

Influences of rural industries on sustainable social and environmental developments

M. Navabakhsh · R. Tamiz

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Abstract This article is a case study among the owners of cheese-making industry in Lighvan Village of Tabriz City, located in the northwestern part of Iran in Azerbaijan Province, dealing with the effect of rural industry and socio-cultural indices influencing sustainable environmental development. The results were based on two different studies. The volume of the sample denotes the volume of the statistical population ($N = 150$). The present survey was conducted by means of some questionnaires and interviews during spring 2011. The results of testing the hypothesis as well as the correlation indicated: (a) significant correlation between the rates of empathy and rural environment sustainable development; (b) significant correlation between the rate of innovation and rural environment sustainable development; (c) significant correlation between the rate of providence and rural environment sustainable development; (d) significant correlation between the rates of social trust and rural environment sustainable development; (e) significant negative correlation between the rate of fatalism and rural environment sustainable development; (f) significant negative correlation between the rate of nepotism and rural sustainable environmental development; (g) significant correlation between rural industry and sustainable environmental development; and (h) significant correlation between rural industry and socio-cultural indices.

Keywords Rural society and environment · Rural industry · Sustainable development · Empathy · Fatalism · Nepotism · Localism

Introduction

Since evolutionism has helped Europe in transition from a traditional society into a modern one in the nineteenth century, most scholars in modernization believe that the same theory could account for the renovation of third world countries as well. Hence, this ideology with a focus on structural functionalism has a wide range of support among researchers and scientists. This work studies the internal structures in third world countries. From the modernization point of view, the internal structures of societies must be prepared for renovation. Proponents of this view consider elements such as wisdom, rationalism, following discipline, organization, participation, lack of fatalism and other elements as the fundamentals of the renovation trend. Hoselitz's (1964) view patterns variables of developed countries as properties including generality, acquired orientation and sorting applications. Lerner (1958) emphasizes that individual and internal elements must enter into a traditional society to prepare the ground for modernization, the most important of which are: developing and extending mass media, literacy, promoting education, urbanization and participation. From Inkeles and Smith's (1974) point of view, modern man has two outstanding features, an internal one (ideas, values and emotions) and an external one, i.e., environmental elements (urbanization, education, industrialization, mass relationship, political participation and working in factories) with an emphasis on environmental factors.

McClelland (1973) suggests a need and tendency to progress and considers those societies with individuals enjoying the mental virus, need for achievement, to be successful in renovation. Tavasoli (1999) believes that extreme egoism hinders deep and disciplined rational and collective activities.

M. Navabakhsh (✉) · R. Tamiz
Department of Human Sciences, Tehran Science and Research
Branch, Islamic Azad University, Tehran, Iran
e-mail: navabakhsh@srbiau.ac.ir



Rogerz and Shomiker (1971) state that some cultures enjoy a better background for renovation than others. Redfield, Leslie and et al, suggest that the elements of peasant subculture which hamper the acceptance of new ideas and changes in rural communities are: lack of social trust (Redfield 1930), limited good (Leslie 1960), lack of innovativeness (Tax 1963), fatalism (Carstairs 1958; Rogerz and Shomiker 1971), low aspirational levels (Lewis 1960; Fals 1955), low achievement motivation (Rosen 1964), lack of deferred gratification (Fals 1955), nepotism (Wiser and Wiser 1963), dependency of power (Rao 1963), localism, lack of empathy (Lerner 1958) and providence. Schumpeter (1976) is a development economist, among many others, who stresses the influence of socio-cultural and mental dimensions on realization of renovation and development, and considers the following properties as factors of development. Ultimately, several studies demonstrate that correlation between sustainable development and socio-cultural factors (Shakur 2002; Svarc 2006; Abdelahi Chizari et al. 2009; Nigel 2012; Zamani Farahani and Musa 2012). The increasing importance of small rural industries in developing countries originates from the fact that they play a significant role in sustainable development of rural areas of such countries. India, china, Malaysia, Japan and Pakistan have gained invaluable experiences in this regard. These countries have been able to reduce the rate of emigration and improve the economy of rural areas through rural industries and their relation to industrial production mechanism and foreign experience. For instance, China was a high-profile participant in the 1992 United Nations Conference on the Environment and Development in Rio de Janeiro, adopting Agenda 21, a broad policy document outlining environmentally sound development strategies in which the goal of sustainable development was defined as ensuring “socially responsible economic development while protecting the resources base and the environment for future generations” (Beckerman 1998). In addition, developing rural industries, with their role in economic and socio-cultural development in mind, is one of the most important and fundamental solutions to overcome the problems facing rural areas. Valuable potentials of this section have been revealed in many developing countries. However, there is an expectation that rural industries may hold potential instruments for economic development. Developing employment in rural areas, income equity, decreasing income gap between rural and urban areas, reducing poverty, immigration, increasing export and decreasing import and optimum utilization of existing resources are some of the positive consequences of developing rural industries (Astaneh 2004). Rural industries in Iran have undergone great development in recent decades. Until the last two decades, handicrafts used to dominate most of the rural products, with only some workshop

industries. However, development of modern technologies in industry, changes in the rate and kind of consumers’ demand, and the country’s overall policies regarding the development of small industries and promotion of technologies in industry have led to a significant increase in the share of the small industries and workshops, which has been accompanied by formation of rural industrial zones. Inevitably, the same applies to other dimensions of rural industries, namely rate and value of product, investment, rate of employment, quality of labor force, etc. Although rural industries in Iran date back to ancient times, it was not until the 1340s and the onset of the Third Development Plan and Land Reform that the industrial policies were designed so that most industrial units were established in big cities. This policy was justified on the grounds that small investments could not be deployed across the country; therefore, industrial centers must be established in cities with stronger foundations and proper conditions, so that industrial development can spread to small towns and villages later, to bring industrial and economic growth. Industrial development forms one of the dimensions of socio-cultural development. Science culture is a set covering all aspects and sections of the society (Tavasoli 2001). In sociological investigation of technological development and modern industries, the overall focus must be on cultural and socio-cultural patterns enjoying properties such as plurality, publicity and repeatability in the action of socio-cultural generations, because cultural and internalized patterns and habits, in Marcuse’s terms, become people’s second nature, and in Eric Fromm’s terms, people’s socio-cultural mood and finally influence their orientation in socio-cultural and economic behavior (Roshe 2001). Likewise, the social dimension has commonly been recognized as the weakest ‘pillar’ of sustainable development, especially when it comes to its analytical and theoretical underpinnings. By now, sustainable development was perceived as an essentially environmental issue, relating the integration of environmental concerns into economic decision-making. In the past decade, there has been a resurgence of interest toward the social dimensions of development, the ostensible difficulties of creating market institutions in transitional economies, the financial crises in Latin America, East Asia, and Russia, and the problem of unemployment and social marginalization in even the most prosperous economies (Woolcock 2001). The academic literature has paid considerable attention to the role of institutions, governance and social capital in the development process. Finally, the political acceptability of sustainable development depends on its capacity to respond to the persistent social problems that seem to have to some extent surpassed the environmental issues. Such a shift was evidently seen also in the negotiations at the Johannesburg summit on sustainable development in 2002, which raised the development



concerns again to the forefront (Jollivet 2003). Even less attention has so far been paid to the linkages between the social and the environmental dimensions. Nevertheless, it can be argued that the essence of sustainable development lies at the interfaces and trade-offs between the often conflicting objectives of economic and social development, and environmental protection. The demand for such an analytical framework is clearly present, as manifested, i.e., by the Organization for Economic Cooperation and Development (OECD) Council of Ministers' call for integrating the environmental–social interface into the OECD Environmental Performance Reviews (EPRs) (OECD 2001a). Considering their holistic view of economy and interdisciplinary character, the neo-institutional and the ecological economics can be argued to present a 'comparative advantage' over the more conventional neoclassical approaches in integrating the social dimension of sustainability into their analytical package. Among the recent approaches that at least to some extent share the critique that neo-institutional and ecological economics direct toward the conventional economic theories are Sen's (1987, 1999) approach, based on individual capabilities and the concept of 'social capital', used for addressing the social dimension of sustainable development. The capitals approach, considering sustainability as the maintenance or increase of the total stock of different types of capital (manufactured, natural, and social), has its origins in economics (Zaccai 2002); however, it has been much more widely accepted as a 'common sense approach' by the academic community (Farrell and Hart 1998; Harris 2000; Spangenberg 2001; Ballet et al. 2003). However, much less consensus reigns over the relations among the dimensions. The 'institutional' version endorsed by the international organizations is that of three hierarchically equal, mutually interacting dimensions. While the importance of each pillar may vary from one situation to another, such model does not attribute priority to any of the dimensions. Moreover, the model gives the impression of pillars as independent elements that can be treated, at least analytically, separately from each other (Lehtonen 2004). The researcher is trying to deal with not only the role of rural industry in the process of environment sustainable development, but also other socio-cultural indices which accelerate the process of sustainable environmental development in some industrial zones, and slow it down, even making it static, in some other. This research was carried out in the Tabriz Province of Iran in 2011.

Materials and methods

This is a qualitative and quantitative research that seeks to collect suitable information in relation to planning, drafting

and developing scientific methods in executing activities. The research intends to improve behaviors, methods, tools, products, structures and patterns used in human societies. To recognize the effects of the rural industry and socio-cultural indices on sustainable environmental development is the essential aim of this study. Considering the fact that most researches in this field have been conducted in a particular period and the studies are mostly cross sectional, this research was conducted as a cross-sectional one in the spring of the year 2011. The data collected through, theoretical subjects present in libraries, theses, previous researches and expert opinions were obtained (documentary method). Then, the objective and real information were collected via questionnaire and interview by field method. The statistical society in every research will be identified based on the subject of research and its necessities. The executive limits and facilities were recognized effectively. The 150 people (cheese industry owners and other people) of Lighvan Village were studied as a statistical society, using path analysis, regression analysis and Spearman's rank order correlation test for data analysis. The researcher attempted to recognize the role of industry on the indices of rural sustainable development, and to see if the widespread existence of industry in a region was enough to achieve environmental sustainable development, or whether socio-cultural indices were also influential or not. As a matter of fact, the main objective is to find the kind of links that govern people's socio-cultural habits, rural industry and the process of environmental sustainable development. So, in the present research, variables were defined with the following indices.

Variable 1: the rural industry

Various definitions of rural industries in the world and Iran have been given, though with common grounds. For example, Indian's Secretary for National Planning defines small industries as follows: small or rural industries are those in which a skilled worker conducts economic activities under his own responsibility, works with his own tools, and he or his family members who are able to cooperate forms his labor force. They often work with traditional methods, and automation limited role in their job. The Britannica dictionary gives the simplest definition: industries in which man's skill, knack and insight plays major role are defined as rural industries (Astaneh 2004).

Variable 2: the socio-cultural indices

This variable has been defined by the following indices: innovation, fatalism, empathy, providence, nepotism, localism and social trust (Azkia 2002).



Variable 3: the sustainable environmental development indices

Rural environmental sustainable development deals with renovation of rural community and changes it from traditional isolation into a community entwined with national economy. Thus, the aims of rural environment sustainable development do not fit into one section, and cover improvement and efficiency, raising employment, supplying threshold food, dwelling, education and health at any time. This variable has been defined by the following indices:

- a. Population and immigration: (1) population change (growth and emigration), and (2) household dimension.
- b. Social well-being and equality: (1) income, (2) dwelling, (3) education, (4) hygiene and safety, (5) nutrition, (6) participation, (7) life quality, (8) socio-cultural justice and (9) socio-cultural integration.
- c. Environment and sustainability: (1) arable usage and (2) soil and water.
- d. Economic structure: (1) employment, (2) investment and (3) number of workdays (Azkia 2002).

Results and discussion

Results were stated according to two studies explained throughout the work. The essential question is whether the cheese industry has given rise to the development of the village environment.

Study 1: evaluation of rural industry's influence on environmental sustainable development indices

This study aimed to investigate the social–environmental effects of industry on Lighvan Village. Overall, there were nine suggestions in this regard:

Suggestion 1: evaluation of environment and stability indices

The result of evaluation indicates that Lighvan is a village having complex houses arranged irregularly. Complex villages are those with farms in the front, back or around the houses. Lighvan is one of the oldest villages in Eastern Azerbaijan, located 36 km off southeast Tabriz, north of Sahand Mountain, on the side of Mehranrood River. The historical site of this village dates back to eras before and after Christ and the advent of Islam. It had its name changed several times, the first being Van, then Livan and now Lighvan. It has 1,000 households and the majority of them are farmers and ranchers. Presently, it is one of the

most prosperous villages of Azerbaijan owing to animal husbandry and supplying dairy products throughout the country. A region's industry makes changes to its economic, social-cultural, political and cultural dimensions. As it is known, society and industry are correlated, which interests sociologists, who have also made predictions on the outcomes. Industry is changeable by nature and can originate changes in effect. The change evoking an aspect is mainly related to man and his socio-cultural environment, while the changeability aspect concerns, to a great extent, economic facilities and socio-cultural conditions of the industry. The first cheese-producing unit in the village was launched about half a century ago. They used to produce enough to meet their own needs; however, presently there are about 100 units. The products are of high quality and also pay well. The structure village has changed, there are both old houses and modern buildings. The buildings planed with bathrooms, toilet and there are household appliances such computer, TV, microwave, etc. The village birth rate is low. The literacy among men and women is rise. The Islamic council is established. There are rural service center, police station, bank, Basij headquarters, gas and water system, electricity, telephone, health care center, drugstore, sanitation home, birth clinic, dentistry, etc. In all these cases show evolutionary trend and sustainable developmental in the village.

Suggestion 2: evaluation of population and fertility

An investigation into the second index of development, i.e., population and fertility, reveals that the industry in the region has brought accessories, transportation, telecommunication and electricity, which, in turn, have made other facilities available. These facilities, including mass media, involve common people and have helped them with knowledge and information. These have been influential in lowering birth rate, to the extent that the quantity and quality of population, as an axis of development, have undergone many changes due to industry, and the fertility rate has decreased in a manner that most families have now one to three children. The mountainous village of Lighvan, with asphalt roads, holds 1238 households and a population of 5814 and is 0.6 % of the total population of the whole province. A glance at the population figures of the village indicates a decrease, ranging from 33 % in 1986–1996 to 17 % in 1996–2009. The number of children amounts to three at the most.

Suggestion 3: evaluation of literacy and education

An investigation into the other index of development indicates that since literacy and education are reciprocally associated with industry and make an index of



development, they play an important role in changing economic and socio-cultural profile of a village. However, they must accompany economic development. Investment in education goes up in the industrial society, due to ample demand for experts, educated people, managers and skilled workers. Creation of educational centers in Lighvan (nursery, elementary, middle and high school, and computer education center) has helped to increase the number of literate people, which is also partly due to the fact that people can afford their children's education owing to a good income from the cheese industry. The total number of literate people was 497 in 1986, 2361 in 1996 and 3174 in 2009, which shows a great increase.

Suggestion 4: evaluation of emigration and immigration

Considering the emigration and immigration index, it should be mentioned that unemployment and emigration reciprocally influence each other. Rural emigration originates mainly from lack of economic infrastructure and proper fundamental services in villages, on one hand, and better employment and income expectation together with welfare, education and health services in cities, on the other. However, interviews show that the number of emigrants from this village is very small. Since people are employed in cheese production, animal husbandry, feeding cattle, transportation of milk and cheese, and packing, emigration of inhabitants has decreased. An increase in the number of households in 1986 to 659, in 1996 to 922 and in 2009 to 1238 does not suggest emigration and can be represented as a proof. Moreover, the villas built in this village show that the village has been attracting immigrants, which has added to the socio-cultural diversity of the people.

Suggestion 5: evaluation of employment

An investigation into the other index of development indicates that a high percentage of employment in any society suggests economic prosperity and dynamism. UNS (United Nation organization) economic body defines people aged 15–64 years as economically active. Since the development of industry in a region brings employment, in Lighvan, 837, 1462 and 2845 people were reported to be employed in 1986, 1996 and 2009, respectively, which indicates 3.4 times an increase in employment. The cheese industry has evidently helped Lighvan to develop because of higher income and employment.

Suggestion 6: evaluation of income

Launching the cheese industry in Lighvan has changed this formerly agricultural region to a new rather industrial one,

which has been complementary to agriculture and animal husbandry. The cheese workshops establishment have caused that the animal husbandry and agricultural activities is grow in the village. The main income of most inhabitants has been through supplying these workshops with milk. Indeed, the workshops have caused that not only the price of milk increase but also the keeping sheep is affordable. The location of industries in this village has brought about improved infrastructure such as roads, water, electricity, telephone, etc., each of which has increased the income and development equally. The cheese industry has raised the income of families engaged in this business. Though there are no accurate figures, interviews reveal that cheese industry owners are better off than those in other economic activities. A comparison of animal husbandry and cheese making shows that a ton of milk brings 18,000,000 rials (1100\$) to the owner, while the same amount of milk brings 27,000,000 rials (1500\$) to a cheese maker, including expenses. Thus, the cheese workshop is more profitable than keeping sheep, because cheese industry developing and expanding and most keeping sheep tend to establish cheese workshops in the area.

Suggestion 7: evaluation of technology applied

Another index of development, i.e., technological development: technology always brings about change, which is of interest both qualitatively and quantitatively. Cheese is made in a traditional way and the containers used to be made of pottery, which have changed to steel hygienic containers now. Packing also uses modern technology. Previously, to keep the cheese from the local caves (Kohl) was used, and now with the use of refrigeration. The cheese workshop owners of expensive, lack of fit and the main reason for changing the taste of the cheese is pasteurized by machines not equipped with these technologies in the industry expressed.

Suggestion 8: evaluation of investment

The seventh index of development is investment. Investment in this business is done in share, partly through relatives and partly by the government in loans. In this village, relatives get together, build a workshop and get loans from the government. As the workshop owners put it, it takes 1 milliard rials (60000\$) to be set up. Since this business pays well, the owners grow very quickly and economically. Most houses are now renovated and furnished with fine hand-knitted silk carpets, color television, fridge, microwave oven, computer, etc. Previously, cattle raisers and herd owners used to be the highest class in the community, while it is the cheese industry owners presently.



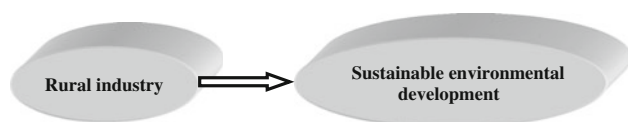


Fig. 1 Rural industry and sustainable environmental development correlation

Suggestion 9: evaluate the days when the plant works

Another index in the development index is the number of workdays and work at each workshop. In each industrial unit around 4 to 10 people work according to their industry, but it is necessary for each of four tap. The number of days that each industrial unit works for about six months or 180 days. In the next six months building a store in the village or town they are working or carpet weaving.

Figure 1 demonstrates the interrelationship between rural industry and sustainable environmental development.

Study 2: interpretation of correlation between socio-cultural indices with sustainable environmental development and rural industry

In order to investigate the relationship of socio-cultural indices (the seventh index, elements of Rogers's peasant

and subculture) with environmental sustainable development and rural industry, the seventh index was analyzed through Spearman's rank order correlation coefficient. An investigation of interrelationship of innovation, fatalism, empathy, providence, nepotism, localism and social trust with environmental sustainable development shows that there is a positive and significance correlation between innovation, empathy, providence and social trust variables and rural sustainable development ($p < 0.05$). In other words, the more the rate of variables under discussion increases among industry owners, the faster the environmental sustainable development occurs. Therefore, there is a positive and significance correlation between innovation, empathy, providence and social trust variables and rural industry ($p < 0.05$) (Table 1).

The study on the relationship of fatalism, nepotism, localism and social trust with environmental sustainable development and rural industry reveals a negative and significance correlation between fatalism and nepotism variables and environmental sustainable development ($p < 0.05$). In other words, the more the rate of these variables increases among industry owners, the slower the process of development becomes (Table 2). No significant correlation between the rates of localism and sustainable environmental development was detected. Therefore, there

Table 1 The correlation of socio-cultural indices and environmental sustainable development and rural industry

Variables	Spearman's rho	Sustainable environmental development	Rural industry
Empathy	Correlation coefficient	0/42*	0.309*
	Sig. (2-tailed)	0/005	0.005
	<i>N</i>	150	150
Innovation	Correlation coefficient	0/57*	0.527*
	Sig. (2-tailed)	0/005	0.03
	<i>N</i>	150	150
Providence	Correlation coefficient	0/46*	0.207*
	Sig. (2-tailed)	0/005	0.010
	<i>N</i>	150	150
Social trust	Correlation coefficient	0/53*	0.253*
	Sig. (2-tailed)	0/005	0.003
	<i>N</i>	150	150

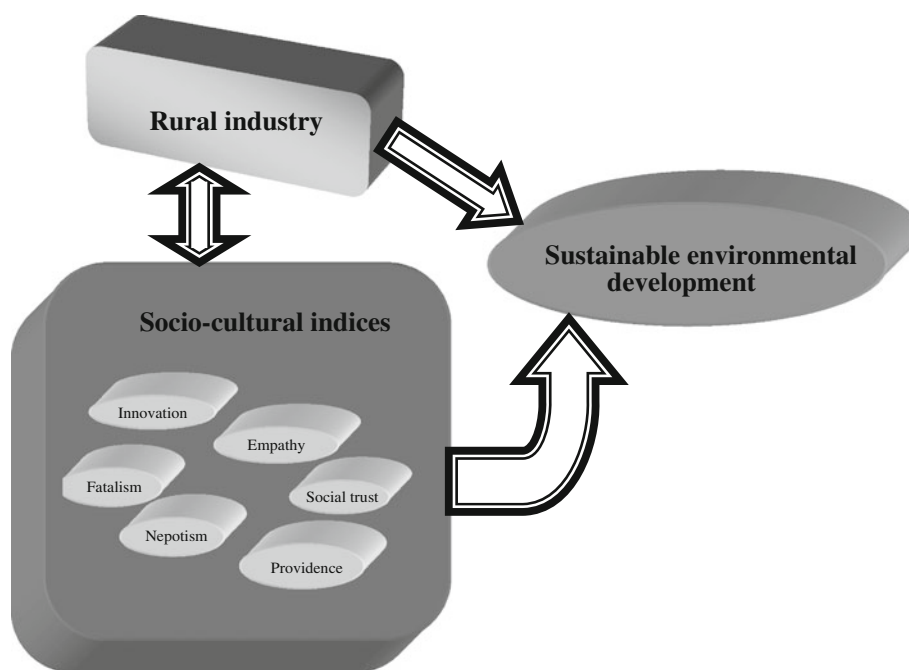
* Correlation is significant at 0.05 (2-tailed)

Table 2 The correlation of socio-cultural indices and environmental sustainable development

Variables	Spearman's rho	Sustainable environmental development	Rural industry
Fatalism	Correlation coefficient	−0/38*	−0.215*
	Sig. (2-tailed)	0/005	0.040
	<i>N</i>	150	150
Nepotism	Correlation coefficient	−0/62*	−0.215*
	Sig. (2-tailed)	0/005	0.005
	<i>N</i>	150	150

* Correlation is significant at 0.05 (2-tailed)

Fig. 2 Correlation of rural industry and socio-cultural indices with sustainable environmental development



is a negative and significant correlation between fatalism and nepotism variables and rural industry ($p < 0.05$). The correlation process has been shown in Fig. 2.

Conclusion

The researcher in another paper shows that industry will grow in a society when the required socio-cultural grounds of the people are paved (Tamiz 2010). Hence, the present results show the rural industry's influence on socio-cultural properties of rural people. Likewise, the verified analysis indicates that rural industry with its influence on population change, environment, economic structure, social well-being, emigration, household dimension, income, dwelling, education, hygiene and safety, life quality, arable usage, soil and water, employment, investment and number of workdays is one of the main elements influencing the sustainable development process in the rural environment. Thus, industrialization is a comprehensive and profound socio-cultural trend which alters many foundations in the society, and brings about a new culture and condition. Moreover, with regard to the results of the analysis, it can be inferred that the presence of socio-cultural properties favored by people in the studied village has contributed to the sustainable development of the village. The nature of industry requires cooperation of all strata of a society. These findings agree with the results obtained by Hoselitz's (1964), Lerner (1958), Inkeles and Smith's (1974), McClelland (1973), Tavasoli (1999), Rogerz and Shomiker (1971), Redfield (1930), Tax (1963), Carstairs (1958);

Rogerz and Shomiker (1971), Wiser and Wiser (1963), Lerner (1958), Schumpeter (1976), Shakur (2002), Svarc (2006), Abdelahi Chizari et al. (2009); Nigel (2012); Zamani Farahani and Musa (2012), Astaneh (2004), Woolcock (2001), Jollivet (2003), and Sen's (1987, 1999). In recent years, creation of rural industrial area has been on the agenda. In essence, creation of this industrial zone can promote technical knowledge of the villagers, contributing to environmental sustainable development in some aspects at the same time. This is because developing this zone is, in fact, a way of organizing socio-cultural behavior. Creation and development of small rural industries are firmly grounded as an important strategy in developed and developing countries with their significance ever increasing. The increasing importance of small rural industries in developing countries, including Iran, originates from the fact that they play a significant role in sustainable development of rural areas of such countries. In the present condition, unemployment and poverty can be remedied through developing these small inexpensive industries in critical areas. In short, considering the fact that rural people account for about 40 % of the population in Iran, the desired sustainable environmental development will not take place unless the rural sustainable development is successfully rendered, which depends on rural industry as well as socio-cultural properties of the rural people.

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