



Environmental SWOT Analysis for Agricultural Extension in North Sinai Governorate, Egypt

Tamer Gamal Ibrahim Mansour^{1,a,*}, Mahmoud Alaa Abdelazez^{1,b},
Khairy Hamed Eleshmawi^{1,c}, Salah Said Abd el- Ghani^{1,d}

¹Agricultural Economic department, National Research Centre, Giza, Egypt

*Corresponding author

ARTICLE INFO	ABSTRACT
<p><i>Research Article</i></p> <p>Received : 17/09/2018 Accepted : 20/08/2019</p> <p>Keywords: Agricultural extension Analysis of Strengths Opportunities Threats (SWOT) Weaknesses.</p>	<p>North Sinai governorate is one of the largest desert areas in terms of intensity of agricultural extension work, In spite of efforts by state agencies to bring about agricultural development in the governorate, agriculture is still somewhat characterized by primitive traditional methods, making agricultural development rates almost indistinguishable, And with the scarcity of extension research carried out in North Sinai in the field of environmental SWOT analysis, It was necessary to conduct the study that is trying to analyze the current situation of agricultural extension in North Sinai governorate through identifying the strengths; weaknesses, opportunities, and threats (SWOT). A participatory SWOT analysis study using open-ended qualitative-type instrument was conducted; Research data were collected through personal interviewing questionnaire with 90 respondents representing 75% of the total extension workers in North Sinai Governorate, during the period from May till October 2018. The results showed that the most important strengths of these were that a large proportion of the extension workers are specialized in agricultural extension, more than half of the guides were from rural areas and the high job satisfaction degree among of the majority of the extension workers while the most important weaknesses were Weak budget and inadequate funding for extension work, Absence of job description for the extension workers, and Lack of financial and material resources. On the other hand the most important opportunities were Availability of research institutes in the governorate, NGO-Public Sector Collaboration. While the most important threats were Decreased investments targeting the agricultural sector in general and the extension system in particular, Poor Farmer Organization, Security instability in the governorate. Depending upon SWOT outputs, some relevant strategies were discussed to develop agricultural extension system in the governorate through some dimensions that uses strengths and opportunities to overcome weaknesses and to avoid threats or minimize their effects.</p>

^a tamer_baz@yahoo.com

^b <https://orcid.org/0000-0002-8244-0119>

^c kheleshmawiy@yahoo.com

^d <http://orcid.org/0000-0002-6555-7729>

^e alaafraqfrg@yahoo.com

^f <https://orcid.org/0000-0002-9090-960X>

^g salah20free@yahoo.com

^h <https://orcid.org/0000-0002-1954-2665>



This work is licensed under Creative Commons Attribution 4.0 International License

Introduction

Agricultural extension programs capacity to respond to the needs and problems of targeted rural groups and areas is one of the most important challenges faced by those responsible for these systems and programs in all countries in general and Arab countries in particular, The good preparation of the Strategy for the Development of Agricultural Extension and Rural Development Systems and Programs in the Arab States is based on a series of activities and participatory efforts undertaken by the Strategic Planning Group of each country (Shafie, 2012) Hence, Strategic management is the ongoing process of establishing, implementing and evaluating decisions that enable the Organization to achieve its objectives. Strategic management allows the institution to be more active than the reaction in shaping its future. It allows an organization

to start and influence - rather than simply respond to activities - and thereby control its destiny (David, 2003).

The process of strategic management or strategic planning is one of the concepts related to identification of strategic decisions that are based on vision, mission, objectives and the external and internal analysis of the organization to make strategic choices. (Barney and Hesterly, 2006)

The strategic management process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation. SWOT analysis of external opportunities and threats as well as the internal strengths and weaknesses of the enterprises is important for strategy formulation and development (Chang, Huang, 2006).

SWOT is a strategic planning tool used in many projects. It requires a decision-making, either to improve the actual project or carry out a new one. It analyzes the strengths, weaknesses, opportunities and threats of that specific project (Hay and Castilla, 2006). SWOT analysis was addressed for the first time in 1950 by two Harvard Business School graduate named George Albert Smith and Roland Christensen. At that time, the analysis was recognized for growing success as a business management tool. But perhaps the greatest success achieved when the analysis was done by Jack Welch in General Electric in 1980, in order to use it for studying the GE strategies and increasing the productivity of your organization. (Clarke, G. 1997).

SWOT analysis has been used frequently as a diagnostic method to identify key factors that may affect the success or failure of organizations. (Masozera et al. 2006), SWOT analysis depends on the division circumstances that affect the development of organizations in strengths and weaknesses within the organization as well as opportunities and threats outside the organization (Chermack and Kasshanna, 2007) In general SWOT analysis has a two-dimensional analysis that examines both internal and external forces that are both positive and negative.(Jonassen, 2012)The two main components of SWOT are the internal status indicators described by existing strengths and weaknesses and external environment indicators described by existing opportunities and threats (Markovska et al., 2009).

The terms strengths and weaknesses refer to internal attributes. Internal attributes can be control and addressed by the actors involved. Strengths are to be followed and reinforced, while the weaknesses are to be eliminated or minimize. The opportunities and threats are external attributes, which are beyond the control of any actor involved. Actors involved can take advantage of the opportunities and try to avoid threats that might be constraints in order to achieve certain goals (Suh and Emtage, 2005).

SWOT analysis is a powerful tool to aid decision-making and systematically analyzing the external and internal environment of an organization or institution. By

identifying opportunities and threats, strengths and weaknesses, organizations can develop strategies based on their strengths, vanish weaknesses, gain maximum profit using opportunities and neutralize threats. (Kangas et al., 2003). The main advantages and disadvantages of this method can be summarized as follows:

SWOT-analysis is a classic strategy planning tool. Using a framework of internal strengths and weaknesses and external opportunities and threats, it provides a simple way to assess how strategy can be implemented (Figure 1). The method help helps planners be realistic about what they can achieve, and where they should focus (Start et al., 2004) it is a simple but powerful tool for sizing up an organization’s resource capabilities and deficiencies, its market opportunities, and the external threats to its future” (Thompson et al., 2007). It has a general perspective and presents general solutions. Details and specific issues are not the focus of SWOT Analysis, but the other analyses that would follow. In this sense, SWOT Analysis is a road map that guides one from the general to the specific.(Emet et al., 2017) The advantages, for instance, may include the idea that this method is very simple and everybody can use it without having advanced knowledge or external technical support. (Nikolaou and Evangelinos, 2010)

The criticism is directed to SWOT Analysis in spite of its wide use as an analysis tool. In this regard, the criticisms include that it is not effective enough as a part of organizational strategy, it cannot go beyond making a definition regarding the current situation, and for this reason, it should not be accepted as an analysis technique. According to (Hill and Westbrook, 1997) SWOT Analysis is a technique started to be used in 1960’s and expired long ago.

Categorization of variables into one of the four SWOT quadrants is challenging. The same factor can be fitted in two categories. A factor can be a strength and a weakness at the same time. In addition, strengths that are not maintained may become weaknesses. Opportunities not taken, but adopted by competitors, may become threats. (Emet et al., 2017).

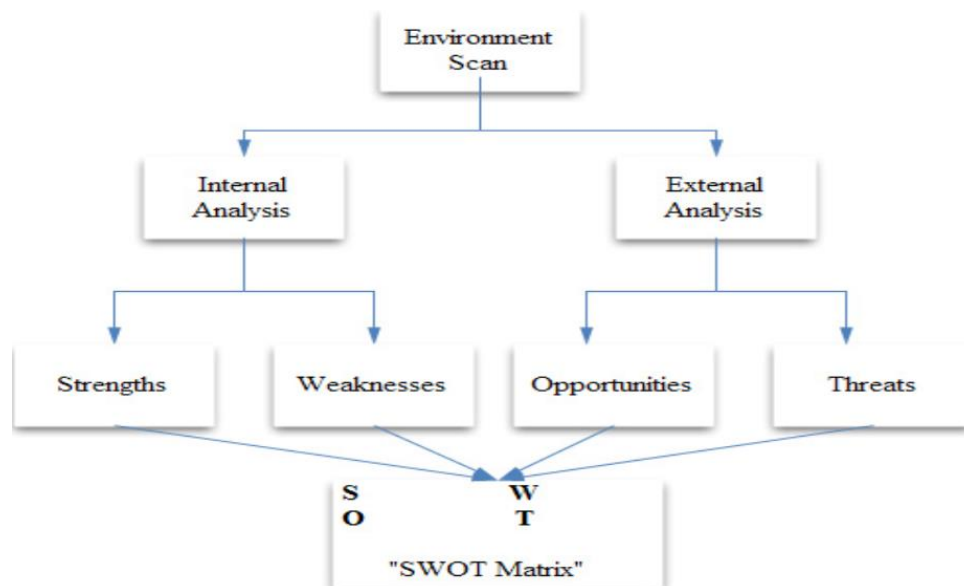


Figure 1 Theoretical framework of SWOT analysis

Research Problem

The governorate of North Sinai is one of the largest desert areas in terms of intensity of agricultural extension work, where the number of cadres of agricultural extension work in that governorate 120 Extension worker, North Sinai also has 7 Extension centers that help to raise awareness of the farmers of North Sinai in various areas of comprehensive development. (Directorate of Agriculture, North Sinai Governorate, 2015)

In spite of efforts by state agencies to bring about agricultural development in the governorate, agriculture is still somewhat characterized by primitive traditional methods, making agricultural development rates almost indistinguishable, And with the scarcity of extension research carried out in North Sinai in the field of environmental SWOT analysis, It was necessary to conduct the study that is trying to identify What are the strengths, weaknesses, opportunities and threats that faces agricultural extension in the governorate?

Research Goals

The purpose of the study was to analyze the current situation of agricultural extension in North Sinai governorate through identifying the strengths; weaknesses, opportunities, and threats (SWOT) by studying the following points:

- Identify the current main strengths of agricultural extension in North Sinai governorate.
- Explore weaknesses in current agricultural extension system in North Sinai governorate.
- Identify potential opportunities that could help agricultural extension to be successful.
- Find out the main threats, which face agricultural extension in North Sinai governorate.
- Present Recommendations for developing and increasing the effectiveness of agricultural extension system in North Sinai governorate.

Method

The study is a descriptive study depending on descriptive approach, which describes the phenomenon as it is in fact and come out with specific results to provide solutions to the existing problem, the research derives its data from two main sources:

First: Secondary sources are represented in books, periodicals and articles on the Internet

Second: Preliminary sources are represented in the publications issued by government agencies and international institutions

A participatory SWOT analysis study using open-ended qualitative-type instrument was conducted. SWOT analysis technique was used to indicate the current situation of agricultural extension system in north Sinai governorate to identify, structure and prioritize of agric extension system the strengths and weaknesses, opportunities and threats

The Study Area

North Sinai Governorate takes up a strategic location, whether at the regional or the national level, as it is the eastern bulwark of Egypt, and links the East to the West. Its total area reaches 27.564 km², representing about 2.7% of Egypt's area. The population density reaches about 0.01 thousand inhabitants/km². Population is estimated at about 445.811 in March 2016. North Sinai Governorate is in the northeast of the Arab Republic of Egypt, between longitudes 32° and 34° E and latitudes 29° and 31° N. It is bordered to the north by the Mediterranean Sea by 220-km coast line, to the south by South Sinai Governorate, to the west by Port Said, Ismailia and Suez Governorates, and to the east by the international border with the Occupied Palestine.

The Governorate's geographical location is shown in Figure 2 (NORTHSINAI. 2019).

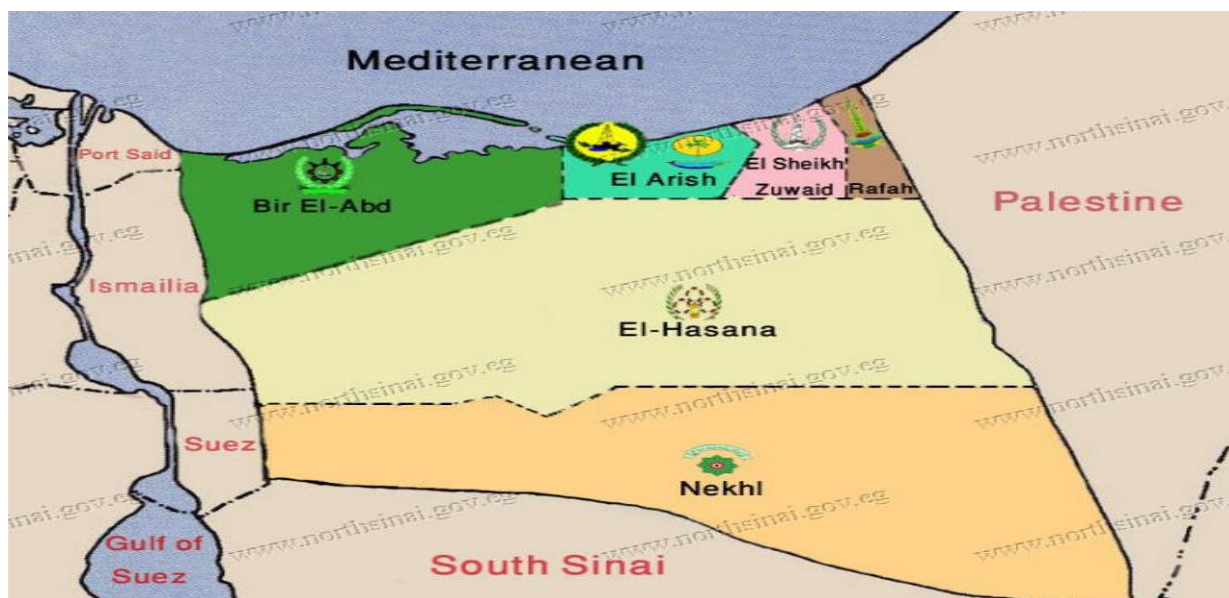


Figure 2 North Sinai Governorate (NORTHSINAI. 2019)

Agricultural Activity: North Sinai is principally depending on agricultural development. The total area of cultivated land in the Governorate reaches about 164 thousand acres, representing about 1.81% of the total area of agricultural lands in Egypt. Most agricultural lands are found in Delta Wadi El-Arish and east of el-Arish, where they rely on rainwater, as well as on Sheikh Jaber Canal. North Sinai is famous for its distinct agricultural production from vegetables and fruits, such as; peaches, figs, grapes, palm, olive and almond, where these exportations have attained a high competitive advantage (SIS, 2019).

Sample and Data Collection

The target population in this paper includes 120 of Agricultural extension workers in North Sinai governorate. Due to the security conditions in the governorate and the time and distance conditions, the researcher was unable to collect data from all the agricultural extension workers in the governorate, Research data were collected through

personal interviewing questionnaire with 90 respondents representing 75% of the total extension workers in North Sinai Governorate, during the period from May till October 2018.

Results and Discussions

The results showed that the extension agency in North Sinai Governorate despite the difficult conditions in the governorate enjoys some strengths. The most important of these were that a large proportion of the extension workers are specialized in agricultural extension, more than half of the guides were from rural areas and the high job satisfaction degree among of the majority of the extension workers while the most important weaknesses were Weak budget and inadequate funding for extension work, The sharp decline in the number of agricultural extension workers in the governorate, Absence of job description for the extension workers, and Lack of financial and material resources As shown in the following Table 1.

Table 1 Summary SWOT analysis for agricultural extension in North Sinai Governorate, Egypt.

Supportive		Negative	
Internal			
Weaknesses		Strengths	
<ul style="list-style-type: none"> • Weak budget and inadequate funding for extension work. • The sharp decline in the number of agricultural extension workers in the governorate. • Absence of job description for the extension workers. • Poor diversity of agricultural extension workers in terms of gender. • Lack of adequate training for agricultural extension workers in general. • Weak technical skills of the agricultural extension, especially the ability to deal with the computer and the Internet. • Poor Infrastructure • There is no Written and declared objectives for agricultural extension. • Non-participation of agricultural extension agents in building extension programs • Lack of the necessary means of transport to carry out field extension work. 		<ul style="list-style-type: none"> • A large proportion of the extension workers are specialized in agricultural extension. • Agricultural extension has competitive advantages compared to private extension. • The high degree of job satisfaction of the majority of the extension workers. • Multiple extension methods used by the extension workers. • Small supervision area supervised by the guide. 	
External			
Threats		Opportunities	
<ul style="list-style-type: none"> • Decreased investments targeting the agricultural sector in general and the extension system in particular • Poor Farmer Organization • Security instability in the governorate • Extension workers are exposed to certain risks as a result of field work in difficult circumstances. • Low Government Priority for Agriculture extension • Poor coordination between agricultural extension and scientific research institutions. • Poor coordination between agricultural extension and NGOs. 		<ul style="list-style-type: none"> • The tremendous development of communication and information technology. • Availability of research institutes in the governorate. • NGO-Public Sector Collaboration. • Dissemination of Farmer Field School. • Increase the number of smart phone users and the Internet from extension workers and farmers. • Use of IT to link Rural,Regional Knowledge Centers. • Benefiting from extension centers in the governorate in training farmers on harvest and post harvest practices. • Take advantage of some web sites such as the Vericon and the Radcon. • Benefiting from Egypt's agricultural channel in reaching the farmers in light of the lack of financial allocations for extension work. 	

The most important opportunities to be exploited by agricultural extension were the tremendous development of communication and information technology, Availability of research institutes in the governorate, NGO-Public Sector Collaboration. While the most important threats which face agricultural extension in North Sinai governorate were Decreased investments targeting the agricultural sector in general and the extension system in particular

Poor Farmer Organization, Security instability in the governorate.

The Environmental SWOT Analysis can be used to design a strategy for the development of agricultural extension in the governorate based on a vision of what this institution should be in the future. It is co-drafted by extension workers and researchers in the field of agricultural extension in the governorate in the presence of those interested from representatives of institutions related to extension work, , And it is essential that representatives of farmers participate in the development of this vision as the target and to which all guiding efforts are directed

In view of the vision and mission and based on the results of the environmental analysis of the Extension system, a strategy can be built that uses strengths and opportunities to overcome weaknesses and to avoid threats or minimize their effects.

Recommendations

How to Develop the Extension System in The Governorate?

The extension system can be developed in the governorate through the following dimensions.

First: Regarding to the human resources of the extension system

- Increase the number of agricultural extension workers in the governorate by hiring new Employees and giving priority to the graduates of the agricultural extension departments, the master's and doctorate campaigns, and the sons of the governorate who graduated from the agricultural colleges.
- Completing the extension and technical staff in the extension centers in the governorate
- The need for diversity in the extension and staff in terms of gender, as the presence of women in the extension system in the governorate makes it easy to access the extension messages to Bedouin women under the rule of values and customs that make it difficult to communicate with them through the agricultural extension men in the Bedouin community.

Second: Regarding to funding

- The budget for extension work should be increased.
- Paying attention to increasing the salaries of the extension workers allowance in order to face the part-time job for extension work.

Third: Regarding to training

- Provide the necessary training and financial credentialing.

- Developing the content of training courses to suit the needs of agricultural extension workers in the governorate.
- Holding training courses for agricultural extension workers to develop their ability to deal with computer and internet.
- Selection of cadres of researchers and extension workers to carry out the training process for agricultural extension workers in the governorate.

Fourth: Regarding to the material possibilities and facilities

- Provide administrative accommodation for agricultural extension workers in the governorate and priority for expatriates.
- Provide the necessary means of transport to carry out field extension work.
- Attention to providing office equipment and publications for extension workers.
- Establishing more extension centers and activating the role of existing centers.

Fifth: Regarding to Extension programs

- The need to involve agricultural extension agents in the construction of extension programs.
- Stay away from central planning of extension programs and the need to use tribal leaders in planning extension programs.

Sixth: Regarding to coordination between agricultural extension and other organizations of common interest

- Coordination between agricultural extension and NGOs in the governorate.
- Coordination between agricultural extension and scientific research bodies And to ensure the sustainability of this coordination.
- Benefiting from the research outputs of the research staff in the stations of the Agricultural Research Center, the Desert Research Center, the agricultural colleges in Arish and the coordination between them and the extension system in the governorate.

Seventh: Regarding to vision and mission

- Providing financial resources for strategy design
- The establishment of a committee of extension workers and representatives of the research centers in the governorate, and the Faculty of Agriculture in El Arish, in the presence of interested representatives of institutions related to extension work, and with the participation of representatives of farmers in the governorate to prepare a strategic plan for the extension agency in the governorate.
- The need for a clear, specific and written mission for agricultural extension in the governorate that is accessible to all.
- The need for a written job description of the tasks of the agricultural workers.

Eighth: Regarding the technological aspects

- To benefit from the increase in the number of smart phones and the Internet users and rely on these media in the delivery of extension messages.

- Benefiting from Egypt's agricultural channel in reaching the farmers in light of the lack of financial allocations for extension work.
- Take advantage of some of the web sites such as the Vercon and the radcon and develop their content to suit the needs of the farmers, and training extension workers to deal with these sites.

Ninth: Regarding to farmers

- Farmers Participation in the planning and implementation of extension programs.
- Restore confidence among farmers and agricultural extension workers in the governorate.
- Attention to the existence of a clear mechanism to identify the satisfaction of the target audience with the extension service.

Conclusion

This paper presents an analysis of the strengths, weaknesses, opportunities, and threats to extension organizations in North Sinai Governorate by describing and defining the elements of the internal environment of the Extension system of the governorate (strengths, weaknesses) and elements of the external environment (opportunities, threats)

Depending upon SWOT outputs, some relevant strategies were discussed to develop agricultural extension system in the governorate through some dimensions that uses strengths and opportunities to overcome weaknesses and to avoid threats or minimize their effects. The most important points to be taken to promote agricultural extension can be summarized in the following points: Completing the extension and technical staff by hiring new Employees, diversity in the extension and staff in terms of gender, increase extension work budget, to increasing the salaries of the extension workers, Increase the efficiency of t extension workers through the necessary training, providing office equipment and publications for extension workers, Coordination between agricultural extension and other organizations of common interest, Providing financial resources for strategy design, Take advantage of some of the web sites such as the Vercon and the radcon and develop their content to suit the needs of the farmers, and training extension workers to deal with these sites.

References

Barney JB, Hesterly WS. 2006. Strategic Management and Competitive Advantage, USA: Prentice Hall.
Chang H, Huang W. 2006. Application of a quantification SWOT analytical method, Mathematical and Computer Modelling, 43(1-2): 158-159.

Chermack TJ, Kasshanna BK. 2007. The Use and Misuse of SWOT Analysis and Implications for HRD Professionals. Human Resource Development International, 4(10): 383–399.
Clarke G. 1997. Reassessing Resource Allocation Strategies in Higher Education: Methods for Analysis. International Journal of Educational Management, 11(6): 286- 292.
David FR. 2003. Strategic Management-Concepts and Cases, (9th Edition), USA: Pearson Education.
Directorate of Agriculture, North Sinai Governorate, unpublished data, 2015.
Gürel E, Tat M. 2017. Swot Analysis: A Theoretical Review , The Journal of International Social Research,; 10(51): 994-1006 Doi Number: <http://dx.doi.org/10.17719/jisr.2017.1832>
Hay G, Castilla G. 2006. Object-based image analysis: strengths, weaknesses, opportunities and threats (SWOT). Paper presented at the Proc. 1st Int. Conf. OBIA.
Hill T, Westbrook R. 1997. SWOT Analysis: It's Time for A Product Recall, Long Range Planning, 30(1): 46-52.
Jonassen DH. 2012. Designing for decision making. Education Tech Research Dev; 60: 341–359.
Kahraman C, Demirel NÇ, Demirel T, Ateş NY. 2008. A SWOT-AHP application using fuzzy concept: E-government in Turkey. Fuzzy Multi-Criteria Decision Making Book-Edited By Cengiz Kahraman, Springer Science-Business Media.
Kangas J, Kurttila M, Kajanus M, Kangas A. 2003. Evaluating the management strategies of a forestland estate-the S-O-S approach, Journal of Environmental Management 69: 349 358.
Markovska N, Taseska, V, Jordanov P. 2009. SWOT analyses of the national energy sector for sustainable energy development, Energy 34: 752 756.
Michel KM, Janaki RRA, Susan KJ, Ram KS. 2006. Assessing the suitability of community-based management for the Nyungwe Forest Reserve, Rwanda). Policy and Economics, 8(2): 206– 216. Available at: <https://doi.org/10.1016/j.forpol.2004.08.001>
Shafie EMA. 2012. Strategy for Developing Agricultural Extension Systems and Programs in the Arab Countries, Meeting of Agricultural Research and Transfer Officers and Experts in the Arab World, Amman, Jordan.
Start D, Hovland I. 2004. Tools for Policy Impact. A Handbook for Researchers. London: Overseas Development Institute: 30-31.
Suh J, Emtage NF. 2005. Identification of strengths, weaknesses, opportunities and threats of the community-based forest management program. Paper presented at the ACIAR Smallholder Forestry Project ASEM/2000/088 Redevelopment.
Thompson AA, Strickland AJ, Gamble JE. 2007. Crafting and Executing Strategy-Concepts and Cases, (15th Edition), USA: McGraw- Hill/Irwin.
Nikolaou UE, Evangelinos KI. 2010. A SWOT analysis of environmental management practices in Greek Mining and Mineral Industry, Resources Policy 35: 226 234.
NORTHSINAI. 2019. North Sinai Governorate Map www.northsinai.gov.eg/ (Accessed: 04.09.2019)
SIS. 2019. State Information Service, <http://www.sis.gov.eg/Story/68581/North-Sinai-Governorate?lang=en-us> (Accessed: 04.09.2019)