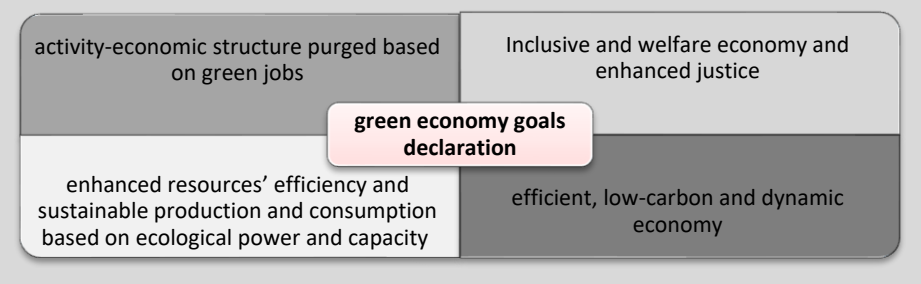


Diagram (5): spatial development goals declaration in line with the actualization of green economy notion (suggested for reflection in the future spatial plans)

In the end, based on the studies, the spatial plans' reformation strategies were firstly proposed within the format of the SWOT strategic analysis method. Then, efforts were made to distribute these suggestions based on the homogenous land clusters according to the green economy's performance. Accordingly, the country's regions were classified into six congruent planning clusters in terms of the green economy based on the cluster analysis method (image 9). Each of the clusters is faced with a collection of problems and barriers for implementing the green economy principles as explained in the table (2) and this entails special strategies for eliminating the problems in proportion to the province-specific features and conditions.

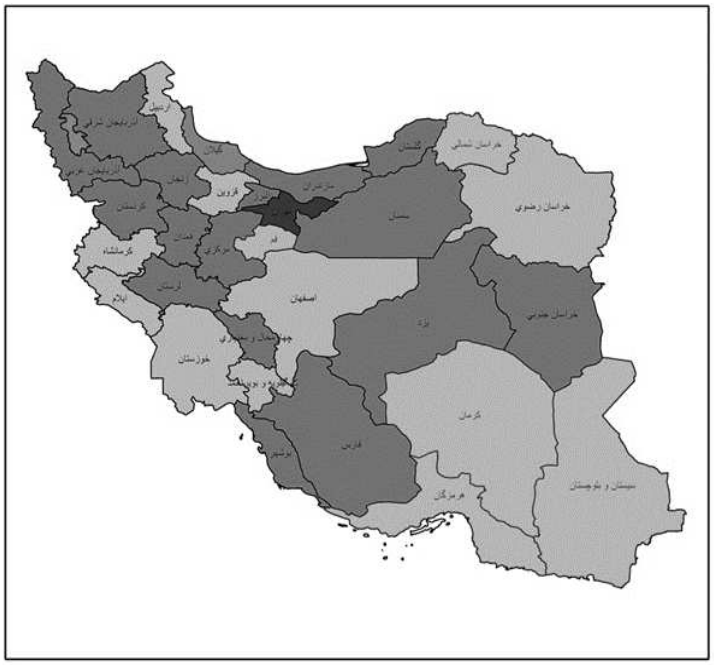


Image (9): homogenous clustering of the country's provincial regions in terms of the green economy's performance

Table 2: declaration of problems for Iran's provincial regions based on green economy objective

Cluster	Problems and issues
Cluster One: Tehran	• Continuation of the inequality and non-actualization of justice in wealth and services distribution (Gini coefficient larger than the country's mean) • Environmental pollution (air pollution, noises, and groundwater contamination) • High consumption of various energy sorts
Cluster Two: Gilan	• Low employment rate, particularly in green jobs and services • Low income and weak economic growth (GDP per capita lower than the country's mean and low added value) • Unfavorable economic productivity (capital and workforce) • Weakness in accessing resources and services
Cluster Three: Khorasan-e-Razavi and Kohgiluyeh and Buyer Ahmad	• Unfavourability of the status of the healthcare indices (like children's death and active treatment institutions) • Weak access to the urban water and sewage network • Weakness in access to the resources and services • GDP per capita lower than the country's mean
Cluster Four: Ilam, Ardabil, Kermanshah, Isfahan, Qazvin and Khuzestan provinces	• Serious weakness in poverty and income distribution indices (such as low employment and high Gini coefficient) • Shortage in the distribution of the treatment services and unfavorable healthcare and treatment status in provincial level • High greenhouse gases' emissions • Weak environmental management and eroding trends for natural resources (like an absence of waste materials and wastewater management)
Cluster Five: eastern Azerbaijan, western Azerbaijan, Fars, Mazandaran, Chahar Mahal, and Bakhtiari, Lorestan, Bushehr, Markazi, Kurdistan, Alborz, Semnan, Zanjan, Golestan, Yazd, southern Khorasan, Hamadan	• Weak economic productivity as a result of the low rate of capital and workforce productivity and GDP lower than the mean • The high share of the households without piped water and sewage and lack of access to resources and services • High volume of the emission of the pollutant and greenhouse gases in contrast to the country's average • Negligence of the green employment topic (the low quotient of the employees in the green jobs and educated employees to the total number of the employees) • Imbalance in the population establishment pattern and the high rate of migration to the more developed regions • Low level of welfare and life and residence quality
Cluster Six: Kerman, Qom, northern Khorasan, Sistan, and Baluchestan and Hormozgan	• Low added value and GDP hence descending and slow economic growth • Negligence of the innovation and technology for achieving efficient economy • Ineffective management of resources' use and low productivity • Weakness in the structure of urban transportation networks • Shortcomings of the provinces' infrastructural networks • Unstable consumption pattern and incorrect environment and available water resources management • Air pollution as a result of the high consumption of fossil fuels • High rate of unemployment and shortage of specialized workforce

This way, it is through the recognition of the shortcomings and inabilities of Iran's provincial regions in responding to the economic, environmental, managerial, and social needs that the strategies originating from SWOT analytical matrix can be attributed in proportion to the environmental conditions and potentials to each of the clusters. This important task has been done in the present study through a spatial policy-making map as explained in the image (10).

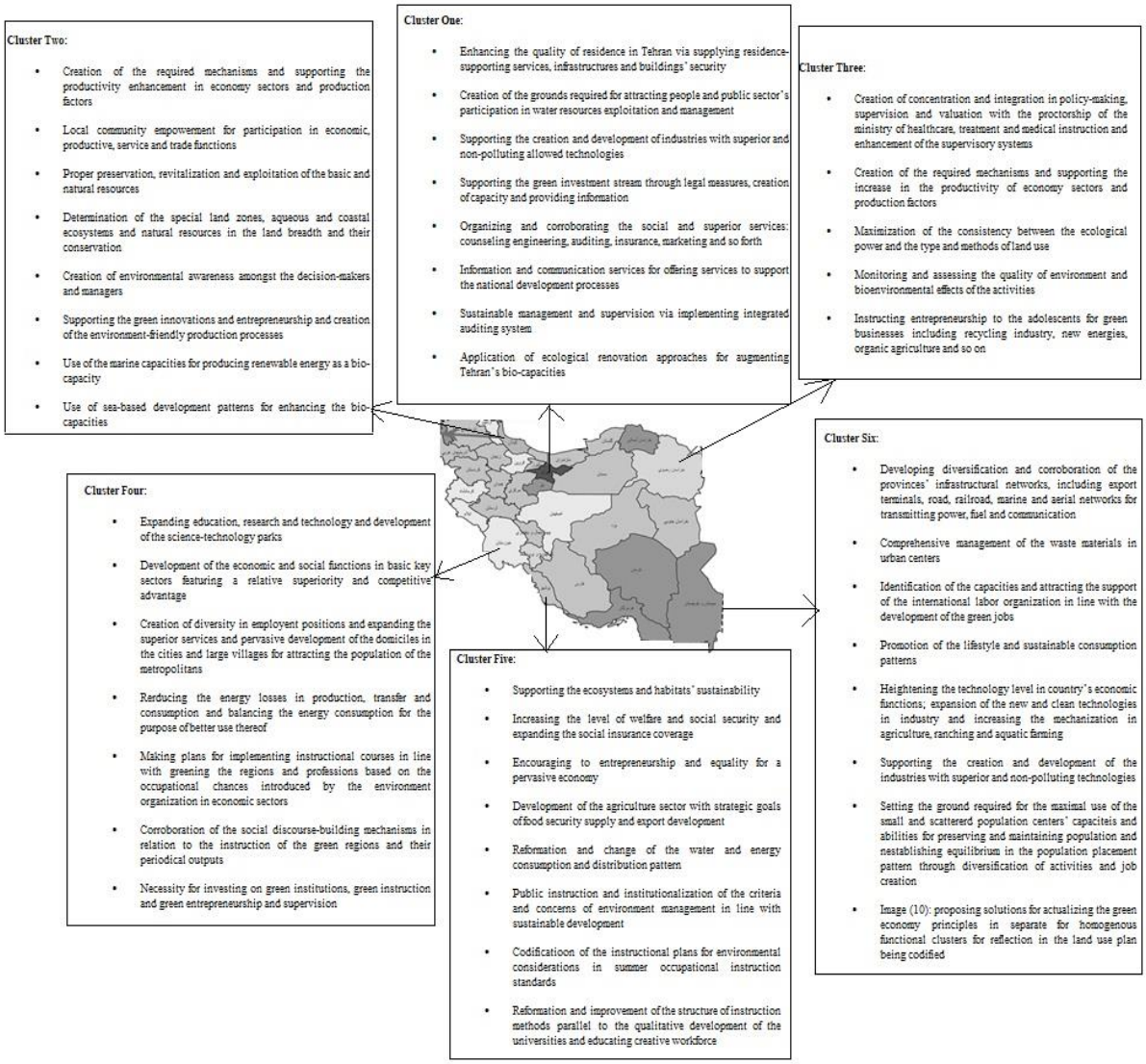


Image (10): suggesting solutions for the green economy principles' actualization in separate for the homogenous functional clusters for reflection in the spatial plans that are being codified

Cluster One:

- Enhancing the quality of residence in Tehran via supplying residence-supporting services, infrastructures and buildings' security
- Creation of the grounds required for attracting people and public sector's participation in water resources exploitation and management
- Supporting the creation and development of industries with superior and non-polluting allowed technologies
- Supporting the green investment stream through legal measures, creation of capacity and providing information
- Organizing and corroborating the social and superior services: counseling engineering, auditing, insurance, marketing and so forth
- Information and communication services for offering services to support the national development processes
- Sustainable management and supervision via implementing an integrated auditing system
- Application of ecological renovation approaches for augmenting Tehran's bio-capacities

Cluster Two:

- Creation of the required mechanisms and supporting the productivity enhancement in economic sectors and production factors
- Local community empowerment for participation in economic, productive, service and trade functions
- Proper preservation, revitalization, and exploitation of the basic and natural resources
- Determination of the special land zones, aqueous and coastal ecosystems and natural resources in the land breadth and their conservation
- Creation of environmental awareness amongst the decision-makers and managers

- Supporting the green innovations and entrepreneurship and creation of the environment-friendly production processes
- Use of the marine capacities for producing renewable energy as a bio-capacity
- Use of sea-based development patterns for enhancing the bio-capacities

Cluster Three:

- Creation of concentration and integration in policy-making, supervision, and valuation with the proctorship of the ministry of healthcare, treatment and medical instruction and enhancement of the supervisory systems
- Creation of the required mechanisms and supporting the increase in the productivity of economy sectors and production factors
- Maximization of the consistency between the ecological power and the type and methods of spatial
- Monitoring and assessing the quality of the environment and bioenvironmental effects of the activities
- Instructing entrepreneurship to the adolescents for green businesses including recycling industry, new energies, organic agriculture and so on

Cluster Four:

- Expanding education, research and technology and development of the science-technology parks
- Development of the economic and social functions in basic key sectors featuring a relative superiority and competitive advantage
- Creation of diversity in employment positions and expanding the superior services and pervasive development of the domiciles in the cities and large villages for attracting the population of the metropolitans
- Reducing the energy losses in production, transfer, and consumption and balancing the energy consumption for better use thereof
- Making plans for implementing instructional courses in line with greening the regions and professions based on the occupational changes introduced by the environmental organization in economic sectors
- Corroboration of the social discourse-building mechanisms concerning the instruction of the green regions and their periodical outputs
- The necessity for investing in green institutions, green instruction and green entrepreneurship, and supervision

Cluster Five:

- Supporting the ecosystems and habitats' sustainability
- Increasing the level of welfare and social security and expanding the social insurance coverage
- Encouraging to entrepreneurship and equality for a pervasive economy
- Development of the agriculture sector with strategic goals of food security supply and export development
- Reformation and change of the water and energy consumption and distribution pattern
- Public instruction and institutionalization of the criteria and concerns of environment management in line with sustainable development
- Codification of the instructional plans for environmental considerations in summer occupational instruction standards
- Reformation and improvement of the structure of instruction methods parallel to the qualitative development of the universities and educating creative workforce

Cluster Six:

- Developing diversification and corroboration of the provinces' infrastructural networks, including export terminals, road, railroad, marine and aerial networks for transmitting power, fuel, and communication
- Comprehensive management of the waste materials in urban centers
- Identification of the capacities and attracting the support of the international labor organization in line with the development of green jobs
- Promotion of the lifestyle and sustainable consumption patterns
- Heightening the technology level in the country's economic functions; expansion of the new and clean technologies in industry and increasing the mechanization in agriculture, ranching and aquatic farming
- Supporting the creation and development of the industries with superior and non-polluting technologies
- Setting the ground required for the maximal use of the small and scattered population centers' capacities and abilities for preserving and maintaining population and establishing equilibrium in the population placement pattern through diversification of activities and job creation
- Image (10): proposing solutions for actualizing the green economy principles in separate for homogenous functional clusters for reflection in the spatial plan being codified

Amongst the most important suggestions of the present research for reflection in the spatial plans that are being prepared is the change of approach to the land zoning from mere reliance on the natural-geographical congruence scale to the congruent functional zoning based on the modern development concepts. It is also suggested that users should be made in activities' allocation of the environmental power plus classification and investigation of the activities in terms of energy and economic productivity, amount of water to be consumed and extent of pollution generated; in case of adopting the minimum standard, measures should be taken parallel to the suggesting of activity and spatial. Enhancement of the production technologies and consumption of the proper fuel with the minimum pollution and elimination of energy subsidy (benzene) are amongst the interventions that should be particularly taken into consideration for reducing the emissions and elevating environmental management. Development of the economic and social development in the basic key parts featuring a relative superiority and competitive advantage, creation of diversity in the employment positions, expansion of the superior services and pervasive development of the domiciles in the large villages and cities for attracting the population in the metropolitans are amongst the solutions that can considerably assist the establishment of the spatial justice

and proportionate distribution of the activity and population in the land breadth. The green production and employment through increasing the attractiveness of green jobs can be effective in the preservation and/or restoration of the environment quality. This necessitates instruction through institutions solidifying the green economy and instructing various skills for the promotion of the green economy. Support of the innovation and green entrepreneurship and development of technology, as well, contribute to the establishment of the environment-compliant production processes.

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