Ukrainian Journal of Ecology

Ukrainian Journal of Ecology, 2018, 8(3), 282-287

ORIGINAL ARTICLE

Environmental implications of international project of MENARID on demographic and social variables

A. Afshari, J. Afshari, A. Kaffash

Natural Resources Engineering-Dedesertification, Zabol University, Iran. E-mail: afshari.az202@gmail.com

Received: 26.05.2018. Accepted: 14.08.2018

Study of the extensive scope of desert is closely related to rural communities; therefore, recognition of social structure of villagers is an important point in relevant projects and studies. International project of MENARID is the first multi-dimensional project designing to deploy organizational coherence and participation of people, governmental organizations, and private institutions regarding sustainable management of land with emphasis on sustainable natural resources management. Since it is required to be aware of yield and adoption of project with regional conditions to evaluate performance of project and its environmental implications besides attitude of people living in region toward consequences of this project, the extant study was undertaken to examine environmental effects of international project of MENARID on demographic and social variables from the viewpoint of villagers living in Pilot Village, Hamoon Site in Sisitan Province, Iran. 4 villages of Pilot were selected as statistical sample and sample size obtained to 147 households (150 households were selected for more accuracy) using simple random sampling method through Best Survey Software. Methodology of study was descriptive-inferential and data were collected through survey, cases study, observations, and opinions of experts. The obtained data were analyzed through SPSS Software. Results of study showed that there were positive and significant environmental effects of studied project considering all parameters except for housing through mean difference tests of T and ANOVA at level of 5%.
Keywords: Environment; demographic characteristics; social indicators; desertification

Theoretical literature

Afshari and Sahebzadeh found a direct significant relation in effect of native knowledge among villagers living in Keikha village (Pilot in site of MANARID of Hamoonshahr, Sistan) on sustainable development aspect of international project of MENARID with correlation coefficient of 27% at economic level and 55% at social level. Akbari and Sadeghi Shahdokht (2012) reported that desertification has created economic problems equal to 3124472 thousands Rial in Gonbadli-Abmal Region and 1179123000 Rial losses in Khangiran-Baztapeh Region leading to 76% poverty and immigration expansion in studied areas. To prevent from this process, some management and revival measurements such as mulching, seeding, tree planting, and windbreaks erecting were undertaken that had positive effects on social, economic and ecological aspects. Karimi Zarchi and Delavaripoor (2012) studied sustainable development plan considering ecological and regional culture in international project of MENARID in which some results obtained including effort to increase awareness and regional public view about the role of people in growth and development of rural areas, consultation with people to identify gaps, legal and structural barriers, providing appropriate solutions to solve problems, and assigning a part of implementation of sustainable development plan to local people in order to strength their sense of responsibility. Razavian and Mohammadzadeh (2009) found a direct and significant relationship between services and stability of human resources in Sistan, but effect of this relationship is weakened during different periods due to non-concentration of facilities, urban and rural inequalities, cultural-social behaviors, and weak economic bases in rural habitats and unstable ecological and environmental circumstances of region.

Study area

Sistan covers 8.1% of area of Sistan and Baluchistan Province with an area of 1519700 hectare; this area has a population of more than 400000 and age of 5000 years. Shahr-e Sukhteh, known as paradise for archaeologists, is located in 55 km distance from south of this area; there are numerous historical and ancient monuments in Sisitan such as Khajeh Mountain with 22000 years antiquity is located in 25 km at west south of Zabol Province, Dahan-e Gholaman is the only non-capital city of Achaemenid with antiquity of 2000 years located in 30 km of west south of Zabol. Accordingly, Sistan is an effective province that can effect on economic and social activities of region and neighboring countries. This effect rose from the human proximity to river (Figure 1).

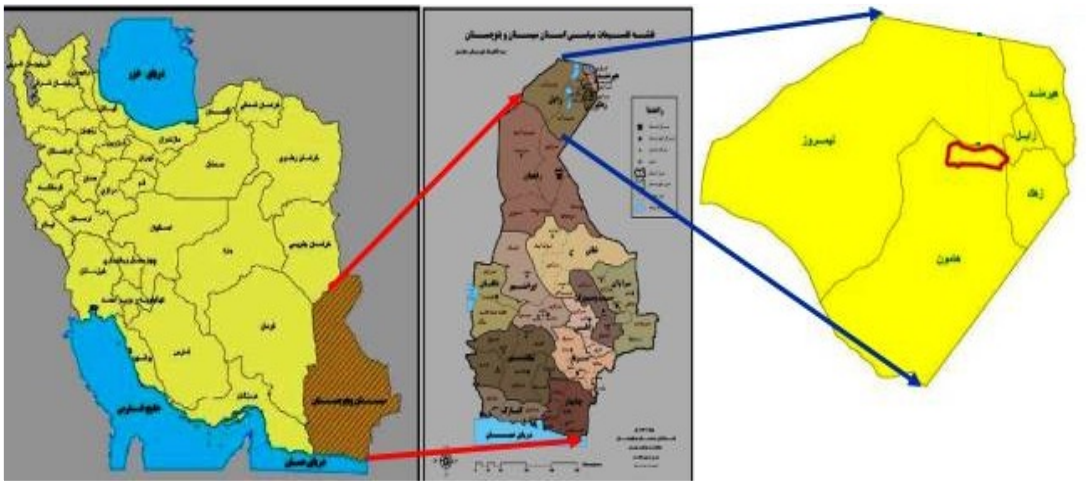

Figure 1. Site location is Sistan, Province, Country.

Site of international project of MENARID has an area of 20043 hectare that is limited to Sistan River (Nahrab) from north, to Zablo-Zahedan Road from east, to Cement Chanel number 1 of Shia Ab from south, and pasture lands of Hamoon Lake from west. Average height of this site is 473m above sea level.

Majority of residents of the region is agriculture and animal husbandry so that the advance of this sector is directly related to water resources of Hirmand River that is originated from Afghanistan. Changes in water level of this river would intensify main challenges of people living there such as youth unemployment, seasonal unemployment of rural men and women as well as instable incomes obtained from agriculture and animal husbandry in these areas.

Considering various population centers in phase 1 of this site, 4 villages were selected as pilot villages to ascertain behavioral, social, and economic properties of these villages in current situation then to evaluate and measure these properties after implementing executive models. Four selected villages included Keikha, Poodineh, Boland and Sanchooli Town (Document of International Project of MENARID, 2011).

Methodology

Methodology of study was descriptive-inferential and data were collected through survey, cases study, observations, opinions of experts (MENARID, Natural Resources, Agriculture Organization, etc.) and review of authenticate and new scientific references. Survey data were obtained though structured interviews and questionnaire.

Statistical population of study consisted of local residents and officials (1486 members) of sample villages in international project of MENARID. Sample areas in international project of MENARID consisted of Keikha, Boland, Poodineh, and Shahrak-e Sanchooli villages. Sample is a smaller group that is selected from community for analysis. Considering confidence level of 95% and confidence interval of 20, statistical sample of each village was selected based on simple random sampling through Best Survey Software as it is indicated in Table 1.

Table 1. Population number and statistical sample of pilot villages in MENARID project.

Region	Population	Statistical sample
Keikha	525	39
Poodineh	187	34
Boland	231	35
Shahrak-e Sanchooli	543	39
Total	1486	147

To increase statistical precision, 150 questionnaires were used. In this research, quantitative and qualitative approaches were employed to achieve research goals. Questionnaire was used as instrument designing based on conducted studies. At first step, preliminary questionnaire was given to professors and scholars in scope of natural resources in order to determine validity of questionnaire then required corrections were applied. At second step, 10% of questionnaires were pretested by villagers and local officials of pilot villages to measure reliability of it using Cronbach's alpha test and its results. Defects of questionnaire were removed considering correlation between questions then the final questionnaire was designed. Descriptive statistics including frequency, standard deviation, mean, etc. and inferential statistics including t test and ANOVA were applied for data analysis through SPSS Software.

Results and discussion

Environmental implications of MENARID project based on gender

Table 2. Mean difference test for environmental implications of MENARID Project based on gender.

Gender	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
female	26	27.0769	9.36770	-1.224	0.018
male	124	28.9113	6.34254		

According to Table 2 and obtained significance level, there is a statistical significant difference between means. It can be stated that environmental implications of MENARID Project have been more understood by men compared to women. The mentioned result is significant at confidence level of 5%. Since rural women in studied area have limited participation so that their presence can be ignored in relevant context, the obtained result seems logical, because weak economic power and its effects on households do not allow women to participate in various affairs. Accordingly, environmental implications of MENARID Project are more tangible for men than women due to their low-level involvement. The conducted studies by Mirbod (2003) showed that gender type of members could effect on dependent variable. Results obtained form study of Ghanian et al. (2008) indicate that majority of women have limited participation in programs of protection form environment and this is one of reasons for failure in such programs. Despite the efforts of women in rural communities, the role of group is usually ignored production and economic activities.

Environmental implications of MENARID project based on village

Table 3. Mean difference test for environmental implications of MENARID Project based on village.

Village	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
Keikha	39	28.8718	9.7688	4.585	0.004
Poodineh	35	30.6571	6.6815		
Boland	35	25.0857	3.3018		
Sanchooli	41	29.5610	3.3018		

According to Table 3 and obtained significance level, there is a statistical significant difference between means of environmental implications of MENARID Project based in villages. Accordingly, environmental implications are different in studied areas.

The difference between environmental implications of MENARID Project in villages can be attributed to some criteria such as different location of agricultural lands, demographic features, income levels, earth orbit, and product type.

Environmental implications of MENARID project based on education level of residents

Table 4. Mean difference test for environmental implications of MENARID Project based on education level.

Education level	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
illiterate	41	25.7500	5.5000	2.458	0.034
elementary	17	26.8000	6.8810		
secondary	60	30.5294	10.3689		
diploma	21	29.3333	6.0194		
BA	4	30.0976	5.4258		
MA	1	30.0000	0		

Table 4 indicates mean difference of environmental implications of MENARID Project based on education level of residents. According to significance level (5%), the difference between means is statistically significant. It means that villagers with higher education can more understand environmental implications within process of protection, revival, development, and exploitation from natural resources so that high-level education has a significant effect on such understanding. Since education is one of effective factors in sustainable natural resources management by farmers, implementation of educational and cultural projects in the context of sustainable natural resources management for family members can encourage head of family to follow principles of such management. In this regard, researches undertaken by Heidari et al. (2009), Mojaradi and Husseini (1996), and Khatoonabadi et al. (2001) indicated that there is not any significant relation between education and involvement of exploiters. The difference in studied area also the difference between awareness and education level of exploiters can be a reason for different results obtained from previous studies and present research.

Environmental implications of MENARID project based on job of family head

Table 5. Mean difference test for environmental implications of MENARID Project based on job.

Job of family head	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
unemployed	9	28.4286	6.6684	2.586	0.028

self-employed	35	28.4857	5.2095
farmer and shepherd	56	27.0769	9.3677
housekeeper	26	31.5556	4.1566
Governmental job	24	26.6575	4.9358

Table 5 indicates mean difference of environmental implications of MENARID Project based on job of family head. According to significance level (5%), the difference between means is statistically significant. It can be stated that environmental implications of MENARID Project are different based on job of family head. Farmer and shepherd heads had highest mean and unemployed heads had lowest mean. This finding is significant at confidence level of 5%. There is a significant difference between opinion of residents toward environmental implications of MENARID Project considering their jobs; in this regard, those who were farmer or shepherd evaluated the effect of MENARID Project on desertification and high level and unemployed heads and those who had governmental jobs evaluated this effect at low level because of their lack of involvement in environmental activities. Job of family heads is an underlying option in evaluating effect of MENARID Project so that those whose job was exposure to the project felt high effect of project.

Environmental implications of MENARID project based on residence years

Table 6. Mean difference test for environmental implications of MENARID Project based on residence years.

Residence years	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
<10 years	4	27.4545	6.1215	1.875	0.048
10-20 years	17	27.6765	8.9838		
20-30 years	18	27.7381	5.6958		
30-40 years	42	28.7083	7.7598		
40-50 years	24	30.0000	5.2678		
50-60 years	34	30.5556	6.2705		
>60 years	11	33.0000	5.5976		

Table 6 indicates mean difference of environmental implications of MENARID Project based on residence years. According to significance level (5%), the difference between means is statistically significant. It can be stated that environmental implications of MENARID Project are different based on residence years. The more years of living in village, the more the implications of MENARID Project will be so that villagers who are living there for long years would feel immediately positive environmental effects in current circumstances compared to past due to several natural fluctuations during droughts and rainy years. The obtained means show that those who are living in villages less than 30 years have similar means and such case can be seen among those who are living in village more than 30 years. A study was conducted by Dahmardeh et al. (2009) to examine factors affecting desertification in which, there was a positive significant relationship between living years and participation of exploiters in revival of natural resources of the region. The significant difference between opinions of residents toward environmental effects of MENARID Project in terms of living years indicate that residents with more residence years can see more environmental effects in process of protection, revival, development, and exploitation from natural resources.

Environmental implications of MENARID project based on land area

Table 7. Mean difference test for environmental implications of MENARID Project based on land area.

Land area	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
no land	50	23.5000	2.1213	2.228	0.031
1-2 hectare	48	26.5000	0.7071		
2-3 hectare	31	27.6471	8.7674		
3-4 hectare	17	28.3333	6.0926		
4-5 hectare	2	28.5484	7.7021		
>5 hectare	2	29.5714	6.9462		

According to Table 7 indicates mean difference of environmental implications of MENARID Project based on land area of households

Environmental implications of MENARID project based on are of land under cultivation

significance level (5%), the difference between means is statistically significant. It can be stated that environmental implications of MENARID Project are different based on land area of households. In other words, positive effects of project are seen more with increase in land area, because exploiters can broadly benefit from environmental effects of project when the area of their farm lands is increased.

Table 8. Mean difference test for environmental implications of MENARID Project based on area of land under cultivation.

Area of lands under cultivation	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
no cropping	68	24.6215	3.1562	2.562	0.021
1-2 hectare	68	27.6667	7.6070		
2-3 hectare	8	28.4412	6.4377		
3-4 hectare	6	31.1250	7.9899		

Table 8 indicates mean difference of environmental implications of MENARID Project based on area of land under cultivation. According to significance level (5%), the difference between means is statistically significant. It can be stated that environmental implications of MENARID Project are different based on area of lands under cultivation. The wider the area of land under cultivation, the more the implications of project will be and residents who have been living for long years in village more feel implications of MENARID Project.

Large quotas of farm lands are not cropped due to drought and lack of water resources and this is one of major problems of agriculture in studied region. Since lands under the cultivation can produce more products through project implementation, exploiters can benefit from environmental effects of project more tangibly.

Environmental implications of MENARID project based on agriculture income

Table 9. Mean difference test for environmental implications of MENARID Project based on agriculture income.

Agriculture income (Toman)	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
no income	62	27.2410	4.2564	2.087	0.049
<200000	3	27.3600	4.9990		
200000-400000	4	27.3034	5.3549		
400000-600000	23	28.2632	3.9559		
600000-800000	19	28.5833	7.8422		
800000-1000000	14	29.2571	7.5203		
>1000000	25	33.4333	9.3166		

Table 9 indicates mean difference of environmental implications of MENARID Project based on agriculture income. According to significance level (5%), the difference between means is statistically significant. It can be stated that environmental implications of MENARID Project are different based on agriculture income. After implementation of project, lands' conditions became better, products increased, and cots of farmer reduced so they experienced higher return on their capital. Hence, project is directly in relation with household income so that it increases incomes and prepares the field for household to participate in project.

Results of this study are in line with results obtained from studies conducted by Ahmadi et al. (2004) and Ghasemi Arian and Ibrahiminejad (2011) that were carried out in Sarakhas Region, Iran.

Environmental implications of MENARID project based on housing status

Table 10. Mean difference test for environmental implications of MENARID Project based on housing status.

Housing status	Frequency	Mean of environmental implications of MENARID Project	Standard deviation	t value	Sig
private	124	28.7227	6.4478	1.196	0.315
rental	11	30.4545	8.6413		
inherited	14	28.0000	7.2748		
corporate	1	31.0000	0		

Table 10 indicates mean difference of environmental implications of MENARID Project based on housing status. According to significance level (5%), the difference between means is statistically significant.

Conclusion

According to the obtained results, MENARID Project has attracted attention of villagers who live in pilot villages indicating interest of villagers of this region in people-oriented projects. Also, this project has indirectly affected agricultural development of region through desertification. Implementation of projects that are based on participation of residents and have direct effect of their lives can become success stories. This research confirmed that MENARID and its programs can be

stabilized through participation of people in environmental, social, and economic activities. Accordingly, such projects can strength social and economic indicators leading to sustainable development.

Recommendations

Following recommendations are presented according to the findings obtained from this study:

- Increase in participation of women in social economic and environmental programs through training and producing handicrafts of region even modern and innovative industries considering current society needs to make income.
- Paying attention to important historical monuments and resources in pilot villages to make tourism attraction.
- Holding workshops for healthy environment to create new farming methods.

References

Ahmadi, H., & Jafarian Jolodar, Z. (2004). Effect of desertification on social and economic status of Kerman, Iran, International Journal of coexistence with the Desert Research Center, Tehran University, 9 (2): 207-226.

Afshari, A., & Sahebzadeh, B. (2014). The role of indigenous knowledge in sustainable development project of MENARID on site of Hammonshahr, Sistan, Iran (Case Study: Keikha Village), Third National Conference on Sustainable Development in Arid and Semi-Arid Areas, 15 May 2014, Abarkuh.

Afshari, M. (2012). Political-economic effects of water crisis of Hirmand River in Sistan region, MSc Dissertation in International Relations, Literature University of Shareza, 207.

Akbari, M., & Sadeghi Shahrkht, T. (2012). The effects of desertification on socio-economic issues in rural areas (Case Study: city of Sarakhs, Khorasan Razavi), the First National Conference on Strategies to Achieve Sustainable Development in Agriculture, Natural Resources and the Environment, May 2012, Tehran.

Check the status of socio-economic indicators of MENARID project, (2012). Department of Natural Resources and Watershed Management in S and B Province, International Project Office of MENARID.

Dahmardeh Ghaleno. MR., Shahryari, A., & Khatibi, R. (2009). Evaluation of the role of social and economic factors on the participation of beneficiaries in the restoration of the natural resources in Hammon region of Sistan, Proceedings of the National Conference on Modification of Consumption Patterns with a Focus on Natural Resources, Agriculture and Animal Husbandry, March 2009, University of Zabol.

Razavian, M. T., & Mohammadzadeh, S. (2009). Evaluation of rural development approach in the stability of staffing services (centers in rural areas of Sistan area), National Housing Conference and PHYSICAL DEVELOPMENT of the Village, October 2009, Zahedan, Sistan and Baluchestan University.

Document of International Project of MENARID, (2011). Ministry of Agriculture, Forest, Rangeland and Watershed Orgnaization, International Project Office MENARID, Zahedan.

Ghanian, M., Khani, F., & Ghadiri Masoom. M. (2008). The role of rural women in the exploitation, conservation and restoration of natural areas of desert (Case study: Khuzestan), Journal of Women, Vol. 6, Issue 1, Spring 2008, 119-135.

Ghasemi A. A., & Ibrahimnejad A. (2011). Factors affecting desertification and ways to deal with it (Case Study: Sarakhs City). The Second National Conference on Combating Desertification and Sustainable Development of Wetlands in the Iranian Desert.

Karimi Zarchi, M., & Delavaripoor, A. (2012). Culture, infrastructure planning for sustainable development (Case study: International Project of MENARID), The First National Conference on Sustainable Development in Arid and Semi-Arid Areas, May 2012, Islamic Azad University of Abarkuh.

Mirbod, M. (2003). Study of role of NGOs in promoting natural resources (MSc Dissertation), Islamic Azad University, Science and Research Branch.

Heydari, G., Barani. H., Khoshfar. G., Ghorbani. J., & Aghili. M., (2009). The role of social wealth on participation in performing pasteurizing projects based on the points of views of their applicants (case study of Balade pastures North of Iran (pasture magazine, 3(1):121-137.

Khatoonabadi, S.A., Amini A. M., & Mirzaali. A. (2001). The herd keeper participationpreventing factors in restoration pastures of Aghghala in Golestan province. J. of Agriculture science and Technology and Natural resources, 1(5): 39-54.

Mojaradi, G., & Hosseini. M. (1996). The analysis of factors effective in accepting coinages related to the project of controlling cattle parasitic disease in Bognourd. The summary of the first scientific articles of expansion natural resources of cattle and aquaculture issues. Tehran: The ministry of Jahad Sazandegi.

Citation: Afshari, A., Afshari, J., Kaffash, A. (2018). Environmental implications of international project of MENARID on demographic and social variables. Ukrainian Journal of Ecology, 8(3), 282-287.