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Evaluating Economical - Social effects of National-Regional Drainage Project of Sistan Plain

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ABSTRACT: There are challenges in Sistan area such as: Blowing 120 days winds, Moving fluid sands, multiple and continuous droughts, existing canal, fine grained and impermeable soil, so much evaporation and transpiration (natural environment). Sistan due to geographical isolation of relative situation and being located in Androeic environment has been not only part of the less developed deprived areas of the country and its residents whether urban or rural have faced continuously with many socioeconomic problems, and they have faced with phenomena such as: dry weather, periodical drought, dehydration and sometimes heavy floods in environmental dimensions. Actually, Hirmand river flowing from south to north, is divided in two branches. The first branch is sistan river which flows from east to west and it's flowing across the plain and finally it's ended in Hirmand plain. The second branch which is the Safla part of Hirmand, it's flowing from south to north and it's drained to Pouzak plain as Pariyan river. The feeing sources of plains like: Pouzak (in north) Sabouri (in north - north west) and Hirmand plain (in east - south east) are besides flowing surface water, Sistan and Pariyan rivers, canal and surface runoffs. According to water resources problems of the province and in order to use optimally from soil and water resources and increase agriculture efficiency, creating irrigation and drainage networks by proper and basic irrigation and also preventing the soil erosion and timely improvement through drainage operations are being performed. In this paper, It has been evaluated socioeconomic effects of Drainage Project of Sistan Plain during last 10 years. In addition, the project has had a developmental purpose and it has been done by descriptive-analytical method which most of its data has been collected based on field studies and by sampling method (Koukran) of 124 official and nonofficial experts of the sample area. also, in order to analyze the data, it has been used the comparative test (Mann-Whitney) and Analytical Hierarchy process model. Research findings based on comparative test results of Mann-Whitney showed that it's seen a meaningful difference at 0/95 level in indexes like: livelihood improvement and business development, with Mann-Whitney were obtained 1525000 and 1506500, respectively and significance level less than 0/05, significant difference at surface is 0/95 and in other indexes however, the obtained significance is more than 0/05, it's not considered significant difference among official and nonofficial experts' views in this project.

Keywords: Evaluation, Economical - Social effects, National-regional Drainage Project of Sistan Plain.

INTRODUCTION

Each rural residence is composed of different economic, social, cultural and political arenas which each one represents one of social life aspects. So, the rural space includes a certain structure with respect to environmental and ecologic features and its socioeconomic characteristics which represents its fundamental capabilities and potential talents (Saeidi, 1998). Villages due to favorable conditions in cultivating and meeting basic needs of societies, require underlying planning and attention to achieve constant development, drought and its challenges are one of factors which causes inconstancy in rural societies (Pour Taheri *et al.* 2009). Today, by considering local and native resources, necessity of attention to official and nonofficial experts' views and their role in national-regional projects, seems evitable to achieve development. Spontaneous and endogenous development necessitates in all processes of national-regional plans and projects and constructive and rural development, it must be based on attracting experts and local people to cooperate for mobilizing resources and local participations by emphasizing on empowerment and creating capacity. Using their views makes people do not feel stranger with new programs and elements and on the other hand, they can be participant during designing and then performing and keeping the plans. They claim the obtained plan and product and cooperate best for maintenance and dynamism. In this regard, economical - social effects of national-regional drainage project of sistan plain was investigated of official and nonofficial experts's views in sistan area. According to proposed problems and matters and achieve the research purpose, the question ahead is as following:

1. What is the difference between official and nonofficial experts's views in drainage project of sistan plain to rank requirements of sistan area?

MATERIALS AND METHODS

A. Theoretical Principles

In program literature, evaluation is to measure and judge function of programs and plans by predicted purposes, criteria and standards and to analyze the social and economic effects of programs and plans. On the other hand, evolution is a process to provide proper information for making decision in different management levels (Brown & Sevenson, 2000: 3). Actually, evaluation is a process to provide proper information for making decision in different management levels. So, evaluation is an important process inside the planning process which it's in all process and in fact, the evaluation has also been along with it from the beginning of subjective imagination of program and planning. Evaluation is performed in determining purposes, politics and performing the program and finally, it's evaluated the achievement extant of goals and the consequences of performing the program; evaluation is a process which it is during planning stages and only its purpose and form is changed (Jom'e pour, 2010: 138-139). One of the most proper ways of identifying the positive and negative effects of performing programs is to minimize negative effects and to maximize its positive effects, evaluating the effects of the plans and programs. Evaluating the effects helps effectively recognize the strong and weak points of each project through which must compare implicit purposes and explicit goals from one side and expected results and predicted results from the other side and then assess the effect of the results on different aspects of individual' social life (Ebrahim pour et, al. , 2008: 87). Today, process of evaluating the effects of projects is an important part of planning and performing projects in plans and policies and it's utilized all around the world (Bekr et. al, 2009: 31). Evaluating the economic effect is a tool to evaluate the changes that a plan or program can apply. Evaluating the economic effect is usually performed by analyzing the expensiveness which is politician's assistant. The main purpose of evaluating the economic effect, is to evaluate the effects of plan or certain interference in economic environment. This kind of evaluation may be performed before or after interference. The results of evaluation are usually presented quantitatively. For example, it can be said how performing a decision affects on inflation, economic growth and … . Evaluating social effect is one of the areas of evaluating the effect which means a process to identify the results and consequences of a suggestive action or an under performing action on individual's life, organizations and large social systems. Evaluating social effect as a special concept, first was used in National Environmental Policy Act (NEPA) of US in 1969. Of course, it has always been favored predicting and estimating the effects of change on society in its broader form since druids of Delhi temple part of political perspective and favored to anthropology and sociology from the beginning of these sciences (Bekr et. al, 2009: 17). The main purpose of evaluating social effects is to provide an environment which it is more stable and fair ecologically, socially-culturally and economically. So, evaluating social effects increases development and social empowerment of creating capacity and will develop social capital (social network and confidence).a plan includes many activities. The activities must be divided in controllable and smaller units and components. The smaller units are called Project. Real practical works are performed in projects (Asayesh et. al, 2003: 3).

B. Research History

It has not been studied on evaluating socio-economic effects of National-regional Projects of Sistan, especially Drainage Project of Sistan Plain and most of studies have surveyed people participation in developmental projects and project management.

C. Research Method

In this research, it has been used two methods descriptive (percent, frequency and average) and analytical statistics (AHP model and Mann-Whitney test) in order to analyze information using software Expert Choice and SPSS. Superficial and content validity of the questionnaire was performed by related experts' confirmation and its reliability was estimated using Cronbach's alpha coefficient in this relation = 0/87, which it has desired reliability according to considered thresholds in reliable scientific resources. The statistical society includes all teachers in the courses of geography, social sciences, all mayors and also half of skilled officials and experts of the offices and village departments of Sistan area, which equals 182 people based on statistic in 2011. The sample volume has been prepared using Koukran formula at the confidence level of 95 percent equals 124 people to analyze collected data in the form of questionnaire.

DRAINAGE PROJECT OF SISTAN PLAIN

According to water resources problems and in order to use optimally of water and soil resources and to increase agriculture efficiency, creating irrigation and drainage networks by proper and basic irrigation and also preventing the soil erosion and timely improvement through drainage operations is under performing. (figure1) The studies of the plan was began widely over 46 thousand hectars of agricultural lands of Sistan in 1985 by consultant engineers of Pars Consult. According to study results of the area, the plan was divided in 12 blocks that 5 blocks are placed in water slope and 7 Blocks behind the water.

Fig. 1. Drainage Project of Sistan Plain (source: regional water corporation of Sistan and Balouchestan, 2014).

*The Drainage and irrigation networks plan of the water slope areas and behind the water areas has been assigned to consultant engineers of Pars Consult since beginning of 1984.

A. Available water resources

Part of available water resources in Sistan plain is belonged to Drainage and irrigation networks water slope and behind the water as following which it forms volume of over 850 million cubic meters in a year. The main water resources which meet the needs of Sistan plain are:

-Sistan river with average annual flow 2625 million cubic meters.

-Half well reservoir in total capacity of 700 million cubic meters and useful capacity of 340 million cubic meters.

In addition to above mentioned water resources, the common Pariyan and interior Pariyan rivers share in irrigation and water supply of Sistan plain.

B. General characteristics of project

In mentioned areas, it has been built main and second class irrigation canals network and second class drainages, which as a result of it, the areas has been divided in 12 separate blocks. Available situation of main irrigation and drainage networks are summarized as following:

Table 1: Number of blocks in water slope.

Total level	**number of blocks in its slope**	**Block 1**	**Block 2**	**Block 3**	**Block 4**	**Block 5**
About 46000 pure hectars	5 blocks in pure space of 22967 hectars	6430 hectars	5990 hectars	4677hectars	2646 hectars	3384 hectars

Source: regional water corporation of Sistan and Balouchestan, 2014.

Table 2: Number of blocks in behind the water.

7 blocks	**Block 1**	**Block 2**	**Block 3**	**Block 4**	**Block 5**	**Block 6**	**Block 7**
Pure area of 23039hectares	1000 hectars	2100 hectars	1024 hectars	2270 hectars	3760 hectars	5780 hectars	7105hectars

Source: regional water corporation of Sistan and Balouchestan, 2014.

Table 3: Length of performed network in water slope.

Main Canal	second class canal	second class drainage
19 km	42 km	115 km

Source: regional water corporation of Sistan and Balouchestan, 2014.

Table 4: Length of performed network behind the water.

Main Canal	second class canal	second class drainage
25 km	**56 km**	**92 km**

Source: regional water corporation of Sistan and Balouchestan, 2014.

Engineering service contraction of irrigation and drainage networks plan of water slope and behind the water was signed between consultant engineers company of Pars Consult and regional water corporation of Sistan and Balouchestan in Sistan plain at 1983/03/01

RESEARCH FINDINGS

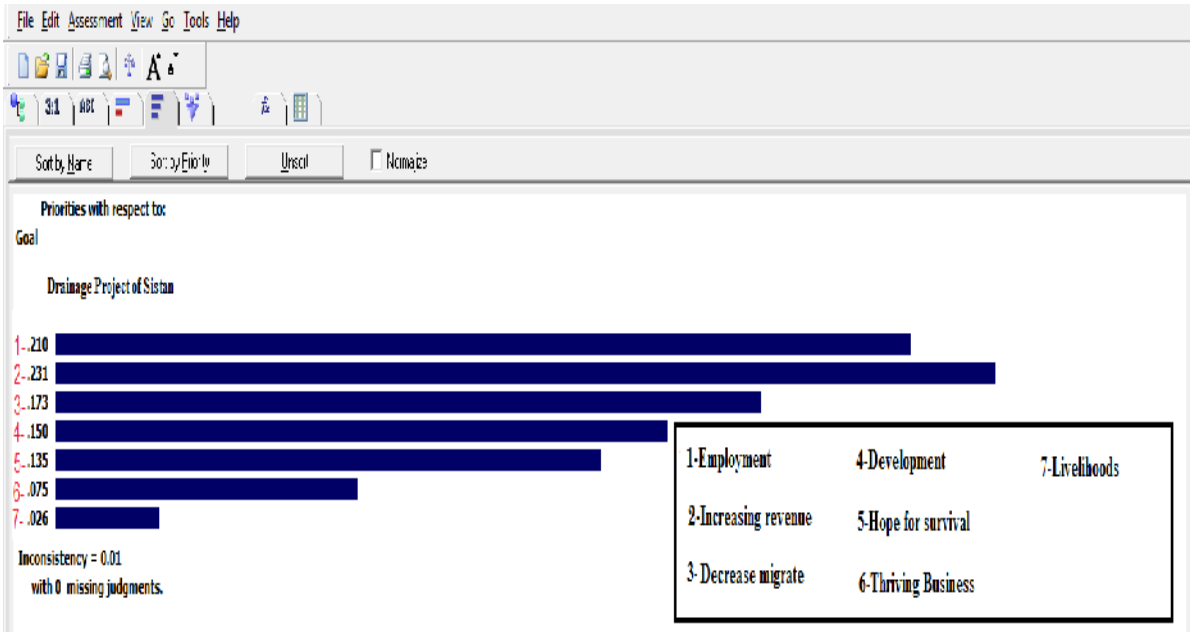

Fig. 2. Weights of pair comparison studied criteria in drainage project of Sistan plain (source: research findings, 2014).

Table 5: General characteristics of drainage project of Sistan.

Project Construction Year	Project End Year	Project extent	Under support area	Population of Under support area	Perform purpose
1984	continuous	46000 hectars	Water slope and behind the water	106556	According to water resources problems of the province and in order to use optimally from soil and water resources and increase agriculture efficiency, creating irrigation and drainage networks by proper and basic irrigation and also preventing the soil erosion and timely improvement through drainage operations are being performed.

Source: regional water corporation of Systan and Balouchestan, 2014.

Studying indexes in surveyed projects include 7 indexes in socioeconomic dimension. According to figure (2) increase of income with the weight of 0/231 has influenced the most on the drainage project of Sistan plain and livelihood improvement with the weight of 0/026 has influenced the least on the drainage project of Sistan plain.

Fig. 3. Drainage Project of Sistan Plain (source: research findings, 2014).

A. Hypothesis test

This hypothesis has been formulated as follow;

There is a significant difference between official and nonofficial experts's views in Drainage Project of Sistan plain to rank requirements of sistan area. In order to test the hypothesis, it has been used Mann-Whitney test according to comparison of two groups of official and nonofficial experts's comments.

Table 6: Groups average.

	N	Mean Rank	Sum of Ranks
Official experts	**56**	**57.81**	**3237.50**
Total non-Official experts	**68**	**66.36**	**4512.50**
	124		

Source: research findings, 2014

According to above table, mean ranks for official experts equals 57.81 and for non-official rank equals 66.36.

Table 7: Mann-Whitney test of surveying indexes in drainage project of sistan plain.

index	occupation	income	migration	development	Survival hope	Business development	Livelihood improvement
Mann-Whitney u	**1569/500**	**1/642**	**1/783**	**1/659**	**1537/000**	**1525/000**	**1506/500**
Asymp. Sig .(2-tailed)	**0/084**	**0/173**	**0.530**	**0/202**	**0/056**	**0/047**	**0/039**

Source: research findings, 2014

The results, as it's clear in Table 7, showed that it's seen in indexes of livelihood improvement and Business development, with obtained Mann-Whitney, 1525,000 and 1506,500, respectively and the significance level smaller than 0/05 (sig 05/0), the significance difference at the level 0/95 and in other indexes due to obtained significance is more than 0/05, it's not observed significant difference among official and non-official experts' views on drainage project of sistan plain.

SUGGESTIONS

(i) Preparing conditions toward constant relying on local capitals local and increasing the role of residents in developing the area.

(ii) Supervision and check on correct performance and maintaining the performed projects in sistan area must be specified properly.

(iii) More attention of officials and authorities for performing national-regional projects in sistan, must emphasize on people's basic needs and ranks.

(iv) The most important problem of sistan area is lack of employment which it has ended in their migrations. Hence, the plans and projects must be concentrated on creating employment in the area.

(v) Using villagers and people's comments and information in sistan area is of importance for better performance of projects.

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