Chapter II

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Conceptual Framework, Definition and Research Methodology

The present research has undertaken the conceptual frame in the geographical sphere of rural-urban relationship particularly the rural-urban linkages. Rural-urban linkages are part of the local reality for household members carrying out the diverse tasks of producing income on and off the farm, maintaining a living space in the village, and going to local and even distant towns for shopping, marketing, work, and specialized services. The challenge for rural regional planning is to overcome the rural-urban divide by incorporating this reality into development frameworks and, further, identifying policy measures to foster mutual benefits for both town and village households (Douglass, 1998). As well as this research has been planned and envisaged from the functional point of view and the form of urban generation and parasite theory and its impact on rural development. This functional point of view has several models and theories.

Debates on the nature of rural-urban relations hold a prominent position in development theory and planning. Discussions in the 1950s centered on whether towns played parasitic or generative roles in their relations with their rural hinterlands. As originally argued, generative forces of modernization associated with urbanization were hypothesized to outweigh possible parasitic impacts on rural areas (Singer, 1964).
2.1 Conceptual Framework and Definitions

Diverse views and opinions are held in the field of rural-urban relationships. From 1950 onwards three fundamental views have influenced geographical issues in rural-urban relations based on development planning.

A) Growth pole view, B) Top-down development strategy and C) City as a generative or parasitic factor in development (Shakoei, 1994). Shakoei states that the growth pole view on large scale investment in industries and large cities emphasizes that government can create motivation for economic growth and spread it to the areas out of urban centre. This way socio-economic development of cities will lead to socio-economic growth of villages.

Top - down development strategy has its roots in the new-classical economy and attaches importance to the growth of human centers. This strategy recommends the implementation of large number of projects and the use of advanced technology. Experiences showed that the adoption of these policies in Latin America and Africa was unable to bring about socio-economic development of villages. Furthermore, added to the inequity between core (large cities) and periphery (small towns and villages). This gave rise to the view of parasitic and generative cities. Shakoei states, the
views held by Lipton, Rondinelli, Walter. B. Stohr and strategy for meeting basic needs related to each of the mentioned views which are briefly discussed.

M. Lipton believes that the effective influence of city on rural areas not only keeps the poor in poverty, but also causes inequality in rural spheres. Rondinelli believes that the objectives of rural development are not practical in isolation from cities and bases his view on the lack of investment concentration in human settlements with emphasis on urban development strategy and the provision of minimal conditions for rural people. While, Taylor and W. B. Stohr believes that Top - down development policy (city) should be integrated with bottom - up development policy and be put into practice. Development strategy on the basis of fundamental needs should stress opportunities for a better life for all people and distribute wealth and income justly (Ibid).

Popoli Yazdi (2002) also quoting the same source points out to the same views and refers to the view of continuity of masses’ poverty. While development plan strategy deems it necessary to provide the small towns and villages with minimal social justice, facilities, job opportunities and services and urban system is utilized to combat poverty in rural areas. With regard to the role played by city in rural development Afrakhteh (2008) propounds three views:
First, the theory of modernization, according to Paul who believed that cities are stimulating engine, creator factor and expansion of development, and they act as facilitator, distributor of development and innovation in their sphere of influence.

The second is dependency theory, quoting Alain, it States: “since urban areas are closely related to international capitalism, the growth of cities result in utilizing surrounding areas and draining the resources of the area under their influence. In line with this, quoting Rondinelli and Ruddle, the theory explains some are of the opinion that small towns have parasitic dimension and cause urban elites, companies and government agencies to exploit villagers and drain their resources.

And third, the belief has been strengthened that rural development objectives will not materialize in isolation from urban development and solely through bottom up economic growth, but demands social justice, facilitating agricultural development along with enhancement of trade and urban industries. Therefore, more attention has been focused on the expansion of the economy of small medium towns as ring linking urban economy to rural economy, to speed up comprehensive development and a more balanced distribution of interests (Rondinelli, 1983). Afrakhteh says, “It is concluded from the set of views and experiences gained in Asia and African countries that city and village comprise a united organic system,
and the development of part of this system with no regard to the other part, is irrational and impossible.

In Iran the rural-urban relationships in its traditional form within the framework of government-people relations with regard to tax and, later, master-peasant relations in the utilization of agricultural products, was one-sided and of exploitative nature which harmed the interest of villagers. The rural-urban interaction in post-land reforms era and ultimately oil dependent economy and improvement in facilities and services and marsh towards development and social justice, particularly after Islamic revolution and the issue of rural-urban relations and links, all are indicative of one-sided flow of facilities an advantages into cities strengthening urban centers and it points to parasitic role of cities in comparison with villages. Therefore, theoretical view point related to this research is parasitic or generative role of city, government and city of Zahedan (state and urbanization) and its rural links, from the perspective of its impact on rural development levels and having positive or negative relation in the region.

2.1.1 Generative and Parasitic City's View

The view was first expressed by B.F. Hoselitz in 1975 under the influence of the decline of village as a result of the performance of growth pole policy. According to this view generative cities are those which
positively and favorably affect the area under their influence. On the contrary, parasitic cities are those which cause the decline of the rural areas (Shakoei, 1994). Generative cities play a part in economic growth of the region in which they are located and allocate a significant amount of their additional accumulated value to investment resulting in enhancement of production in the city or rural areas, while parasitic cities do not play such a part areas, (Papoli, 2003). Also Shakoei has mentioned that N. Keyfitzn believes that dominate and metropolitan cities of preindustrial societies are parasitic, but the cities in industrial countries are generative and are at the back the flow of goods between city and village and the area under their influence, a relation which is never one-sided. This way it is visible that in parasitic cities of the third world lack of equilibrium of surplus trade prevails, and the redistribution of surplus takes place from surrounding areas to the parasitic city (Shakoei 1994). Moreover, he express that some of the large cities of Asia have a parasitic role and some play a developing role. A city is considered as parasitic which consumes a lot and probably produces a little. A city which deals with economy problems of time, reasonably, for the benefit of urban society, can have a developing role. In other word, developing role of city with orderly economic and social foundations and organizations stimulates the suburbs, villages and other cities of a county to develop (Shakoei 1986).
2.1.2 Rent - Capitalism View

European and American geographers and then their Iranian students are among the first researchers who did research on issues related to the rural-urban relationship including topics such as “the city and its hinterland” and the “the city and the Surrounding”, in Iran. Hans Bobek is one of those researchers who expressed rent-capitalism view based on his studies in Iran in 1959. Based on this view, the relationships between cities and the surrounding villages in their sphere of influence are in such a way that the cities are centers for residence of big landowners, and the rural areas under their influence provide urban population with basic food and basis for trade. Therefore, cities are fed by their rural surrounding areas and they endure due to their existence (Saidi, 1998). City gets from rural areas without giving anything, that is to say, city is similar to a leech or parasite which sucks the rural areas under its influence. Landowners and other urban exploiters either do not invest in villages or invest for further exploitation of villagers. Hence, the basic principle governing the rations between cities and their area of influence and the stagnancy and recession of rural societies in Middle East is rooted in rent-capitalism relations (Momeni, 1998). P.W. English in his study of 1966 in Kerman city area and M. Momeni in his study of 1976 on Malayer and its surrounding areas, based on Bobek's view, confirmed the rural-urban relationships. (Ibid)
Ehlers (1976) undertook the studies in Iran including Dezfool and its area of influence. The rural-urban relationship in Iran (case: Tabas), restricts this view to traditional cities in which industry has not come into existence and been of any influence and modern Western elements have not penetrated their trade and services. Bobek’s view has received criticisms; Eugen Wirth (1973) disagreed with Bobek by expressing his view that cities should not be solely regarded as an octopus of leech and parasitic nature against their surrounding area. However, as the central places that distinctively are central places to innovation and economic organization have positive output (Ehlers, 1991).

2.1.3 Government and Urbanism View

In continues of criticisms, propounding state-urbanism in 1994, Rahnemaei critically reviewed Bobek’s rent-capitalism view. Referring to the point that Bobek believe in that the economy of cities in the East is based on ownership acquired out of coalition and close link (rooted) in common interest of government and city through grabbing profits gained from agricultural and trade activities and commercializing this profit, on the other hand, he mentions a history of 4000 years for these relations, Rahnemaei states for new and old political and administrative system of government in Iran (prior to and after Pahlavi government). Taking into consideration the oil revenue and deep and fundamental changes under its
influence, he points to the role of government in injecting funds and capitals into cities through paying government workers, implementation of various civil projects and establishment of military-administrative cities and more recently new cities and townships. Ultimately he considers the trend to be inconsistent with the evidence of rent-capitalism and its parasitic role, therefore, he expressed state and urbanism view (Rahnemaei-1994). Aliakbari, (1999) and Ziaei, (2000), Rahnemaei’s students, in their Ph.D. theses entitled, “Urban development mechanism in Ilam province with a focus on the clarification of the government’s role” and “Clarification of the role and position of government in the development of city and urbanism in Iran” substantiated the above view. Ziaei, (2002) also studied the distribution of subsidies system and again approved the Rahnemaei’s view. Because he recognized that government has main role in this regard and it can help to urban development through distribution of subsidies system.

2.1.4 New Concept of Government and Rural Development

In continuation of the trends Nezari (2004) acknowledges the dominance of Hans Bobek’s rent-capitalism view in the second half of 20th century clarifying rural-urban relationships is Iran. He dilutes state and urbanism view and believes that the above mentioned view which is based on the injection of oil revenues into urban centers more than rural areas.
with the help of government cannot be fully accepted. Because of change in attitudes of planners and policy makers (involved) in the development of the country (Iran) after Islamic Revolution, that is based on combating poverty in the least developed areas, especially rural areas, implementation of guiding projects, programmes for organizing rural service system, tribes and jungle dwellers, and handing over farm lands to them in line with rural development (policy) there cannot be one-side approach to city in government and urbanism theory. Finally he concludes that the views related to rural-urban relations in Iran have changed in terms of time condition and proportionate to political – economic as well as socio-cultural developments in such a way that prior to land reforms it can be interpreted based on Bobek view and from land reforms onwards, with the establishment of new government and the injection of oil revenues into urban centers, it can be grounded on state and urbanism view in rural-urban relationships. The effectiveness of government after the revolution has provided the grounds for interpretation of Wirth’s view in addition to the concept of the government and rural development as a new key concept in mutual relations of rural-urban.
2.1.2 Definition of Rural Development, Region and Village

Rural Development:

Pandey (2005) states the rural development is the process of helping rural people to set the priorities in their own communities through effective and democratic bodies by providing the local capacity; investment in basic infrastructure and social services; justice, equity and security; dealing with the injustices of the past and ensuring safety and security of the rural population.

Shaban and Bhole (2000) are believed, the term of rural development to imply for improving of economical condition and social change in life style of the people those residents in rural settlements. And thereby to provide the background of improving income, education and sanitation circumstance, drinking water facility, power supply, housing, transportation and communication facilities in rural areas. Misra and Sundaram (1992) believe that rural development is not merely to improve agriculture and income per capita, but it consist also vast spectrum of human problems, that and its aim is human development. Human development is a conceptual of dynamic and continuity changes of circumstance which it is cause to provide a satisfy and liberty life of all people in every region or country and it is included fifth component such
as quality of physical life, access to ways of livelihood, freedom of choice, development of self-reliance and socio-political progress.

Behzadnasab as director of bureau of rural development (2007) believe that rural development is a multilateral, rhythmical and endogenous process that its framework, capacity and potential of rural society to meet of spiritual, material, and basic needs and effect control on forces of formation of local settlement system are growing and up-raises.

**Region:**

Region has many definitions such as climatic region, natural region, economic region, administrative region etc. In all of these definitions homogeneity of the region is a common subject. Since, administrative region is based on administrative boundaries and such boundaries are determined by special government policy. Therefore, homogeneity does not remain a necessary component (Kalantari, 2001). This definition has been employed by researcher in Zahedan region or Zahedan Township. It means *Shahrestan* in Persian language.

**Village:**

According to the article two of the law of definition and criteria division of the country approved in 1983, village is the basic unit of the country's administrative division and also is in consonance with the
environmental conditions (natural, social, cultural and economic). It is defined by registration whether scattered or concentrated with residential condition of 20 households or 100 persons. Majority of the inhabitants are directly or indirectly engaged in the field of agriculture or rural industry. The place where such people live is known as village, hamlet or rural settlement (statistical center of Iran 1995). This definition has been used by the researcher as population and sample villages.

2.2 Research Methodology:

The present research has undertaken the field survey method of inquiry. This method has generated a considerable amount of primary data. This was preferred due to the nature of research and its goals. The field work identified some effective factors of rural development and its varying levels. In general; this survey is a strategy rather than a method. Several methods may be utilized in the geographical surveys. In short, a survey may be applicable in a narrower sense or in a wider one. In other words, surveys are the crucial means for acquiring the highly reliable and useful data for the research. Surveys were widely used in the late 20th Century. A survey often begins with selecting a representative group (sample) and designing questionnaire for generating an authentic and effective primary data (Nayebi, 1997).
The present study is based on qualitative and quantitative methods and techniques which have been supplemented with suitable cartographic and explanatory photographic representation. The following methods and techniques have been applied.

- The descriptive approach has been applied for the Geographico-administrative aspects of the study area. The socio-economic situation of Zahedan city and the related rural development has been enquired the descriptive statistical data and the cartographic techniques.

- The analytical approach has been applied for main work of research by interpreter the primary data's through the statistical methods.

2.2.1 Nature of Population and Sampling Size

A population may be defined as the totality of a particular characteristic for any specified group of individuals or objects. A population size may be small or very large (finite or infinite). A population is said to be finite if it consists of a limited number of local area elements which can be counted. But an infinite population is one whose size is unlimited and therefore, its number cannot be counted due to its very large size. Populations are classified as finite or definite. A finite population
consists of a definite number of objects, as contrast to an infinite population which is indefinitely large. (Misra, 1989)

Sample

A sample may be defined as a selected number of units from a population to represent it. Generally, this selection is done according to some rule or plan. By studying the sample, some inferences may be made about the population. The sample size depends upon the nature of population. For example if the nature and characteristic of the population to be surveyed is almost homogenous, a small or lower percentage of sample might represent the totality.

On the other hand if the population to be surveyed is heterogonous in its socio-economic characteristic, then a large sample size would be required to represent the socio-economic heterogeneity. In most of developed countries of Europe, Japan and America, there is a considerable degree of apparent socio-economic homogeneity, therefore, to represent the totally of the socio-economic condition, a small percentage of random sample may be useful. Even 5 per cent randomly taken sample size, may sufficiently represent the nature and characteristics of the almost homogenous population. While in the under developed or the developing countries of Africa and Asia there is a highly degree of socio-economic
heterogeneity. There may be several levels of deprivation and relative
development. Under such conditions even a large 10 percent sample size
may not effectively represent all the shades of various in term of
infrastructure and basic resource availability. Hence, large size of sample
plus the stratified random sampling would be required to represent the
different states of deprivation and poverty.

Sampling

A list of items or elements in a population from which the sample is
drawn is called sampling frame. The element or object to be sampled or a
large unit containing the objects is known as sampling unit. Sample designs
are basically of two types, non probability sampling and probability
sampling. Non probability sampling is that sampling procedure which does
include more units in the sample. Non-probability sampling is also known
by different names such as deliberate sampling, purposive sampling,
judgment sampling and quota sampling. In this type of sampling, items for
sample are selected deliberately by the researcher. Probability sampling is
also known as “Random sampling” or “chance” sampling, under this
sampling, every item of the universe has an equal chance of inclusion in
the sample. Probability sampling is classified into simple random
sampling, complex random sampling (such as cluster sampling, systematic
sampling, stratified sampling etc) (Ray and Mondal, 2004 and Kothari, 2005).

**2.2.1.1 Populations for the Present Study**

A population consists of a set of elements, thus we need an operational definition of the element of the study (Clark and Hosking, 1985). The study area covers 1404 settlements ranges from a population size one household to more than 800 households. For the present study, all villages which have had 20 and over households in this region are as the population of this study. Hence, a total number of them are 243 villages in Zahedan region, because, the settlements with less than 20 household have not been neither considerable for the study nor in the rural settlements planning system.

**2.2.1.2 Sample Size for the Present Study**

On the basis of research necessity and consultation with the supervisor, it was decided to select villages of four category of rural size according to the variety number of households.

- The smallest category of rural size consists of 20-49 households. This covers a total rural 195 rural settlements.
- The small category of rural size consists of 50-99 households. This covers a total rural 36 rural settlements.
- The medium category of rural size consists of 100-249 households. This covers a total rural 10 rural settlements.
- The large rural size category comprises 250 and more number of households. This rural category represents only 2 number settlements.

Geographically the study area comprises two main topographic features. The semi–mountainous or hilly region and the low level region which low level is named in locally acknowledged as a plain region. The administrative divisions of the Zahedan township region include four districts. These are named as; Markazi, Mirjaveh, Kurin and Nosratabad. Hence, for the present study of Zahedan region, researcher chose a Complex Random Sampling (in the first step it was used stratified sampling and at the second step it was used simple random sampling). On this basis, a total number of 90 villages about 45 per cent of total population as sample size of this survey (Fig. 2.1).

2.2.2 Sources of Data Collection

In the present study and analysis, the data, which constitute the raw material for the statistical analysis, were obtained from a variety of
sources, primary and secondary data. This research is based largely on primary data collected by the author himself. This primary data was collected by performing field work in the 90 rural settlements for a long time from first of June to end of October in 2008 and moreover as follows:
Fig. 2.1
2.2.2.1 Primary Sources:

The primary data is a find – hand generated data through guided questionnaire and interview method. The primary data is more near to the problem of enquiry become it is generated with specific objections of the enquiry. Primary data is generally considered more authentic and reliable. It can be obtained by methods of observation, interview, questionnaires and schedules.

The data compiled by the analyst or the organization is called primary data (Richmond, 1964). If an individual or organization publishes the data, these are referred to as primary sources. The present researcher has generated primary data by sample method the Zahadan region.

2.2.2 Techniques of Primary Data Collection

A sincere and careful survey is a necessary way to churn out useful data. Data can be obtained through various techniques in a study. Some of the feasible techniques of primary data generation is: questionnaires (schedule), interview, and observation.

The present researcher has made use of questionnaires technique, case interview and observations to gather the data of the study region. The questionnaire in adapt at of two main subjects were planned and include
open-ended questions, the schedule used in the research consists of 5 parts in the questions including common characters of village, dependent and independent variables, problems of village and suggests which submitted by headman or village council for solving them as key informant persons in the villages.

2.2.3 The Variables

Following variables were involved in the present study:

2.2.3.1 Independent Variables

Independent variables are the cause. These are the basic influencing factors.

The phenomenon or characteristic hypotheses to be the input or antecedent variable are called independent variable. It is presumed to cause the dependent variable and is selected, manipulated or measured prior to measuring the outcome or dependent variable (Ray and Mondal, 2004).

Impact of city is as a main independent variable in this research. The researcher used four factors or components including 16 variables for measurement of it in this study as independent variables. These factors are geographical location or accessibility, economic, socio-cultural and politico-administrative.
Every of Independent variables were defined as follows:

**Geographical Location and Accessibility:**

- Distance of village from Zahedan city

**Economic Component:**

- No. of rural labors who are working in Zahedan city
- No. of rural non-labors who are working in Zahedan city
- No. of rural person's with bank account in Zahedan city
- No. of rural borrowers with bank loans from Zahedan city
- No. of rural inhabitants with properties (house or shop) in Zahedan city
- No. of Zahedan city residents with properties in the villages

**Socio-Cultural Factor:**

- No. of rural males married in Zahedan city
- No. of Zahedan city males married in the villages
- No. of rural students studying in Zahedan universities
- No. of monthly social commuters between city and villages
- No. of rural migrants from villages to Zahedan city in last 5 years
**Politico-Administrative Setup:**

- No. of monthly visits of villagers from Zahedan city for administrative necessities

- No. of monthly visits of city officials for rural problem surveys

- No. of city officials of rural origin

- No. of government branch offices in the villages

2.2.3.2 **Dependent Variables**

Dependent variables depict the degree of effect. These variables ascertain the developmental impact in the region. If one variable depends upon or is a consequence of the other variables, it is termed as a dependent variable; it may be defined as the phenomenon or characteristics hypothesized to be the outcome, effect, consequence or output of some input variables. Its occurrence depends on some other variable which had preceded it in time (Ray and Mondal, 2004; Kothari, 2009).

These variables include levels of rural development in terms of agricultural development, economic development, socio-cultural development, curative-sanitary development and public services and infrastructural development which has been measured by the following 42 variables:
Agricultural Development:

- Animal unit per household in the village
- Average agriculture land per household in the village (hectare)
- Ratio of land under cultivation to total agricultural land in the village
- No. of tractor per 100 hectare of the agricultural land in the village
- Wheat yield per hectare in the village
- Alfalfa (fodder) yield per hectare in the village
- Pistachio yield per hectare in the village

Economic Development:

- Percentage of economically engaged population in the village
- Percentage of economically engaged men in the village
- Percentage of economically engaged women in the village
- Percentage of household who have permanent housing in the village
- Percentage of household who have reinforced housing in the village
- Percentage of household who have car in the village
- Percentage of household who have color TV in the village
- Percentage of household who have urban mobile phone in the village

- Wage of workers in the village

**Socio-Cultural Development:**

- Percentage of literacy in the village

- Percentage of male literacy in the village

- Percentage of female literacy in the village

- Ratio of student to household in the village

- No. of TV channel in the village

- Access to rural council in the village

- Access to religious school in the village

- Percentage of households supported by the government (*Komiteye Emdade Eman Khomaini*)

- Access to boys guidance school

- Access to girls guidance school

**Curative-Sanitary Development:**

- Access to health center in the village

- Access to rural health center in the village
- Percentage of household who have toilet in the village

- Percentage of household who have bathroom in the village

- Percentage of household who do family planning in the village

- Percentage of household born in the maternity hospital in the village

Public Services and Infrastructural Development:

- Access to asphalt road in the village

- Access to rural cooperative in the village

- Access to police in the village

- Access to guide plan in the village

- Access to performance of guide plan in the village

- Access to Dehyari in the village

- Access to bakery in the village

- Percentage of household with access to safe drinking water in the village

- Percentage of household with access to electricity in the village

- Percentage of household with phone connection in the village
2.2.4 Secondary Sources:

Secondary data is already available existing in the published or unpublished form. It means that the data which have already been collected and analyzed and assembled by some other agencies or scholars else is known as secondary data (Kothari, 2001). Secondary sources are: Journals, Books, Reports, Magazines Web sites, and Research Theses. Census Repots and Statistical Year Books. Secondary data also includes the exiting maps and diagram.

The analyst uses published data or records compiled by the secondary resources. He is using secondary data if these records are published by an organization, which did not perform the original observation or computation, but which assembled them from the records of other organizations, these are secondary sources (Richmond, 1964). The present researcher has used secondary sources in some chapters of the study.

The secondary data has been obtained from the published literature, government reports, magazine and unpublished records of the public administration and semi- government agencies. The census data for the year 2006 has been collected from official records of Deputy Director
Census Operations in Zahedan Region. The sources of data have been given below in successive order:

1. Statistical Center of Iran

2. Governor-Generalship of Sistan and Baluchestan Province (SBP)

3. Management and Planning Organization of (SBP)

4. Agriculture - Jihad Organization of (SBP)

5. Agriculture- Jihad Management of Zahedan Township

6. Regional Water Authority of (SBP)

7. Meteorological Organization of (SBP)

8. Urbanism and Housing Organization of (SBP)

9. Health Center of (SBP)

10. Housing Foundation of Islamic Revolution General Office of (SBP)

11. Municipality of Zahedan City

12. Education and Training Organization of (SBP)

13. Regional Electricity Authority of (SBP)

14. Rural Sewage and Water Corporation of (SBP)
15. Studies of Counselor of Engineering in Different Subjects of (SBP)

16. Many Sub - Division of Some Offices in District Center and Rural Area Like Head Quarter in Districts, Health Center, Health Shelter and Agriculture - Jihad Services Centers etc.

2.2.5 Data Analysis Methods

After data collection, it is essential to examine the main objectives and hypothesis of study used and different methods that will be favorable with related subjects. In this regard the following techniques have been applied:

- Technique of partitioned value has been applied for measuring the variations in the climate, distributions, density and growth of, population and economical surveys.

- Morris model has been employed for measurement of rural development and its levels in this region. This model was used by development programs (UNDP) as formal most recent pattern for ranking regional development across the world. It can also expand and be replaced in planning spaces of various scales (Dalir, 2000). Assayesh and Estelaji (2004) express that Morris model is a most applied and new methods for calculation of the levels of development in the regional planning. Morris model with using available data on
each settlement unit and chosen indicators in it, to determine the development level in every settlement and then, determine the average of indices by index analysis method in a simple but remarkable manner. Finally, the ranking of settlements has been done. The mode of account of this model is following:

\[ Y_{ij} = \frac{x_{ij} \text{ min}}{x_{ij} \text{ max} - x_{ij} \text{ min}} \]

\[ Y_{ij} \] is the uneven indicator for I variable in j unit

\[ x_{ij} \text{ min} \] is the minimum of variable I in j unit

\[ x_{ij} \text{ max} \] is the maximum of variable I in j unit

\[ D.I. = \frac{\sum_{i=1}^{N} y_{ij}}{N} \]

D.I. = Development Index

\[ \sum_{i=1}^{N} y_{ij} = \text{Sum of the uneven indicator for I variable in j unit} \]

\[ N = \text{Number of Indicators} \]
• The ratio of development index of Morris model is changing between 0 to 1 score with every settlement having had higher score to show it is more developed (Qadiri, 1998 and Rezvani, 2004).

• The technique of correlation has been adopted to examine the relationship between independent variable and impact of Zahedan city on dependent variables or levels of rural development.

• And multiple regressions have been applied to determine the amount of impact of all independent variables on the dependent variables.

• In this regard, the research scholar has employed some software packages such as SPSS 16, Excel, AutoCAD, Arc view GIS 3.2 and GIS 9.3 in the different processes of research and analysis.