Methodology of Defining Environment and Development Priorities in Coastal Areas

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Abstract
In terms of the importance of coastal zones, this paper aims to provide a methodology to define the environmental impacts of development priorities on such areas. Three approaches (i.e. theoretical, analytical and applied approaches) were implemented. Primarily, the theoretical approach, setting development priorities, appropriate to spatial nature and environmental sensitivity, was reviewed and analyzed. In addition, the environmental impacts of coastal areas on the development priorities were examined to determine the appropriate development to their spatial nature and environmental sensitivity. Moreover, the coastal development experiences of 6 countries "Brazil, Malaysia, Turkey, UAE, Lebanon and Israel" were analyzed by an analytical method, from which 55 criteria were designated. In the statistical analytical approach, a questionnaire was designed, for gathering information from respondents. The questionnaire was distributed among experts from various bodies involved in coastal regions development. The forms were assembled and analyzed via SPSS" Statistical Package for the Social Sciences". In the applied approach, mathematical model, capable of defining the development priorities of the coastal zone by implementing the basic developmental criteria that preserves the environment, was developed. Innovative about this research is equations production that determines development type impact on coastal areas to assist decision makers.
Keywords: Coastal Regions, Development Priorities, Environment Planning, Coastal Area Management, Sustainable Development Goals.

1. INTRODUCTION

Development strategies without considering the political, economic, urban and social aspects for individual coastal regions resulted in the deterioration of the development vision to accommodate tourism and declined the sustainable development of the coastal environment. Accordingly, the research was oriented on considering the nature, environment and resources of the coastal area in order to establish a methodology applicable to the area development.

2. METHODOLOGY

As mentioned, the research was designed to encompass 3 approaches in order to identify the important criteria that affect the individual coastal region development priorities, in terms of the environmental perspective. This is attributed to the diversity, nature and length of each individual coast.

Based on the designed methodology, and applying 2030 global vision of sustainable development, the designated criteria were categorized into five main development criteria, Fig. 1. These are:

- Environmental Political Development; Environmental Natural Development; Environmental Economic Development; Environmental Urban Development and Environmental Social Development.
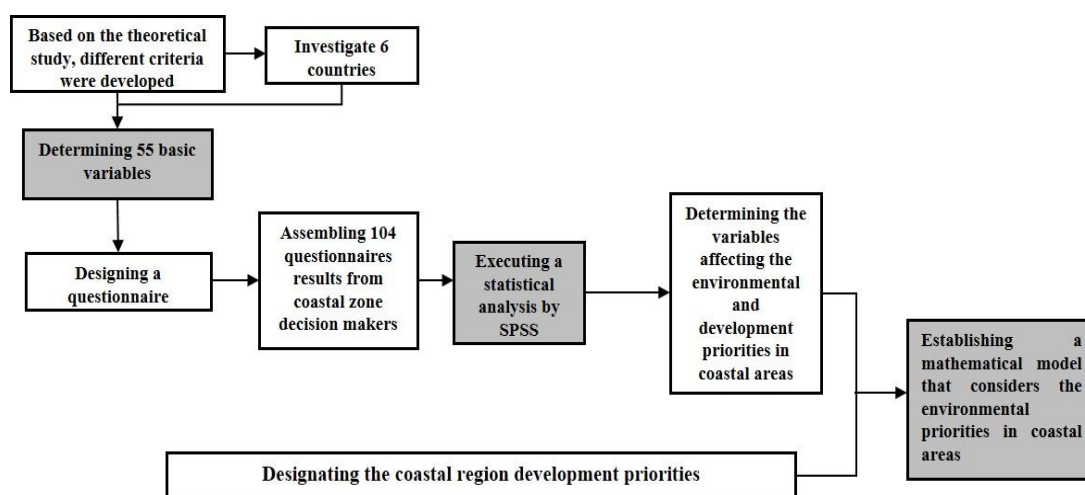

Fig.1. The deigned methodology (Source: Author's, (2019)).

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3. LITERATURE REVIEW

Literature, in the field of development priorities appropriate to spatial nature and environmental sensitivity, was assembled, categorized and represented, as follows:

3.1. Association between Built Environment and Nature

As for defining the association between built environment and nature, the following was selected to be presented:

There is a remarked interest in the association between built environment and nature to incorporate both to their full potential without destructing each other [1]. In 1950, a pioneer logical way was established to approach human settlement within the natural world. This is analytic methodology is used almost by all planners.

Natural geographical units, with diverse economic and social levels, consist of numerous parts linked together [2], where their consistency so as integration are ranked according to their importance and function. Moreover, this applies also to coastal areas due to their unique ecosystems, to achieve sustainable development that meets the present needs without affecting the needs of the future generations.

The coastal areas development plan contributes to the political, economic, urban and social development, while conserving the region natural environment so as its surrounding regions and the country development plan [3].

3.2. Impact of Development on Natural Environment

As for the literature describing the impact of development on natural environment, the following was determined to be identified:

The regional development, employing the spatial perspective overall development and considering all difficulties facing the territory so as the contemporary economic, social and regional policy formulation changes are linked to the natural environment with its natural resources to achieve sustainable development [4].

Regional development employing the spatial perspective became a global drift with its 17 targets, where targets 13, 14 and 15 are directed towards preserving the environment, in terms of climate change, marine ecosystem, terrestrial ecosystem and sustainable use [5]. This drift increased the interest in the natural environment to take it into account during designing any regional development plan to prioritize the development forms to comply to its regional nature.

3.3. Coastal Areas

Concerning the incorporating the coastal areas, the following was designated:

The coastal areas are the land-water interface with 5 zones [6]. Inland areas that are affected by the oceans via rivers and non-source pollution points; coastal lands, wetlands and marshes that affect the adjacent coastal waters so as estuaries due to the concentrated human activities; lagoons and shallow water

that affect land-based activities; offshore water that extends to the end of the national-jurisdiction (i.e. 200 nautical mile) and high seas extend beyond the end of the national-jurisdiction.

Moreover, the natural phenomena (i.e. waves, wind and tides so as currents) are the main forces on coast. Their actions and interactions are called coastal processes (i.e. erosion, accretion, dunes movement, longshore drift and the storms impacts) [7].

From the above, it is concluded that the coastal territory is unique with its own natural characteristics that should be treated with caution due to its environmental sensibility in order to preserve its natural resources, as possible.

3.4. Coastal Development Strategies

As for the literature describing the coastal development strategies, the following was distinguished:

The strategic plans of any country are executed by all sectors, where should be developed every 5 years and updated every 2 years [8]. They are updated due to local, regional and global variations. They also encompass investment and government projects that contribute to achieving the goals and strategic vision, Fig. 2.
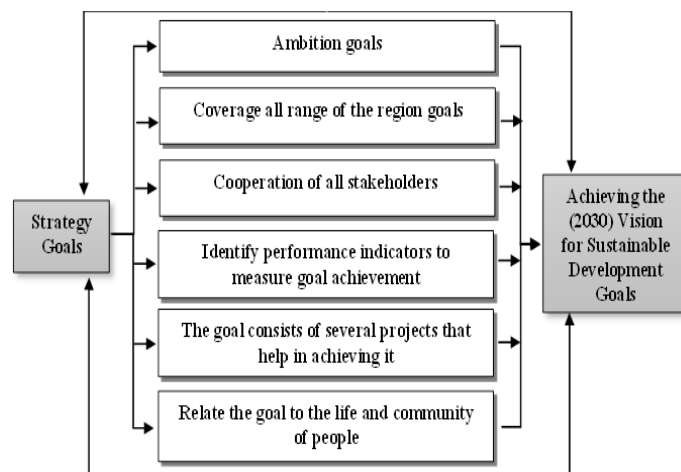
Fig.2. Successful regional development strategy goals, (Source: Author's, (2019)).

Based on the above, it was apparent that the developmental sectors targeted for any development plan encompass as the 5 key development policies; designated criteria mentioned previously.

Consequently, the development of any coastal region is proportional to the development method, available resources and the surrounding territories to preserve it for future generations. As mentioned above, 5 key development policies were extracted. They encompassed several subsidiary criteria for the development of coastal regions from an environmental perspective (i.e. 41 criteria). These criteria were complementary to 2030 vision sustainable development objectives; Table 1.

Table 1. Environmental coastal area development criteria, (Source: Author's, (2019))

Environmental Coastal Area Development Criteria (Theoretical study)				
Environmental Social Development Criteria	Environmental Urban Development Criteria	Environmental Economic Development Criteria	Environmental Natural Development Criteria	Environmental Natural Development Criteria
1. Involve civil society community. 2. Study equilibrium rates of population growth with natural resource consumption. 3. Evaluate & regulate population migration to coastal areas. 4. Reduce unemployment by providing career opportunities and employment development plan. 5. Form prosperity and social justice, environment and efficient distribution. 6. Increase knowledge and innovation capacity.	1. Promote sustainable urban planning policies to preserve the environment. 2. Develop 3. sustainable criteria for coastal land and energy, transportation and sanitation systems. 4. Use sustainable techniques for power control. 5. Balance the urban and population size. 6. Establish desalination plants for seawater. 7. Promotion and develop commercial shipping and ports. 8. Support infrastructure development. 9. Support and develop roads leading to the coastal territor	1. Spatial development plan should agree to the nature of the coastal territory. 2. Link coastal region development plan to the national one. 3. Integrate the objectives of north territory's coastal development plan and neighboring territories development plans. 4. Ensure that territory's economic development activities are sustainable and environmentally friendly. 5. Investigate initial coastal zoning plans with coastal territory potential studies. 6. Prioritize development of coastal areas by type of investment and association with economic return. 7. Advertise incentives to attract local and international investments to the coastal territory. 8. The availability of renewable energy and water according with sanitation services and costs 9. Availability of and sanitation services and prioritized by coast.	1. Confronting climate change and its effects. 2. Crisis management and environmental risks. 3. Protection and rehabilitation of coastal ecosystems. 4. Studies on the nature and form of the coastal areas. 5. Studies of the natural resources of the coastal territory. 6. Waste management and recycling. 7. Preserve the seas natural resources and use them sustainably 8. Combating desertification	1. Identify different parties and business plan development for the coastal region. 2. Assess /review all previous strategic plans. 3. Define visions, goals, time for development and sustainability. 4. Enhance means of implementation /activation of the global partnership for sustainable development. 5. International participation in planning alternatives to brainstorm /plan development of the coastal territory. 6. Use performance indicators to measure achievement of objectives strategy. 7. Strengthen institutional and operational capacity. 8. Apply integrated environmental management system through policy formulation, coastal ecosystem protection and integration. 9. Execute environmental impact assessment studies.
Implementation global goals (2030)				

3.5. Case Studies

Developmental strategies of different coastal regions in six countries "mentioned previously" in the Arab world so as worldwide, were investigated and scrutinized based on the data obtained from [9-14]. These data encompass basic data for the nature of each country, Table 2. In addition, a questionnaire was designed to assemble data reflecting the perspective of entities involved in coastal zone development. Based on scrutinizing the data of the, the following was deducted:

- Parameter sets were deduced for the 6 countries with different coastline length, environmental nature, economic progress, population size, 2030 global vision and coastal zone developmental strategic plans.
- It was apparent that there are significant variations in how each country deals with the nature of its spatial

coastal region in order to target the prerequisite development.

- It was obvious that the variations might be attributed to their environmental conditions (i.e. climate change, environmental risks, coast form and coast type); their political conditions; national security status; economic reasons (i.e. ambitious plans to favorably exploit natural resources) and social reasons (i.e. that govern the achievement of coastal development type according to its territory).
- It was clear observed that each country had previously its own business plan, major determinants that comply to the 5 (i.e. theoretical study) developmental policies (i.e. political development, natural, physical, social, economic standards) were considered.

Integrating the published literature and the case study, 55 criteria were designated, represents the main and secondary criteria for the development of coastal regions, from an environmental perspective, Table 3.

Table 2. General and Natural Data of Case Studies Countries, (Source: Author's, (2019)).

Country	Area / Km^2	Population / million (2017)	EEC *- rank/ value (2018)	Coastal L/ Km	Location	Coastal Topography	Coastal Climate	Coastal Environmental Risks
Malaysia	330.803	31.62	27/78.9	4775	South China Sea	Plain, Mangrove Forests	Tropical	Erosion, Floods
Brazil	8.516.000	209.3	81/58.5	7500	Atlantic Ocean	Plain, Hills, Forests, Mountain	Tropical	Erosion, Floods, Climate Changes
Turkey	783.562	79.81	74/61.6	7200	Mediterranean, Marmra, Black, Aegean Sea	Sandy Beach, Mountain	Mediterranean Climate	Earthquakes, Floods
UAE	83.600	9.4	9/85.4	734	Arabian Gulf, Gulf of Oman	Desert, Rich Ecosystem W/ Sand Dunes	Tropical and Dry	Erosion, Climate Changes
Lebanon	10.452	6.082	86/57.2	210	Mediterranean Sea	Plain, Mountain	Mediterranean Climate	Erosion, Environmental Pollution
Israel	22.072	8.712	29/78.7	208	Mediterranean Sea	Sandy Beach, Plain	Mediterranean climate	Erosion

*EEC is Enabling Environment Component

Table 3. Environmental coastal area development criteria from literature review and case studies, (Source: Author's, (2019))

Environmental Coastal Area Development Criteria	Implementation global goals (2030)						
		X1 Environmental Policy Development Criteria	X1.1 Identify different parties and business plan development for coastal territory	X1.2 Prepare sustainable spatial plan for coastal areas by defining visions goals to plan development	X1.3 Strengthen means of implementation and stimulate global partnership for sustainable development	X1.4 Design sustainable coastal development. plan considering the decision-making process, economic condition, environmental condition and population	X1.5 Apply integrated environmental management through policy formulation and coastal ecosystem protection and integration	X1.6 Strengthen the institutional and operational capacity
			X1.7 Integrate security considerations in planning and balanced management of coastal and marine zones		X1.8 Enforce coastal and marine program to be effective and sustainable		X1.9 Execute environmental impact assessment studies	
		X2 Environmental Natural Development Criteria	X2.1 Confront climate change and its implications	X2.2 Manage crisis management and environmental risks	X2.3 Enforce and rehabilitate coastal ecosystems	X2.4 Study of the nature and form of coastal areas	X2.5 Study the coastal territory's natural resources	X2.6 Improve quality of coastal environment of water and air. Reduce the domestic / industrial pollution
			X2.7 Recycle waste management and	X2.8 Preserve coastal marine and land resources	X2.9 Protect marine and coastal biological diversity	X2.10 Protect marine and coastal biological diversity	X2.11 Identify / classify natural sites and coral reefs so as marine life	

Environmental Coastal Area Development Criteria	Implementation global goals (2030)	X3 Environmental Economic Development Criteria	X3.1 Develop Spatial plan with the consensus nature of coastal territory environmentally	X3.2 Develop plan link to the coastal region of the State plan	X3.4 Maintain a balance between the environment and natural resources development requirements	X3.5 Study the territory's economic development activities sustainable and environmentally friendly	X3.6 Coastal zoning plans of coastal territory potential studies
			X3.7 Define marine exclusive economic zone boundaries	X3.8 Implement a balanced economic development and organization through coastal regional development plans	X3.9 Prioritize development of coastal areas by type of investment and its association with the economic return	X3.10 Advertise incentives to attract local and international investments for the coastal territory	X3.11 Sustain the availability of renewable sources of energy and sustainability	X3.12 The availability of water and sanitation services and identify priorities according to their cost
			X3.13 Act to stop the encroachment of urban agricultural areas and coastal archaeological			X3.14 Develop a plan for the conservation of fisheries resources and marine sustainably with fisheries productivity	

Environmental Coastal Area Development Criteria	Implementation global goals (2030)	X4 Environmental Urban Development Criteria	X4.1 Promote sustainable urban planning policies for the preservation of the environment	X4.2 Formulate a future extension to the sustained coastal regions	X4.3 Develop sustainable criteria to be utilized in coastal land, energy, transportation and sanitation systems	X4.4 Balance between the size and population of the coastal region	X4.5 Utilize a sustainable technique for power control	X4.6 Create seawater desalination plants
			X4.7 Support infrastructure development and mapping all facilities linked to accessible information networks	X4.8 Promote and develop commercial ports and shipping	X4.9 Access land and sea territory easily	X4.10 Support and develop ways of coastal territory	X4.11 Develop real estate sustainability	X4.12 Follow green building standards for design and construction of buildings that are compatible with local climate
		X5 Environmental Social Development Criteria	X5.1 Participation in civil society community	X5.2 Study equilibrium rates of population growth with natural resource consumption	X5.3 Evaluate legalization of depopulation of coastal areas	X5.4 Reduce unemployment by providing career opportunities and employment development plan	X5.5 Form a social environment prosperity, justice and efficiency	X5.6 Signpost innovation capacity
			X5.7 Benefit from public categories of Community citizens and residents					

4. QUESTIONNAIRE ANALYSIS (ANALYTICAL APPROACH)

Based on the above induced criteria, a questionnaire was formulated to amass data replicating the standpoint of entities involved in coastal zone development. Number of 104 questionnaire forms were produced. Each is divided into 11 aspects. They were distributed among entities involved in coastal zone development in order to assemble data reflecting

their perspective while planning coastal development in Egypt. SPSS statistical software was implemented for case studies difficult to analyze in order to determine the relationships between the variables, where the following statistical analysis techniques were implemented:

- Reliability Test
- Matrix Analysis -
- Correlations Analysis
- Regression Analysis
- Regression Analysis
- ANOVA
- Descriptive Statistics
- Neural Network

5. APPLIED APPROACH MODELNG

In order to determine the most important developmental priorities affecting the coastal territories development, from an environmental perspective, statistical analysis was implemented to produce the set of equations or mathematical that could assist the designers in determining the coastal area environmental development priorities, as follows:

5.1. Reliability Test

This test is an overall consistency measure (i.e. high reliability indicates the production of similar results under similar conditions). The test is a set of scores that relates the random error from measurements. High scores indicate accurate reproducible consistent results, if 1 was obtained then no errors were indicated while if score zero this highlights many errors. Reliability coefficients vary between 0 and 1 to indicate the amount of error in the scores.

The results indicated that Cronbach's Alpha Coefficient value ranged between 0.813 and 0.906 and all were greater than 0.7 (i.e. optimum value) and the validity coefficient ranged between 0.902 and 0.952. This is an indication of a firming in the sample and a good understanding of the research questionnaire which provided confidence in the obtained results; Table 4.

Table 4. Reliability test, (Source: Author's, (2019))

Coastal Area Environmental Development Criteria	N of items	Cronbach's Alpha	Validity
Environmental Political development criteria	10	0.813	0.902
Environmental Natural development criteria	11	0.879	0.938
Environmental Economic development criteria	14	0.891	0.944
Environmental Urban development criteria	12	0.899	0.948
Environmental Social development criteria	7	0.906	0.952
Total	55	0.964	0.982

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5.2. Factor Analysis and Component Matrix

This is a coefficient and weight relative to the main criterion, where the exclusion of any criteria should be less than 0.4; Table 5. In this table, none of the criteria were excluded. This analysis measures the reliability of the criteria through component coefficient; Table 5.

Table 5. Factor analysis results, (Source: Author's, (2019))

Coastal Area Environmental Development Criteria	Component Score Coefficient	Component
Environmental Political development criteria	0.222	0.875
Environmental Natural development criteria	0.221	0.872
Environmental Economic development criteria	0.229	0.906
Environmental Urban development criteria	0.225	0.888
Environmental Social development criteria	0.204	0.807
2030 global vision goals	0.102	0.405

This method provided a mathematical equation that incorporates the development of coastal regions, in terms of development priorities in coastal regions. This is a composite measure to examine overall development through 5 standard weights. This mathematical equation is described as follows Eq. (1-2):

$$Y = X1\,coff + X2\,coff + X3\,coff + Xn\,coff \quad (1)$$

$$Y = 0.222X1 + 0.2221X2 + 0.229X3 + 0.225X4 + 0.204X5 + 0.102X6 \quad (2)$$

Where Y is Coastal Area Environmental Development Criteria

Where X is Environmental (type) development criteria coefficient

Noticeable is that all development tactics proportions possess similar influence on the development plan, as they are almost similar in magnitude, which signifies their importance; Table 6.

Table 6. Factor analysis results, (Source: Author's, (2019))

Coastal Area Environmental Development Criteria	Component Score Coefficient
Environmental Political development criteria	0.229
Environmental Natural development criteria	0.225
Environmental Economic development criteria	0.222
Environmental Urban development criteria	0.221
Environmental Social development criteria	0.204
2030 global vision goals	0.102

5.3. Correlation Analysis

Depends on the strength of the relationship between environmental standards and another Table 7. The value of major diameter is 1 was indicated for both higher and lower values

Table 7. The results of the correlation analysis, (Source: Author's, (2019))

Coastal Area Environmental Development Criteria	Environmental Political development criteria	Environmental Natural development criteria	Environmental Economic development criteria	Environmental Urban development criteria	Environmental Social development criteria
Environmental Political development criteria	1	0.787**	0.743**	0.720**	0.587**
Environmental Natural development criteria	0.787**	1	0.737**	0.665**	0.614**
Environmental Economic development criteria	0.743**	0.737**	1	0.815**	0.663**
Environmental Urban development criteria	0.720**	0.665**	0.815**	1	0.716**
Social Environmental development criteria	0.587**	0.614**	0.663**	0.716**	1
**Correlation is significant at the 0.01 level (2-tailed).					

The results indicated a statistically significant relationship between natural environmental and standards of political development with 99% confidence level and 0.787 Confidence Interval.

The results signpost a statistically significant relationship between natural environmental and economic development, where the confidence level is 99% and the correlation is 0.743. Alike for confidence level between natural environmental and urban development, where the confidence level is 99% while the correlation is 0.587. Samilily, results were obtained for the confidence level results as relation between environmental and social development, but for the correlation the result is 0.815.

5.4. Multi-Label Regression (Stepwise) Analysis

Some quality standards of the developmental criteria were designated Table 8, (i.e. physical; economic; and political environmental) are correlated with a of 0.835 and is less than 5%.
In addition, a multi-label regression was implemented in order to designate the environmental development criterion that mostly affects the natural environmental development criteria.

Table 8. Multilabel regression results, (Source: Author's, (2019))

Model	R	R Square	Adjusted R Square	F Test	P Value
1	0.835	0.697	0.688	76.822	0.000

R = Total correlation of the independent variables in the model with the dependent variable (natural environmental criteria).

The results indicated the following:
- A very strong correlation between these three criteria and the environmental criteria, where the value was 0.835. This is considered a very strong association.
- The determination coefficient was 0.697. This that the 3 criteria almost represent 70% of the changes that might occur to the environmental vision.

The remaining percentage is attributed to other factors that were not taken into account.

5.e. Regression Analysis - Coefficient Table

From this technique a mathematical equation that incorporates coastal territories development priorities, in terms of the environmental perspective, was deduced. This designates the impact of the developmental criteria on the natural environmental development criteria, Table 9.

Table 9. Coefficients of natural environmental development criteria, (Source: Author's, (2019))

Coefficient Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.364	0.272		1.336	0.185		
Environmental Political development criteria	0.509	0.086	0.489	5.927	0.000	0.445	2.249
Environmental Natural development criteria	0.193	0.113	0.181	1.707	0.091	0.268	3.729
Environmental Economic development criteria	0.228	0.089	0.247	2.568	0.012	0.327	3.059

The above table indicates the coefficients Eq. (3), as follows:

$$Y = (B0 + B1X1 + B2X@ + B3X3 + \cdots BnXn) \quad (3)$$

From the Components Score Coefficient table, the equation is Eq. (4):

$$Y = (0.364 + 0.509X1 + 0.931X2 + 0.228X3) \quad (4)$$

Where Y is Dependent Variable (Natural Environmental development criteria)

Where $B0$ is Constant, $B1, B2, B3$ and Bn are Environmental (type) development criteria coefficient

Where E is Error (not valued)

The mathematical formula clarifies that:

- If the political environmental development criterion increased by a unity, the natural environmental development criterion will increase by 509%. In addition, this criterion is ranked as the 1st, in terms of its impact.

- If the natural environmental development criterion increased by a unity, the natural environmental development criterion will increase by 228%. Moreover, this criterion is ranked as the 2nd, in terms of its impact.

- If the economic environmental development criterion increased by a unity, the natural environmental development criterion will increase by 193%. Moreover, this criterion is ranked as the 3rd, in terms of its impact.

From the above, apparent is the trivial impact of social environmental development criteria and achieving sustainable development of 2030 vision.

- The significant statistical positive impact of political environmental on the natural environmental development criterion at a level of confidence of 99% with a regression value of 0.509. In addition, the positive impact of the urban criterion on the Natural environmental development criterion at a level of confidence of 95% with a regression value of 0.228. Moreover, the positive impact of the economic criterion on the Natural environmental development criterion at a level of confidence of 90% with a regression value of 0.193.

- The coefficient of variance value (Variance Inflation Factor – VIF) lies between 2.249 and 3.729 and all are less than the optimum value of 5.

5.5. ANOVA Analysis

ANOVA stands for "Analysis of Variance". It is an assembly of statistical models. As indicated in Table 10:

- There are no statistically significant differences between the entities under investigation, for the five criteria, where the value of "Sig" ranged between 0.058 and 0.676. In addition, all criteria were higher than the optimal value (i.e. 5%).

- There are statistically significant differences between the entities replies, in terms of sustainable development goals of 2030 vision. This occurred at a level of confidence of 99% with Sig of 0.004, which is below the optimum value (i.e. 5%).

Table 10. ANOVA analysis results, (Source: Author's,2019))

Coastal Area Environmental Development Criteria	F Test	Sig.
Environmental Political development criteria	1.210	0.295
Environmental Natural development criteria	1.122	0.355
Environmental Economic development criteria	1.016	0.436
Environmental Urban development criteria	0.750	0.676
Environmental Social Environmental development criteria	1.875	0.058
2030 global vision goals	2.876	0.004

"F" depends on whether the level is greater than the optimal value (5%).

6. CONCLUSIONS

The conclusion drawn is based on this the development strategies considering the political, economic, urban and social aspects for individual coastal regions to avoid the deterioration of the development vision to accommodate tourism and declined the sustainable development of the coastal environment categorized, as follows:

- Converging to the reviewed literature, few countries practices for coastal environment planning during development were considered. In addition, it was apparent that all available developed models are counted to be unsatisfactory. Such models do not provide a complete comprehensive vision of coastal zones and do not consider the preservation so as sustainability of the environment.

- Focusing on the applied approach, a mathematical model that could be applied according to the nature of the place and the nature of the territory itself was produced. Furthermore, the equation incorporated the general plan and the impact of the developmental sectors of the coastal territories development was developed from the Regression Analysis-Coefficients, as follows:

  o Natural environmental development criteria = 0.364 + 0.509 Environmental policy development criteria + 0.193 Economic environmental development criteria + 0.228 Urban environmental development criteria

  o Coastal Area environmental development criteria = 0.222 Environmental policy development criteria + 0.221 Natural environmental development criteria + 0.229 Economic environmental development criteria + 0.225 Urban environmental development criteria + 0.204 X5 Social environmental development criteria + 0.102 implementation of global 2030 vision targets

- Concentrating on the developed model, the following was deduced:

  o It could simulate the political development according to 5 main criteria incorporating the 2030 global vision goals. The main criterion is followed by secondary criteria that represent the region uniqueness with its natural environmental features, which differs from one coastal region to another and from one country to another.

7. RECOMMENDATIONS

The researcher's recommendations can be summarized as follows:

- The planners of coastal regions should incorporate the results of this study to determine the development priorities of coastal territories.

- The decision makers involved in developing the coastal regions should maintain the environmental specificity through a mathematical model.

- The entities involved in developing the coastal regions should maintain the resources while considering the spatial nature in order to promote appropriate developmental priority region integrated with the surrounding territories and the development of the country.

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