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*Research Paper*

### Evaluating the Degree of Development of forest-covered villages of Armardeh Region, Baneh, Employing Morris Model

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**Abstract:** One of the most important challenges that today's world is facing is absence of development in impoverished (Undeveloped) rural areas which have the most part in the protection of natural resources as well as the environment. On the other hand, natural resources, and at the top of them, forests, have always been stressed as a ground for sustainable development. In the present study, the degree of development of sixteen forest-covered villages of *Armardeh* Region, *Baneh*, was investigated employing Morris Model. The findings of the study indicated that, after *Armardeh*, recently promoted to a city, and thus, the existence of the requirements for development is quite natural, the villages of *Belakeh*, *kochar* are labeled "semi-developed", and other villages under study are labeled "undeveloped (impoverished)" in terms of enjoying the facilities and infrastructures of rural development studied in thirteen levels of indexes. Among the indicators under study, the infrastructures indicators (roads, etc.,) have the most degree of difference in the absence of balance and the cultural indicators have the least; these findings remind of the absence of multi-development in various sections.

**Key words:** rural development; forest, northern Zagross; Morris Model.

#### Introduction

Development and growth have always been the focus of attention of different governments as one of the significant objectives; progress in all dimensions will be achieved under the shade of all-out development. In forest regions, particularly in the North *Zagross*, the absence of development, dependence of people on natural resources and the absence of socialization have been described by the experts as the major causes for the failure of forest management & natural resources projects (Fatehi et al, 2009). The necessity of providing infrastructural facilities and rural development in impoverished (underdeveloped) regions and follow-up actions by people in this issue, is quite evident to all (Pekhkeshi et al, 2004). In this connection, as a result of undesirable planning in the past, the trend of development and the infrastructures related to it have created major problems in the trend of development and change in the villages of the country (Heidari et al, 2012). In fact, the regions located in the outskirts which are clearly underdeveloped are burdened with stagnation and stoppage in their way of progress and have wanted that more resources and fractional planning to be allocated (Sarraf, 2004). Creating an appropriate ground and presenting subsistence and welfare infrastructures is one of the most important objectives in line with the development of society (Hidedink & Titues, 1998). The city of Baneh in Kurdistan Province is one of the regions with forest vegetation in the region. Poverty and dependence of people on natural resources as a result of absence of development in the region have brought about the present unfavorable situation for the forests of *Armardeh* region, Baneh (Him, 2001). In addition to the above-mentioned problems, the absence of development in the region has caused agricultural products to decrease and led to migration to cities (Amani, 2008). By investigating the service and development levels in the villages, the formation of the above-mentioned problems can be somehow avoided (Rondenel, 2001); therefore, in the present study, it has been attempted to specify, analyze, and grade the levels of development in *Armardeh* region to be utilized in the relevant decision-makings as a guide to the planners. Employing "Taxonomy Model", in a research done by Heidari (2001), he found that the development of *Amol* rural districts was homogeneous and balanced". Taghvaie (2006), on the basis of the development indicators, believes that the provinces of Kurdistan and Sistan-va-Balochestan are very impoverished (undeveloped); Fars and Tehran are the developed province in the country. Badri et al (2006) state that the development indicators of the rural districts of Kamyaran are different and unequalled. Mosvai, Bagheri & Kashkoli (2012) believe that 71.6 per cent of the rural development of the villages of *Bahabad*, is the result of escalating the degree of economic and commercial activities.

In the present study, we are going to answer the following questions:

- Which villages in *Armardeh* region are more developed in terms of rural development indicators?
- Have the services required by people been distributed equally?
- Which one of the villages in *Armardeh* region should have priority in terms of rural development planning?

## Materials & Methodologies

### The study area

In 2004, a project under the title of: Systemization & Management of “Galazani” meaning “the removal of foliage” in *Armardeh* region was prepared in the city of *Baneh*, Kurdistan Province on a plot of land measuring 19,000 hectares in area. The purpose of this project was to manage, protect and exploit forests and systematizing the removal of foliage of trees locally referred to as “Galazani”.

Although the *Zagross* Forests is regarded as “protective-supportive” by the Organization for Forests & Ranges, traditional exploitation of forests for the purpose of providing the subsistence needs of local communities is approximately a common practice (Ghazanfari, 2004). In this region, there are sporadically a great number of small and large villages as well as a large number of “*kokhs*”, or huts (very small villages) with less than five households in the North *Zagross*; sixteen major villages in *Armardeh* region were selected as the geographical kingdom of the study (Figure1).

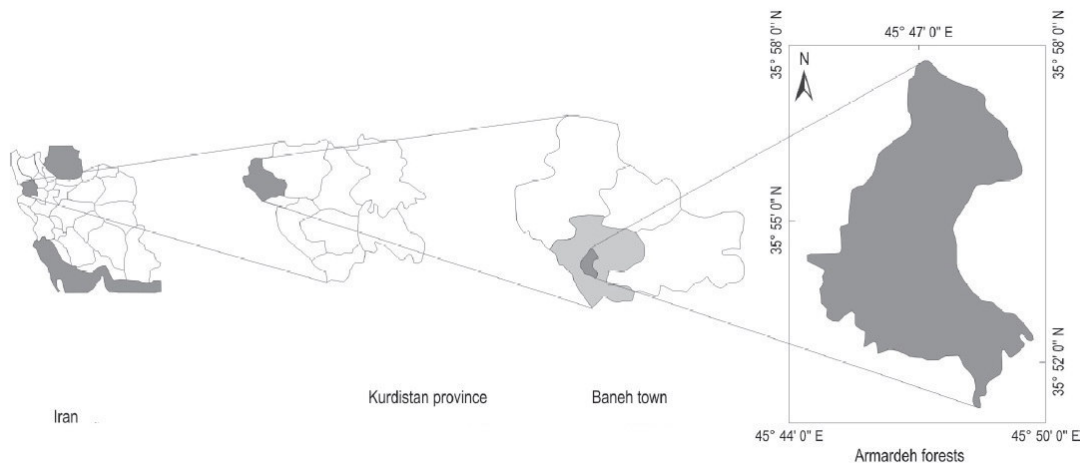


Figure 1. Study area, Iran, Kurdistan province, Baneh.

## Research Method

In the present study, a descriptive-analytic research method, a survey method, was used; the method of data collection was done on field study basis, carried out in 2013 in all the villages by library method utilizing the statistics & data issued by the Nationwide Census of 1976 through 2011. Thirteen major rural development indicators (table 1) were used as the variables. In order to analyze the data and specify the development levels, “Morris Development Levels Evaluation Model” was employed. The number of years in which each village enjoyed the intended indicator was the base of this study. In determining and evaluating the development levels of the various regions, there are numerous methods and models out of which, depending on the degree of validity of the accessible information, methods like cluster method, hierarchical method, taxonomical method, operating analysis and nerve network model can be enumerated. “Morris Model” is a model introduced by the United Nations for grading development as an official pattern (Hosseinzadeh, 2001). This is the way this indicator is calculated:

$$y_{ij} = \frac{x_{ij} - x_i(\min)}{x_i(\max) - x_i(\min)} \quad D.I = \frac{\sum_{i=1}^n y_{ij}}{n}$$

In “Morris Model”, the indicators employed must be directed towards one direction; in order to investigate the issue, all the indicators intended were used in the format intended; in the end, in order to calculate the main indicator of development for each unit, the D.I relation was used. Morris Coefficient varies from 0 to 100 and the more it gets closer to 100, the level of development is higher: (Ghadiri 1998)

## Results

In order to investigate the indicators intended in the villages under study, the following defined codes were used for each of the indicators (Table 1). After specifying the relevant codes, the degree of development of each one of the villages was calculated on the basis of the number of years of development for each village from the indicators intended (Table 2); then, the main coefficient of development, i.e., “Morris Model” was resulted. (Table 3).

Table 1. Defined codes for each of the indicates

Infrastructure and cooperative	Index code	Cultural	Index code	Hygienic	Index code
Water	01	School	09	Hygienic center	012
Power	02	Middle school	10	Hygienic assistant	013
Phone	03	high school	011		
Cooperative	04				
Oil	05				
Dirt road	06				
Gravel road	07				
Asphalt Road	08				

Table 2. The number of years of development for each village from the indicates intended

Index village	Water	Power	Phone	Cooperative	Oil	Dirt road	Gravel road	Asphalt Road	School	Middle school	high school	Hygienic center	Hygienic assistant
Armardeh	27	28	21	20	22	28	27	23	28	28	24	26	26
Gandoman	15	17	4	0	0	28	17	0	28	0	0	10	15
Saedab	7	14	4	0	0	28	5	0	28	0	0	11	14
Sorab	7	12	5	0	0	28	0	0	28	0	0	0	14
Kochar	10	18	10	0	0	28	18	22	28	0	0	14	14
Mirhesam	9	14	4	0	0	28	15	0	28	0	0	0	12
Kokhma mo	6	17	5	0	0	28	17	0	28	13	0	0	12
Blakeh	10	15	5	5	10	28	15	12	28	0	12	13	13
Kandesora	7	17	7	0	0	28	14	0	28	10	0	0	13
Brnjar	0	10	0	0	0	28	0	0	28	0	0	0	13
Kolahdol	8	14	4	0	0	28	7	0	28	0	0	0	13
Oshtermel	0	9	0	0	0	28	0	0	28	0	0	0	13
Bashvan	0	8	0	0	0	28	0	0	28	0	0	0	13
Davodeh	0	10	0	0	0	0	0	0	0	0	0	0	13
Shivi deh	0	16	0	0	0	28	17	0	28	0	0	4	13
Dashtagora	0	15	4	0	0	28	5	0	28	0	0	8	13

Table 3. the main coefficient of development, Morris index.

Index	01	02	03	04	05	06	07	08	09	10	11	12	13
village													
Armardeh	100	100	100	100	100	100	100	100	100	100	100	100	100
Gandoman	55	45	19	0	0	100	63	0	100	0	0	38	21
Saedab	26	30	19	0	0	100	18	0	100	0	0	42	14
Sorab	26	20	24	0	0	100	0	0	100	0	0	0	14
Kochar	37	50	47	0	0	100	66	95	100	0	0	53	14
Mirhesam	33	30	19	0	0	100	55	0	100	0	0	0	0
Kokhmamo	22	45	23	0	0	100	63	0	100	52	0	0	0
Blakeh	37	35	23	25	45	100	55	52	100	0	50	50	7
Kande sora	25	45	33	0	0	100	51	0	100	40	0	0	7
Brnjar	0	10	0	0	0	20	0	0	100	0	0	0	7
Kolahdol	29	30	0	0	0	100	26	0	100	0	0	0	7
Oshtermel	0	5	0	0	0	20	0	0	0	0	0	0	7
Bashvan	0	0	0	0	0	100	0	0	100	0	0	0	7
Davodeh	0	10	0	0	0	0	0	0	0	0	0	0	7
Shivi deh	0	10	0	0	0	100	63	0	100	0	0	15	7
Dashta gora	0	35	0	0	0	100	18	0	100	0	0	30	7

On the basis of the data in Table3 (the coefficient of development), and figure1, the place of each village in terms of level of development was specified. By the same token, *Armardeh*, which was recently promoted to a city, has the maximum level of development and the villages of *Belkeh* and *kochar* are ranked in the next places in term of level of development.

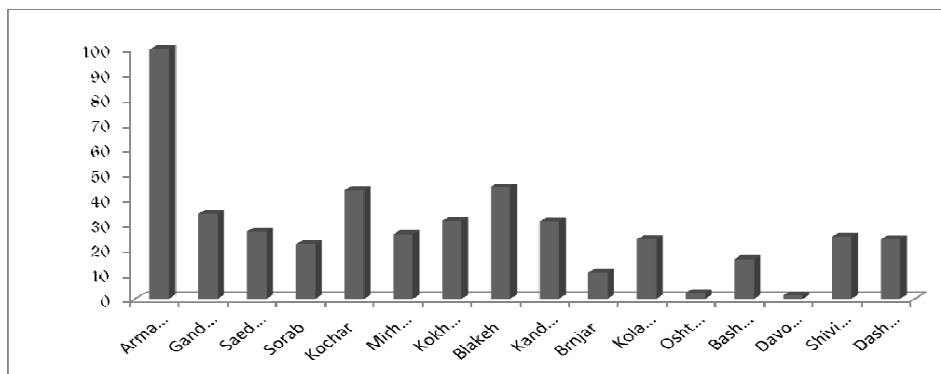


Figure 2: "Morris index" (coefficient of development) obtained in the sixteen villages of the region under study

Considering the coefficient of development obtained, the sixteen villages of the region were categorized into three levels: developed, developing and less-developed. Taking these findings into consideration, it can be claimed that the majority of the villages in the region were in the less-developed limits; regarding the categorizations of the indicators under study, namely: infrastructural, cultural and hygienic, as it was explained in table 5 and figure 3, disproportionateness and absence of coordination for rural development is quite evident in term of development; also, the absence of schools and other cultural centers indicates that the majority of villages are placed in the undeveloped regions limits.

Table 4. the main coefficient of development ( Morris index) in study area

Number of village	village	coefficient of development	Level of development
1	Armardeh	More than 60	Developed
2	Kochar- Belakeh	40-60	Developing
13	Gandoman- Sardab- Sorab- Mirhesam- kokh mam- kanda sora- Brnjar- Kolahdol- Oshtermel- Bashvan- Davoda- Shivedeh- Dashta gora	Less than 40	Less Developed

Table 5. the main coefficient of development ( Morris index) Based on the indicator studied in study area

Index village	Infrastructure and cooperative	Rank	Cultural	Rank	Hygienic	Rank
Armardeh	100	1	100	1	100	1
Gandoman	35.3	4	33.3	4	29.9	3
Saedab	24.1	10	33.3	4	28.2	5
Sorab	21.2	12	33.3	4	7.1	8
Kochar	49.6	2	33.3	4	34	2
Mirhesam	29.7	7	33.3	4	0	10
Kokhmamo	31.7	6	50.6	2	0	10
Blakeh	46.7	3	33.3	4	28.5	4
Kande sora	32	5	46.6	3	3.5	9
Brnjar	3.7	14	33.3	4	3.5	9
Kolahdol	25.5	8	33.3	4	3.5	9
Oshtermel	3.1	15	0	5	3.5	9
Bashvan	12.5	13	33.3	4	3.5	9
Davodeh	1.2	16	0	5	3.5	9
Shivi deh	25.3	9	33.3	4	11.2	7
Dashta gora	21.5	11	33.3	4	18.9	6

### Discussion

The findings of this study indicate that the coefficient of development among the villages of the regions is different fluctuating between 1.3 to 100; in terms of enjoying rural development infrastructures, they were studied in thirteen levels of indicators; after Armardeh (which was recently promoted to a city, and thus, the existence of the requirements for development is quite natural), and placed 1st, the villages of Belakeh and kochar are placed 2nd and 3rd, respectively, and therefore are labeled "semi-developed", and other villages under study are labeled "undeveloped (impoverished)". Thus, the villages which have enjoyed more services and facilities for a longer time are placed at a higher level of development; by systematizing the rural areas and equal distribution of rural development facilities, we can help a lot to a multidimensional and integrated development. The results of this study are suggestive of unequal distribution of facilities in the regions, and more emphasis will be on the necessity of development and paying more attention to the impoverished villages.

The results of this study also indicate that among the indicators under study, the infrastructural indicators have the most degree of difference in the absence of balance, and the cultural indicators have the least.

These results remind us of the absence of multidimensional development in various sections. Fatehei et al. (2009), have found the absence of socialization, as the most important cause for the failure of forest management projects; this can be the result of absence of development and absence of comprehensive attention that must have been paid to rural communities. When a region is placed in a lower level of development, it is inevitable that people will be more dependent on natural resources, and therefore, they are more likely to utilize and destruct the natural resources.

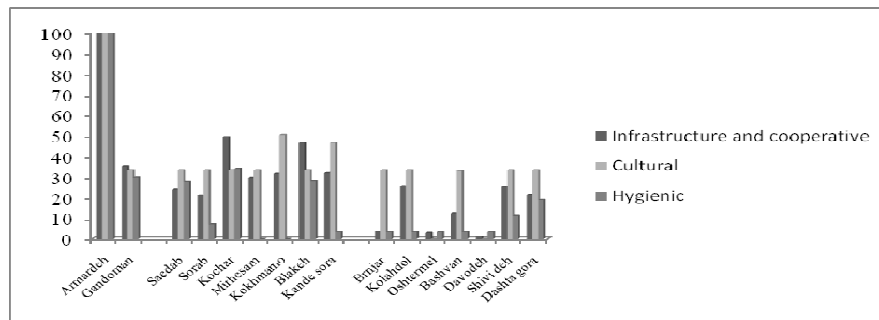


Figure 3. the categorizations of the indicates in study area Based on the indicator studied

If we want to protect forests, and if we want the natural resources projects to succeed, the cooperation and collaboration of people are necessary; homogeneous development of adjacent rural regions are among the most important factors which can guarantee the cooperation and collaboration of people with the executors as well as the planners. the dilemma of imbalance of the degree of development in forest-covered villages of *Armardeh* region is quite evident which has been dealt with in this study in detail. The study of inequality in various scales is one of the urgent and fundamental measures for planning, amendments that can be taken in the direction of economic growth along with social justice and can be effective in the allocation of resources with the purpose of removing regional inequalities. Thus, owing to the fact that removing imbalance is one of the objectives of Nationwide Developmental Plans, it is necessary that in the long run, and by applying rational and carefully- considered policies, the requirements for diminishing and removing the existing imbalances, at least in the field of basic infrastructures, the infrastructural requirements for rural development like roads, be provided.

For the execution of these policies, giving priority to urgent needs of forest settlers, systematizing the mechanism of providing services and offering facilities harmonious execution of rural Development Management (from planning to execution) can be among the most important suggestions.

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