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A Case Study on Needs Assessment for Sustainable Rural Development

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Abstract The purpose of this project was to identify changes in the ecological, socio-cultural and economic life of selected rural municipalities over several years; to evaluate impacts of economic activities' on the observed changes; to assess how the observed changes have affected the communities' standard of living and their environment, and to identify their priorities. Data for the analysis was collected from the participants through a combination of survey, reports, soil and water sample analysis, and focus group meetings. Results from the study revealed that the towns are suffering from environmental pollution such as noise, odour, and soil and water contaminations from past and present economic activities. Other problems include stunted growth due to declining industrial/commercial activities, flooding, and dissatisfactory intergovernmental relationships. Transformation from "bedroom" communities to commercially thriving municipalities, solving environmental pollution created by past economic activities in the area, and engaging various demographic groups in town to participate in socioeconomic and environmental sustainability projects are among the identified priorities of the communities under study. This identification of specific causes of stunted growth, and articulation of priority issues to be tackled for attainment of sustainable growth in the seven participating towns in Southern Alberta would facilitate finding effective solutions to address specific problems in those communities.

Keywords Environmental Pollution, Environmental Sustainability, Rural Development, Rural Municipalities, Rural Sustainability

1. Introduction

Rural communities have a number of issues that are peculiar to them, which are quite different from issues affecting urban communities[1]-[2]. Majority of rural communities depend on the environment in ways that are different from how urban centres do. Economies of many of the rural communities are resource based. Exploitation of those resources over the years has brought a lot of transformations in Alberta's rural and sub-urban communities. While a number of villages have become urban centres with thriving economic activities, some have witnessed significant decrease in their economic activities and changes in their demography. The purpose of this research project was to identify unique environmental, social and economic sustainability needs of selected municipalities in Southern Alberta and finding sustainable solutions to them.

Sustainable rural development needs assessment

Many of the rural problems were caused by the use of unsustainable approaches to development. It is therefore

necessary to address current rural issues by utilizing methods that would foster sustainable growth in those communities. But the question is, what does sustainable development entail? According to Uphoff[3], "Sustainable development involves many things." The many things include "more appropriate technologies, supportive policies, different ethics, and changes in individual behavior, local institutions, and local participation." In addition, Uphoff argued that local Institutions such as local administration, local government, voluntary (self-help) organizations, Not-for-profit (charitable) service organizations and private businesses are important for sustainable development in "mobilising resources and regulating their use with a view to maintaining a long term base for productive activity." Uphoff was of the opinion that available resources can best be put to their most efficient and sustainable use with location specific knowledge offered by these local institutions. In the same vein, Zaki et al were of the opinion that collaboration is required in planning and implementing sustainable rural development strategies. They recommended that those collaborative approaches should "focus on the process of problem solving, which means involving all stakeholders-in an effort to produce better solutions"[4]. Furthermore, they said that the collaboration should involve stakeholders' participation, goals and vision development. However, to effectively address the issues of

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collaboration and solve the problems, it is necessary to first identify both common problems and unique problems of participating municipalities. Those problems are articulated by needs assessment. According to Kizlik[5], “A needs assessment is a systematic process for determining and addressing needs, or gaps between current conditions and desired conditions or wants. The need can be a desire to improve current performance or to correct a deficiency”. “Needs assessment is an effective method to clarify problems and identify appropriate interventions or solutions.” [7] “By clearly identifying the problem, finite resources can be directed towards developing and implementing a feasible and applicable solution.”[8] To effectively address the problem of sustainable growth of the participating municipalities, the project was divided into three phases (Fig. 1): (i) Needs assessment, (ii) Identification of feasible solutions to environmental sustainability priorities, and (iii) Pilot/Experimental trials of selected feasible solutions.

This first phase of the study involved articulation of the sustainability needs of the participating municipalities. It was designed to answer the following questions:

- What are the environmental problems that are unique to the selected rural Albertan communities?
- What are the causes of these environmental problems?
- What are the impacts of the environmental problems on human quality of life and rural industrial ecosystems? and
- What are the current approaches being used to solve the problems and how effective has it been?

Data collection methods used for the needs assessment were discussed in the next section. Results of the data analysis were discussed in section 3 while conclusions drawn from the study were discussed in section 4.

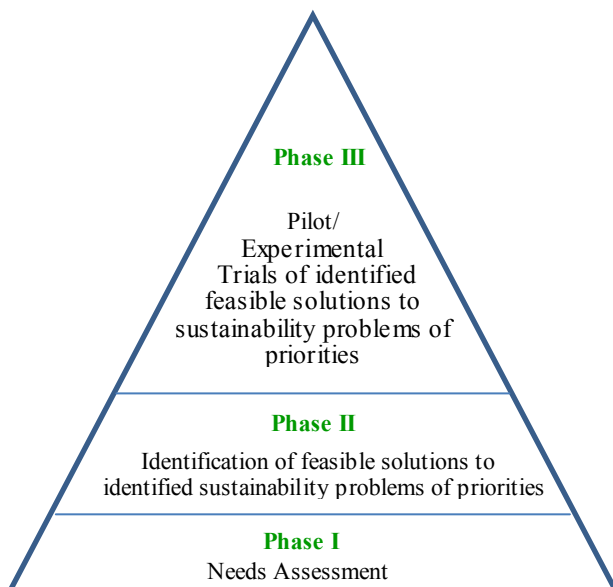


Figure 1. An illustration of the three phases of the research project

2. Methodology

There are various ways of collecting data for

municipalities’ needs assessment research. According to Beverly, “There are many methods available for collecting information about communities and a strong message coming out of needs assessment research is that using a variety of information gathering techniques produces valuable results. No one type of method can provide answers to all of your questions, so a combination of methods and gathering of both quantitative and qualitative information will give a better overall picture of the community. In addition, use of combination of methods will broaden the community’s picture of several sources of information which can act as a form of validation. This form of validation is referred to as ‘triangulation’, whereby data collected via one method is ‘checked’ against data from at least two other sources or methods of collection”[5]. Several scholars have written about various aspects of needs assessment[6]-[21]. A review of their works showed that needs assessment methods can be divided into:

- i. Gathering opinions and judgments
- ii. Collecting statistical data about relevant issues
- iii. Systematic studies of the origin, incidence and prevalence of problems
- iv. Use of quantitative measures of variables relating to the subject under study
- v. Surveys
- vi. Secondary analysis of existing studies or set of organized data
- vii. Combinations of the above

Participant Selection and Data Collection

For this research, a combination of qualitative and quantitative methods was used for data collection and analysis. Required data were collected by using surveys, interviews, reports, soil and water sample analysis, and focus groups (Fig. 2).

The aim was to collect the information from the people that have knowledge/experience of the peculiar environmental sustainability problems of each participating town/village, the causes of identified problems, efforts made at solving the problems, and outcomes of actions taken to solve the problems. Furthermore, they are people that should be able to give their perceptions regarding how those issues affected the quality of life in the municipality. It was considered that someone that would be able to adequately answer these questions must be at least eighteen years old and (s) he must have lived in the town for three or more years.

In addition to the survey and interview instruments, community’s approved reports that have anything to do with the soil, water and air issues as well as sustainability plan/reports were also requested from municipal officials and non-governmental organizations in each town. These reports were considered necessary to track various issues that each town had grappled with, how they addressed them, outcomes of their efforts, and how they affected sustainable growth of the town. These reports were expected to give credibility to data collected through interviews and surveys.

These reports included newsletters, annual reports and special reports that are of relevance to the community's historical economic/industrial development and approved for release by appropriate authority/official(s) for this study.

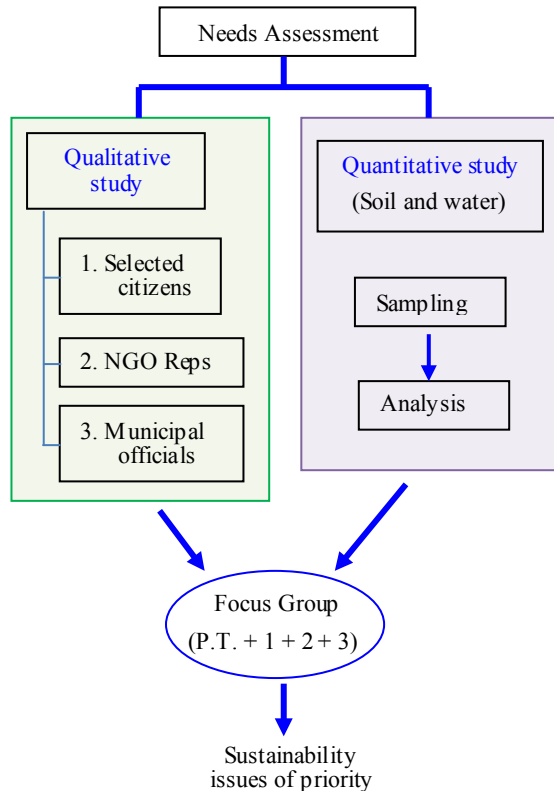


Figure 2. An illustration of the needs assessment process

Furthermore, soil and water sampling and analysis were need to know the current state of the soil and water quality. This would enable the researcher to see how much change has taken place between the reported data on reports submitted compared to what is the present state of contamination. It would also help in understanding the correlation between the qualitative data collected and the experimental data obtained from the analyses.

Moreover, efforts were made to collect correct and unbiased information regarding various issues affecting each town. To achieve that goal, plan was made to collect data from three categories of people from each town. These categories are (i) citizens, (ii) non - governmental organizations, and (iii) municipal government officials. Participants have to be at least 18 years old and must have also lived in the town for at least three years. The recruitment of participants for the project started with identification of sub-urban municipalities in Southern Alberta. Mayors and Chief Administrative Officers (CAOs) of the compiled list of potential participating communities were then contacted. Invitations to participate were sent by e-mails and by phone calls to these municipal officials of the communities. One on one discussion was also held with some of them in order to give them detailed information about the project. Seven towns eventually agreed to participate in the research project. Populations of the participating municipalities range from

500 to 6000 people except the seventh town that is 18000 in population. They are mainly agrarian communities with varied levels of industrial and commercial activities.

Individuals and non-governmental organizations' (NGOs) representatives were also recruited by searching towns' websites and telephone books to identify NGOs in town and citizens to be contacted. Advertisements were later placed on the towns' websites and in their local newspapers to recruit citizens and non-governmental organizations for the project. Town officials were also engaged to help in recruitment of participants. However, there are not many NGOs in the small municipalities under study. Only an NGO from one of the seven municipalities responded to the call. Moreover, the principal researcher also went talking to citizens at post offices, restaurants, business centers, and churches to recruit citizens. Consequently, a variety of demography representing different interest groups within each town were recruited and participated in the needs assessment project. No statistical analysis was used in the study.

Survey development and administration

The survey instrument consist of fifteen questions designed to collect information about environmental, economic, institutional and social issues affecting sustainable growth of each town. The questions were developed from the feedbacks received from the network meeting and from information gathered from literature reviewed on needs assessment. The five categories questions asked enabled the researcher to gather the following information:

- i) Depth of participant's experience/ knowledge about the town
- ii) Historical nature of the changes in the town
- iii) Causes of the changes
- iv) Attempts made to solve the problems, the outcomes, and impacts on quality of life and environment
- v) Other personal ideas/opinions about how the situation should have been handled or should be handled in the future

The survey administration was by random distribution to business owners and employees, non-governmental organizations especially sustainability groups and churches, municipal administration officials, and municipal council members. Data were collected from a total of fifty one people. They were made up of thirty one citizens and representatives of NGOs, seven administrative officials and thirteen council members. The survey was administered as questionnaires sent to the CAO for onward transmission to community members and municipal officials recruited by them. The survey was also administered in the form of interviews to community members recruited by the researcher.

Laboratory analysis of soil and water samples

A minimum of three samples of soil and water were collected from various sites that are of concern to each town. The samples were taken by designated town official from each town and sent to the researcher. The samples were analyzed by an environmental laboratory in Calgary. The

soil and water samples were analyzed to assess the type/level of soil contamination and to appraise the salinity of selected body of water, especially fertilizer contamination. Minimum of three samples were collected from each contaminated site identified by each town. The intent was to diagnose if there is any problem caused by salts, or any other contaminants so that appropriate corrective measures could be undertaken to address them. The results were analyzed by the researcher in correlation with the Alberta regulations on contamination levels.

Focus group meetings

A focus group has been identified as a form of qualitative research in which a group of people are asked about their perceptions, opinions, beliefs, and attitudes towards a product, service, concept, advertisement, idea, or packaging [19]. A focus group for this project was constituted for each town. Membership ranged from four to nine people in each town. It was designed to include a council member, a municipal administrative official, a member of the public, an NGO representative, and members of the research team. However, at the end it consisted of at least a council member, an administrative official, and two other people. The duration of the meetings ranged from ninety to one hundred and twenty minutes. The purpose of the meetings was to obtain diverse ideas and perceptions of participants about issues affecting sustainable growth in those communities in a relaxed environment. The aim was also to obtain their perception regarding the findings by the researcher from various data collection instruments. Furthermore, each focus group was to identify and discuss issues that the researcher might have not been able to capture through previously used data collection instruments. It was also responsible for identifying priority issues for the second phase of the project. Focus group meetings for the seven participating municipalities were held from May 7 - 18, 2012.

3. Findings

Analysis of data collected during this study revealed that there are several changes that have occurred in each of the participating communities over the years. A number of the changes were economic, socio-cultural, and/or ecological in nature. It was observed that changes in one aspect have directly or indirectly caused changes in other areas. In addition, it was discovered that issues affecting sustainable growth and standard of living in each community are not only due to past economic activities but they were also caused by the current economic and socio-political structure at the community, regional and national levels.

Common economic activities in and around the municipalities under study that are responsible for the changes include agricultural facilities and practices such as pig farms, cattle feedlots, chemical (fertilizer, herbicides and pesticides) applications, farm machinery and technology utilization. Other economic activities of note in these

communities are oil and gas facilities, creosote treatment facilities, gravel pits/stone crushing facilities, saw milling businesses, trucking businesses, and construction companies. These economic activities presented myriads of ecological, economic, and socio-cultural sustainability issues.

It was discovered that all the municipalities depend mainly on financial support from provincial and federal governments to implement infrastructural development. It was also discovered that each town is involved in one form of cooperation/collaboration with other municipalities or another. And they are willing to enter more collaboration(s) that would enable them find suitable solution(s) to their priority problems

The soil and water sampling and testing did not yield credible results and it would have to be redone under personal supervision of the researcher.

3.1. Observed Changes in the Natural Environment

It was observed that over the years, some of the economic activities in the municipalities have resulted in increased noise and dust levels. They have also caused interrupted and slowed traffics. In addition, some of these economic activities have caused air, water and/or soil pollution. Specifically, there were a number of spills from oil and gas, fertilizers and other chemicals. Some of these contaminations are easily perceived in the form of unpleasant odours that emanate from such facilities. These contaminations have high potentials to cause carcinogenic, respiratory and other diseases. There is therefore a need to address these problems.

Recurrent flooding problems were also reported by some of the municipalities. The flooding problem has caused property damage, and surface and groundwater contamination. It also made water unsuitable for consumption. One of the affected municipalities undertook drainage improvement and town planning projects to solve the flooding problem. While drainage improvement has helped in solving the problem in some areas, the flooding problem is yet to be solved in some other areas. There is therefore a need to identify and utilize sustainable method of addressing flooding problem in the affected parts of the communities.

3.2. Observed Changes in Socio-cultural Lifestyle and Economic Status of the Municipalities

Apart from the changes in the natural environment, there were significant changes in the socioeconomic status of the municipalities over the years. The changes were either as a direct consequences of the changes in the natural environment or due to socio-political changes in the region.

It was discovered that the ratio of residential to industrial/business properties in most of the municipalities studied is about 80/20 percent. As a result, most of them lack professional job opportunities. This caused many residents of those towns to commute daily or move to bigger cities to get suitable jobs that can enable them to have improved

standard of living. Consequently, there is a decrease in the number of educated people in town. It also led to reduced population or low population growth rate in some municipalities. Some of the communities have tried to solve this problem by making business property taxes to be the same as residential property taxes in order to attract businesses to the town and facilitate their success. This was in anticipation that doing so would result in creation of professional jobs. This effort is yet to yield any appreciable success. There is therefore a need for re-evaluation and adoption of viable sustainable strategies that would lead to professional job creation in the rural communities.

It was also discovered that there were decrease in sales and increased business shutdowns in a number of municipalities. These were largely due to large population of those town working and shopping outside their residential community. Moreover, as a result of being busy with work and family matters, younger populations that are less than forty years of age are not available for volunteer programs in their residential communities.

3.3. Effects of the Observed Changes in the Natural Environment and on the Quality of Life in the Communities

Effects of the observed changes include increased commuting between rural municipalities and urban centres with consequent environmental pollution. Moreover, there is loss of sense of belonging in the community due to less involvement in the towns volunteer programs. Furthermore, there were increased health problems. Consequently, some of the scarce financial resources available to the municipal governments have to be diverted to solve a number of the environmental and health problems rather than on further developments in the town that could lead to improved standard of living of the inhabitants.

4. Conclusions

The study of issues affecting sustainable growth of seven selected municipalities in Southern Alberta revealed that a number of past economic activities have brought significant changes into the communities. While some of the changes are good, a number of others have caused a lot of problems for the municipalities. The municipalities under study had either individually or in collaboration with other communities or agencies attempted to solve their problems. Some of the problems have been completely solved, some are half solved while a number of others are yet to be tackled. Reasons for the varied levels of success in addressing the problems are attributable to lack of enabling financial resources, non-availability of supporting infrastructure or limited infrastructure, lack of innovation friendly policies, existence of innovation inhibiting regulations, and a number of other factors. Results of these needs assessment will be used as input to phase two of this research project. In phase two of this project, we will be undertaking studies of how priority

issues and other issues identified during the study can be addressed in a sustainable manner.

Furthermore, although the problems confronting the towns are many and vary from one town to another, there are a number of problems that are common to many of them. The commonality of the issues affecting the sustainable growth of these towns provides a platform for collaborative approach to solving such problems. Collaborative partnership approach to solving the problems would enable the municipalities to pull their human, financial and other resources together to solve the problem(s). Moreover, it will make the burden of solving those problem(s) easier on individual community. It would also enable the municipalities to complement each other.

Furthermore, it will provide a platform for collaboration on other issues in the future, thereby paving the way for long lasting sustainable growth of not only one community but sustainable growth of many communities simultaneously.

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