

## UNDERSTANDING THE SUSTAINABILITY OF RURAL COMMUNITIES WITHIN A POPULATION DENSITY CONTEXT: A CASE STUDY OF SHAQLAWA, KURDISTAN, IRAQ

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**Abstract:** Population density exerts significant influence over socioeconomic characteristics and sustainability of rural communities. Despite such understanding, studies on the roles of population density on socioeconomic backgrounds and sustainability of communities in rural areas are often overlooked. Thus, the understanding of population density in rural areas has become an important issue to be studied. The main objective of this paper is to investigate the effect of population density on the rural communities' sustainability with a special focus on Shaqlawa, one of the major districts in Kurdistan, Iraq. This study aims to find the particular significance of population density as an important theme in understanding the sustainability degree of settled rural communities, where disparity and falling density here presents practical problems for rural planners. Data were gathered from mixed-method approach involving two data sources: interviews as well as governmental and non-governmental records. Statistical and content analysis were used to analyse the data and then triangulated to examine the causal relationships. The quantitative information was obtained mainly from available secondary data, while the qualitative data was the result of the responses to the structured and semi-structured interview questions that focused on community sustainability addressed to five stakeholders (District administrators) plus 24 key informative, Community leaders, four from each of the six participating villages. In discussing the outcomes, this study has established that rural population density is an important variable in describing and evaluating rural sustainabilities. In Shaqlawa, people from low density villages led lives of relatively lower sustainability whereas people from high density villages led lives of higher level of sustainability.

**KEYWORDS:** Population density, sustainability, rural community, Shaqlawa, Kurdistan region/Iraq.

### Introduction

Human population density (both urban and rural) serves as an important study tool, necessary to measure the balance between the total capacity of the physical environment necessary to support the perpetually rising global population, especially in the context of the developing or under developed nations (Nouri *et al.*, 2006). The density of human population has long been a fundamental and key integrative concept in geography and forms a crucial link between human populations and their physical environments, acting as a principal factor mediating the extent and intensity of their mutual impact (Argent *et al.*, 2006). The studies on population density have primarily focused

on the constantly increasing human population and subsequent impact of this increase on the physical environment and the resources available (Argent, 2008).

Sustainability and sustainable development are open to a variety of explanations, and there has been much discussion about sustainability, but how do we know whether the community is shifting towards a more sustainable system? Monitoring can play an important role in providing feedback to aid decision-making and inform planning. A monitoring system can facilitate the settings of priorities and assist in evaluating performance (Clarke & Wilson 1994). Since the idea of sustainability embraces

environmental, economic and social issues and the complex interdependence between these dimensions, a broad approach needs to adopt at the planning and management level to shed light on this multi-dimensional picture.

An understanding of the local system could better inform planners and decision-makers of sustainability at the community level. Sustainability indicators that are locally meaningful need to be determined for local-scale decision-making (Parker 1995). Over in the last two decades or so, the whole world has experienced rapid changes and socio-economic transformations, which lead mostly to global resource depletion and pollution that are forcing recognition that existing patterns of development and resource use are not sustainable (Roseland, 1998). According to the World Development Report, which is about geography and economic development, and focusing more on spatial variability of conditions and outcomes than economic analysis usually does, the socioeconomic transforms influenced and resulted in strict stress, mostly to remote, marginal and rural areas of the world (World Development Report, 2009). Though, the transformations in economic and social tradition structure of the globe lead to reduce the farmstead returns, changing in the farming area values. In addition high rates of joblessness, cause mass exodus of the productive forces and lack of balance in the demographic of rural area (Gallent *et al.*, 2008).

A look at the various developing and developed nations worldwide will clearly show that some of the developed nations like Canada or Australia are placed at the extreme end in the list of the distribution and population. In these countries having extremely low population rates, large tracts of areas remain practically uninhabited, though observations reveal that their 'pre-urban' (urban fringes) population densities around the large urban centers are more or less similar to the other developed nations. This has led to a dense rural population in certain 'pockets' (around the metropolitan centers) within the country, presenting a host of

problems, both theoretically and practically, for the rural policy makers and developers (Smailes *et al.*, 2002). Besides the infrastructural and developmental problems, observations also show that a spatially constrained antithetical urbanization movement has allowed the entry of certain 'exurban' elements within the sphere of some of the rural communities, thus making it necessary that one makes a review of the entire situation from a new perspective. A closer look at the available research papers will reveal that although there are some researches on the subject of urban population densities, with some papers exploring the falling densities in rural areas, there is a serious lack of data on the effects of the rising or falling rural population densities on the sustainability of the rural communities (Ismael and Ngah, 2011).

It is obvious from the above that the demand of rural areas for sustainable development together with the need for diversification of their economic basis to meet the changes is today greater than at any time. The motive behind this task is established on the reality that throughout the last few decades, the rural settlement in the study area has been dramatically changed. Nevertheless, at the same time there is a realization that particular parts of the rural area have been left behind in development and the authority is presently upgrading rural area in order to sustain local economies and to increase employment and growth. This study aims to find the particular significance of population density as an important theme in understanding the sustainability degree of settled rural communities. It indicates participation of local to identify indicators and provides a context to understand local issues draws on the findings of a scheme based in rural Shaqlawa. It will present the process used to construct a suite of collective indicators to measure rural community sustainability. Key indicators of social and economic which were elicited from local stakeholders will be discussed. It offers a framework to incorporate social values to assist the delivery of information for decision-making.

## Literature Review

Nowadays rural areas are greatly influenced by socioeconomic changes, and more specifically demographic changes that increase social and cultural divergence within rural regions and at the same time affect local values and standard of living (Theodoropoulou and Panagiotis, 2008).

In developing countries, extremely high rural densities are a recurrent worry in terms of over population and pressure of population on the environmental carrying ability. But when population density gets too low, it also has unpleasant impacts in rural areas. Farm amalgamations not only decrease rural numbers, but also certainly enlarge the spacing between households, the ratio of clustered to dispersed population, and the distance inputs per capita required to afford the remaining households with services, social functions and human companionship (Smailes *et al.*, 2002). Ladd established in a study of 247 large US counties that the per capita cost of providing public services followed a J-curve with its lowest point at about 98 people/ Km<sup>2</sup>. As density fell under this level, per capita costs are likely to rise quite sharply and/or quality of service decline sharply (Ladd, 1992). For several services, too, as density fall not only does the local population fall below some demand threshold, but it becomes impossible to compensate for this by amalgamating local government areas to achieve some arbitrary population target. In effect, it becomes impractical to collect sufficient demand within a rational travel distance to run the service at some minimum feasible level.

Aasbrenn deals well with the conceptual problem in a country where population densities are comparable to Shaqlawa, with a gross density of 0.9 people /km<sup>2</sup> in his East Norwegian mountain study area (Aasbrenn, 1998). As in Shaqlawa, such communities are threatened not by absolute depopulation, but by thinning out of both people and the settlement pattern. He points out that the problems of sparsification breaks down into a distance problem and a scale problem: the extra cost in time, money and convenience

of overcoming distance as the settlement pattern thins out, and the reduced opportunities for remaining services to obtain scale economies. These two factors lead to five negative features of the process of sparsification, listed by Aasbrenn as; intensified ageing, deterioration of social networks, changes in demand (for services), marginalised viability of service suppliers and decay of physical infrastructure (Aasbrenn, 1998).

Together these form a condition often seen in areas of falling density, and form part of a self-reinforcing cycle of decline, giving rise to low morale and a dispirited residual population (Smailes, 1996).

Human population density has always been the chief centralizing theme within geographical studies, co-relating the range and depth of the interrelationships that occur between society, individuals, the surrounding physical environment and the nature of their mutual influence. A majority of the density related research work has centered upon the factor of measured density (ratio of people per unit area), and have explored various aspects seeking resolutions for problems related to the services provided by the state, or for planning, within rural or urban settings. Holmes in his paper conceptualized the notions of 'critical density thresholds' for specific kind of service centre oriented network, where he associates population density levels to the wider aspects of 'primary production,' and his papers on Australian population density distinguished between the 'sparselands' and the 'settled areas' (Holmes, 1981).

It is not easy to distinguish between cause and effect, while explaining the various planes of human density, and the type and depth of their relationships with different social aspects. The complex nature of population density also implicates the involvement of the socio-economic, environmental, and historical factors that help to create a specific density spectrum and kind, like, linear, clustered, or randomly distributed, in respect to any type of rural community (Argent, *et al.*, 2006).

The perceived density or the qualitative dimensions of population density are yet to be explored in details. Only a few researchers have worked in this regards, as for example, Irving and Davidson (1973) defined social density (interpersonal relationships between members of a rural community) and Tuan (1977) in his paper emphasized that the feelings of crowding or loneliness were created owing to an individual's sense of socio-economic opportunity within a particular environment. He opined that qualitative responses to the figurative human population density were adapted by two main factors, culture and the desire for a community member's self-accomplishment. Here Tuan gives an example of the Russian farmers residing in the Steppes. This landscape does not have much human habitation, except for few isolated farmhouses, and such isolation tends to produce a feeling of fear and despair within the local rural inhabitants.

Saglie (1998) in his paper recounts his experiences of the Norwegian people living in urban settlements, and his observations show that the Norway residents displayed an antipathy towards urban form of life, which grew from their age-old tradition of low-density settlement, thus making the Norwegians inherently prefer sparser settlements. Here, Saglie comments, "The ideal Norwegian way is to live scattered because Norwegians are 'lone wolves'... Norway has been a kingdom of small kings, with rural communities divided by topographical features" (Saglie, 1998). According to Saglie (1998), the two aspects of density (measured and perceived) portray two different conceptions of space. Measured density arises from an absolute proportion of space (Kantian theory); whereas the perceived density ensues from social relationships, is relative in nature with a relational concept of space.

Population density, best described in terms of a typical spatial aspect, reflects the way in which human species have spread out, and occupied the surface of the earth, and is an extremely important factor in the study of social and population geography (Ismael and

Ngah, 2011). A study of the available literature on the subject, as already mentioned, however reveals that there are very few detailed studies in this line (Smails, *et al.*, 2002, Argent *et al.*, 2006 and Argent, 2008), with the majority of work conducted concerning themselves with population density only within the urban areas. For example, we find town-planning reviews based on the population density by Saglie 1998; with various other general overviews, on the subject of urban population density (Bahr *et al.*, 1992).

As regards specific studies on the density of the rural areas, there are articles by Robinson, Lindberg and Brinkman that explore the link between the rural farm densities and percentage of arable land, percentage of the land producing crop, percentage of rainfall, and the distance from the nearest urban centre (Robinson *et al.*, 1961). Aangebrug and Caspall (1970) in their paper on rural population density categorized the Kansas rural areas by the perceived changes in the population density patterns over time. However, it was in 1967 that Berry in his research papers first undertook a systematic work to distinguish the effects on the variation of density on an overall community settlement system.

Working within the restraining framework of the inflexible concepts of the central place theory, Berry revealed in his papers that the dimensions of the rural trade areas and service centers is linked to the wider aspect of the regional population density of which it is a part. Irrespective of the population density, the rural centers are apt to form a distinct spatial pyramid (Berry, 1967). With a decrease in the population density, the place dimension at each level of the pyramid also decreases, while there is an increase in the trade area sizes that seeks to compensate partially for the decreasing population density. Subsequently owing to these shifts and transitions, the specific forms of services seen at the lowest level of the spatial pyramid under conditions of high-density rural population will move a step up to the next higher level when population density decreases.

The significant influence yielded by population on the natural resources, and socio-

economic characteristics of a community, makes it necessary to study the orientation in population density and distribution, in order to plan and implement any program associated with growth and development of a region. To understand the trends in population density and distribution it is necessary to study and analyse periodically the available standardised data on size and spatial distribution of population over a specific length of time.

However, on studying the various available literatures on population density and its effects on the sustainability of a community, it is seen that very little research has been conducted in this regards. A closer look revealed that it was primarily owing to the complex nature of the term, 'population density,' not much work has been done on it. Thus, it makes it difficult for the researchers to differentiate between the cause and effect, while analyzing the multidimensional aspects of human density, and its relationship with sustainability aspects.

The intricate nature of the population density is also reflected in the association of various other factors, besides the socio-economic one, like historical or environmental factors, that assist in the formation a specific density range like clustered, linear, or randomly distributed, as regards any urban or rural population (Argent, *et al.*, 2006).

## Study Area and Methods

### The Study Area

Shaqqlawa is one of the Iraqi Kurdistan's region district, located in the central part of Erbil governorate and is sub-divided into five sub-districts, namely, Harir, Basirmah, Hiran, Balisan and Salahaddin which shares borders with Swran districts to the north, Suleimaniah governorate and Koey district to the east, and Dohuk governorate to the west, Dashty hawler district to the south (Figure 1). Shaqqlawa district has a total land area of 1787 square kilometers covering about 12% of the former Erbil governorate total land area which is about 14471 square kilometers.

Farming activities take up about 52% of the total district land, while other uses are grazing 32% and forests 16% (Swzan, 1999).

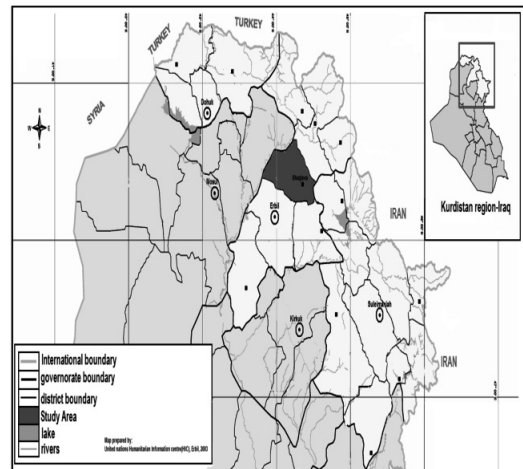


Figure 1: Geographical Location of Shaqqlawa (HIC, 2003).

## Methodology

In an effort to elucidate the role of population density as the indicator of sustainability of the rural community, three villages were selected from two different zones. Amokan, Graw and Mirawa represent high density villages whereas Zyarat, Freez and Aspindara represent low density villages (Table 1).

The sample frame of the villages is based on a list of village population density in Shaqqlawa district, obtained from KRG (2009) trial census result. The social environment in most of rural Kurdistan (and comparable regions) is fundamentally different from that of compact settlements such as in Southeast Asia, where villages are large, closely spaced and the residual farming population of minimal importance. In the 120 rural communities explored in 2009 census data for Shaqqlawa district, the median density of the village in the spatial units used in the present paper is 40 persons / Km<sup>2</sup>. Villages with higher ratio than this median counted as high density whereas, village with lower ratio considered as low density.

Table 1: Sampled Villages based on Population Density.

Settlement	No. Household	Density Person/K.sq	Type of density	Interview
Amokan	222	294	High	4
Graw	112	144	High	4
Mirawa	58	130	High	4
Zyarat	55	9.9	Low	4
Freez	30	7.3	Low	4
Aspindara	25	3.9	Low	4
<b>Total</b>	<b>502</b>			<b>24</b>

Source: (KRG, 2009)

A series of indicators determined through the local stakeholders for empirical analysis which would represent each of the three main groups of sustainability indicators (social, economic and environmental). Stakeholder involvement is an essential ingredient in the development of such a system for it permits insight into the needs and concerns held for the relevant social system (Pepperdine & Ewing, 2001). This allows the identification of locally relevant and meaningful indicators and, subsequently, the development of a locally specific information management strategy (Ubong & Ibrahim, 2012).

The importance of local participation in sustainability-indicator development has been distinguished in several studies (Boyd & Charles, 2006; Bell & Morse, 2004; Freebaim & King, 2003; Yuen *et al.*, 2003; Reed & Dougill, 2002; Riley, 2001; Valentine & Spangenberg, 2000).

These indicators attempt to capture imperative aspects of the broad concept of sustainable development. Key community issues and values integral to society sustainability in terms of its functioning and viability were elicited from local stakeholders in the Shaqlawa catchment.

This exercise drew on face-to-face interviews with five local stakeholders. Figure 2, shows the process of indicators development.

Information required were mainly collected from secondary data and a face to face Interview questions which have been applied to 24 key

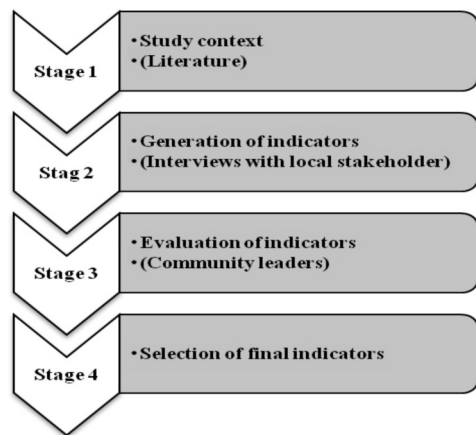


Figure 2: Indicator Development. (Adopted from, Ubong & Ibrahim, 2012)

informants (4×6) in the sampled villages. Limiting the in-depth interview sample size to 24 is informed by Creswell’s (1998) views that grounded theory is based on limited number of interviews (20-30) cited in Chamez (2006). Moreover, this paper adopts a mix method of data collection. The application of this research tool is to elicit key information, cues or features peculiar to the human behavior setting of the study area, thereby providing a lead for further probing. For both Glaser and Stern, small samples and limited data do not pose problems because grounded theory methods aim to develop conceptual categories and thus data collection is directed to develop properties of a category and relations between categories (Glasser, 1998; Stern, 1994).

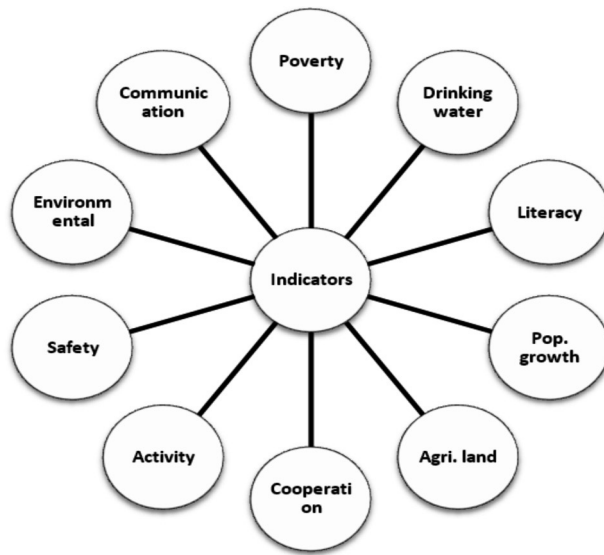


Figure 3: Main Sustainability Themes Identified by Local Leaders.

**Understanding of Sustainability within Population Density Context**

This section evaluates the quantitative and qualitative results of a comparison focused on population density to determine the degree of sustainability for each community. The quantitative information was obtained mainly from available secondary data. The qualitative data was the result of the responses to the structured and semi- structured interview questions that focused on community sustainability addressed to local community leaders. This section separated mainly in to two parts as follow;

**Quantitative Indicators Analysis**

*Poverty*

Poverty is a very important consideration when discussing sustainable development. The eradication of poverty remains a serious challenge for policy makers. Moreover, an integrative viewpoint which at the same time takes account of development issues, environmental quality and human benefit must be taken if sustainable progress is to be achieved. The percentage of population living below the poverty line captures the prevalence of poverty by measuring

the proportion of the population for whom consumption (or any other suitable measure of living standard) is below the poverty line. An increase in this indicator indicates a worsening of the poverty situation as a greater proportion of the population dropping below the poverty line. The findings from the secondary data revealed that the poverty rate in High density villages was lower than that in low density villages (Figure 4). High density villages enjoyed fewer poverty-related socioeconomic characteristics. As there were more job opportunities and sources compared to low density villages. Low density villages poverty ratio is close to that of Iraq with 23% of total population.

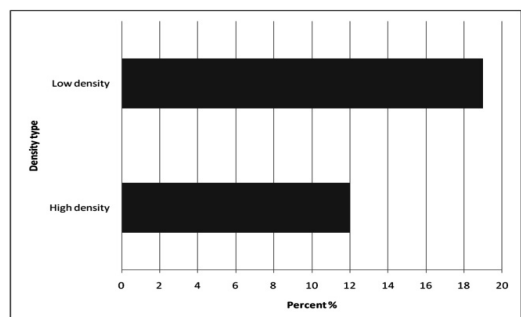


Figure 4: Poverty Proportion to Total Population According to Density Type.

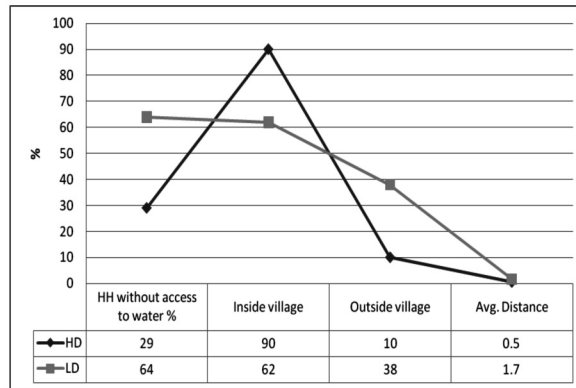


Figure 5: Household Access to Drinking Water and Availability.

*Drinking Water*

This indicator may be calculated as follows: The numerator is the number of persons with access to a sufficient amount of safe drinking water in a dwelling or located within a convenient distance from the user’s dwelling. Alternatively, this indicator may be also uttered as the percent of population without access to improved water sources. Thus, the population indicated in the numerator would be those who do not have access to improved water sources. If these data are available in terms of the proportion of households, it should be possible to convert this into a percentage of the population, using average figures for household size (UN, 1995). Findings revealed those households not having access to drinking water in high density villages are lower than that in low density villages, Figure 5.

The alarming percentage (64%) of households having no water at low density villages could be compensated by their working style and availability of more than 38% of water outside village in an average distance of 1.7 Km. However, 29% of households at high density villages having no water could not be ascribed to the working style of the people. It is perhaps the reduced infrastructural facilities available at high density villages. Although greater portion of village population both in high density villages and low density villages are able to get their water requirements considerably filled inside their village itself, high density villages people

are having more access to water resources (90%) inside their villages than low density villages populace who have an optimum difference of (90-62=28%) merely. The average distance of 0.7 km to water resource in high density villages explains this difference. Availability of water inside the villages is made more feasible at high density villages.

*Literacy*

Literacy is closely connected to indicators reflecting essential needs such as education, capacity building, information and communication, and the role of major groups. The literacy rate indicates the degree or stock of literates at a given point in time. It is regularly associated to school enrolment ratios and population reaching grade 5 of primary education, both of which effect the accumulation of the stock of literates.

In Kurdistan region, progress has been made in the majority of rural areas in improving access to education and in lessening illiteracy, as we can conclude from the available data that the literacy rate in both high density and low density villages is about 76% and 60% for each respectively (Figure 6). In a survey conducted by FAO regarding rural household in Iraq, the literacy rate amongst household was 59%. Nevertheless, sufficient levels have yet to be attained in many other areas.



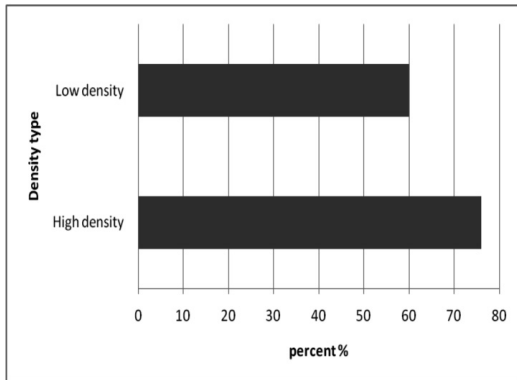


Figure 6: Household Literacy Rate (%).

The literacy ratio is a clear sign also that a dense population is always capable of educating their citizens continually resulting in social development. As concluded in a study done by the researchers' earlier (Ismael and Ngah, 2012), the zero elements in bachelor and post degree in low density villages is the forerunner for its incapacity to provide sustainable accommodation for the high-educated population that needs some strong and inevitable infrastructure such as easy access to educational materials like books and others for their ongoing. The report of the Secretary General of UNICEF identifies the significant shortages of materials and equipment throughout the education sector in Kurdistan region and the whole of Iraq (Jeffries *et al.*, 2003).

*Population Growth*

There are close linkages between this indicator and other socioeconomic indicators, as well as all indicators affirmed in per-capita terms (for example, GDP per capita). Population growth generally has implications for indicators linked to education, infrastructure, and employment.

Population growth in a particular area or region has a direct influence on its progress and prosperity. And those development economists along with social scientists who are of the view that rapid population growth is not a real problem have mentioned three claims:

- (a) Population growth is not a problem but there are other issues.

- (b) Population growth reduction is a scheme of the capitalists' countries to preserve developing countries in their dependence.
- (c) For many developing countries population growth is desirable (Afzal, 2009).

Furthermore, for several services as population drop not only does the local population fall below some demand threshold, but it becomes impossible to compensate for this by amalgamating local government areas to achieve some arbitrary population target. In effect, it becomes impractical to collect sufficient demand within a rational travel distance to run the service at some minimum feasible level. Population growth statistics data from the census reveal that the growth rate for sampled high density villages is much higher than those in low density villages; furthermore this rate showed an overall declining in low density villages in term of population growth (Figure 7).

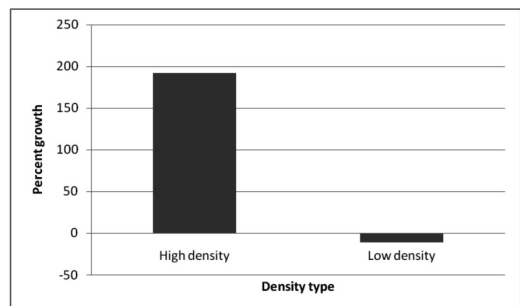


Figure 7: Population Growth Rates in Participating Villages.

The results demonstrate that high growth rates for populations in high density villages have a significant impact over the sustainability of the community because compact settlement, encourages more community interaction, reduce isolation for vulnerable social groups, reduce car use (since compact settlements require less transport) and help stem the decline in rural services, such as shops, post offices and bus services

*Arable Land Area*

The concept of arable land and land under permanent crop is clearly defined. Arable and permanent crop land is the total of “arable land” and “land under permanent crops”. The indicator is primarily linked to other measures related to land resources; this includes indicators such as land use changes, share of irrigated area in the arable and permanent crop land area, per capita arable and permanent crop land area.

In Table 2, we can observe that although the absolute number of arable land area in low density villages is higher than high density villages, nevertheless the percentage of arable land to total land area is higher in high density villages if we alter it to proportion figure. In other word this indicates that people of high density villages are more capable to make use of their land resource than people in low density villages.

**Qualitative Indicators Analysis**

This part summarizes the responses given to the interview questions. An understanding of the priority of the issues provides valuable insight to assist in goal setting for planning as the significance of each indicator may vary spatially and temporally. The significance of each factor can also be determined by applying these indicators.

Cohesion, community activity, area attachment and communication was found to be the most important factor in evaluating rural community sustainability in the study area as it explains the most variance between low and high density villages.

Ten (83%) of the 12 participants in high density villages acknowledged that they feel themselves as a part of their communities. As one participant stated, “the individual comes across many benefits when they have the sense of belonging to the community”. Some participants recognized the need for the supporting community to “cooperate with each other and have a dialogue about what decisions affect each other”. Furthermore, another participant also stated, “each community has something

Table 2: Total Agriculture Land Area and Arable Land (Dunom).

Density Type	Village	Total Area	Arable Land Area	%
High density	Amokan	1863	1591	85
	Graw	1900	902	47.5
	Mirawa	713	458	64
Low density	Zyarat	21000	3150	15
	Freez	9179	3244	35
	Aspindara	12315	2894	23.5

Source: (KRG, 2010)

to offer – we need to celebrate this and work together”. On the other hand only three (25%) of the 12 participants in low density villages acknowledged that they feel themselves as a part of their communities. As one participant stated, “change the community culture to a process that is more inclusive, allows for opportunity to fit in their communities”. Another participant saw the “civilizing interactive relationship between the individuals, community and committee members” as an opportunity to enhance the sense of belonging to the community in the low density villages.

While numerous participants in high density villages (91%) acknowledged that they participate in different social activities in their communities, just 41% of participants in low density villages are involved in such activities. As one low density participant stated, “there is not much contact between the families in the community”, and another said, “If the culture of belonging to community does not exist, the rest won’t matter”. Almost all participants (11 of 12) in high density villages felt their communities managed social activities issues effectively.

In response to the question, “Do you consider yourself safe within your community?”, nine (75%) participants in high density villages felt safe within their community, as most participants’ referred to, “building relationship between the community members as well as with

other neighbor communities is a key factor for obtaining safe community”. As in the low density villages seven (58%) of 12 participants believe that their community is safe the other 42% believe that the separation of houses within their community dose not make them feel safe.

Ten (83%) of the 12 participants in high density villages defined their community as mostly attached to the area. One participant stated, “There is a strong connection between community planning and understanding the settlement area”. As in the low density villages 6 (50%) of 12 participants believe that their community is mostly attached to the area, other (50%) participant identified the need to have a collective vision at the family level and the community level.

Most participants (91%) in high density villages refered to the significant role of communication in defining the future of the community; this includes communication between local families in their society and with others. As one participant said, “we need to have social engagement; the process must be about educating the public about the issues so they can be engaged”. As in the low density villages, 7 (58%) of 12 participants believe that communication technologies, such as telephones, mobiles and the internet, are important in maintaining relationships with friends and families.

**Conclusion**

In an effort to explain the role of population density as an indicator of the sustainability of rural communities, three villages were selected from two different areas. Amokan, Graw and Mirawa represented high dense villages and Zyarat, Freez and Aspindara representing low dense villages. Information was collected from secondary data, field surveys and a face to face Interview with 24 key informants from the participating villages.

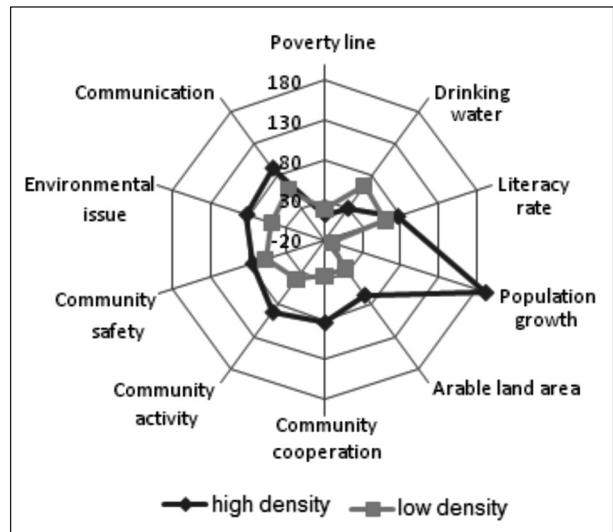


Figure 8: Comparison of the Levels of Sustainability.

Figure 8 present a summary of the major findings from this study.

The study revealed that people from low density villages led lives of relatively lower sustainability whereas people from high density villages led lives of higher level of sustainability. This is based on the outcome from varieties of indicators used to measure the sustainability of the villages.

This study revealed that in high density villages, indicators like literacy rate, drinking water, population growth, arable land and community (cooperation, activity, safety, and communication) score higher. This is normal since in highly density rural areas, it is most likely to create better opportunities for providing them with amenities. This implies that people in high density villages are more than capable of making use of their resource. This supports the argument that areas above average rural population density often stand a better chance to develop and reduce poverty than comparable areas with low population densities, as Sachs points out with respect to Asia and Africa (Sachs, 2005).

Despite the fact that the conceptions of sustainability are beginning to be understood by rural peoples particularly in high density villages in Shaqlawa, there is only a fragmented strategy

for integrating sustainability imperatives into planning initiatives and goals. Therefore, Shaqlawa district is in a unique position to transform development to integrate the three imperatives of sustainability into local planning programs and goals. Current population and economic growth influence land-use decisions, which are often based on short term goals, as well as on the perception that the economy, environment and social issues are distinct.

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