

SOCIAL STUDIES IN DEVELOPMENT OF WATER RESOURCES PROJECTS IN EAST AZERBAIJAN PROVINCE

ETUDES SOCIALES POUR LE DEVELOPPEMENT DES PROJETS DE RESSOURCES EN EAU DANS LA PROVINCE D'AZERBAIDJAN ORIENTAL

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ABSTRACT

The Ministry of Energy in Iran has made social and economic investigations compulsory along with technical studies in the execution of water resources development projects and water use. However, such studies have not created useful ground for better use of water resources and have not attracted people's participation in such projects. It seems that not using appropriate research methods to be one of the main reasons contributing to such a situation.

To improve the level of social science application, 3 out of 21 studies conducted in East Azerbaijan Regional Water corp., were selected to be further analyzed for the examination of methods adopted in them.

Four major steps were taken for the present analysis. In the first step, the available reports along with the services given to the organization were compared. Secondly, the reports were compared against the norms of conducting social science studies. Thirdly, the experts' points of views about the methods of these studies were taken into consideration. Finally, a survey analysis was done to find the relationship between the researcher and the field, and the level of information provided and researcher's behavior.

A check list based on services and principles of methods of conducting a social science study was prepared, and the selected studies were tallied against this checklist. The views of experts about the methodological problems of these studies were examined. In the survey, the irrigation systems of two villages were examined. The elderly and members of village council were interviewed. The methods of the studies in the three irrigation systems were examined

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based on Parsner and Merthons theories in terms of scale, credit, and cohesion. Based on the findings a suitable methodology for conducting studies on irrigation systems is proposed.

Key words: *Social investigations, Irrigation projects, Water use, People's participation, East Azerbaijan.*

RESUME

Le Ministère iranien de l'énergie a fait obligatoire des enquêtes économiques et sociales ainsi que les études techniques pour la mise en place des projets du développement des ressources en eau et de l'utilisation de l'eau. Cependant, ces études n'ont pas fourni un cadre pour meilleure utilisation des ressources en eau et n'ont pas invité la participation du peuple à ces projets. Il semble que non utilisation des méthodes de recherche appropriées est l'une des raisons principales de cette situation.

Pour améliorer le niveau d'application des sciences sociales, 3 sur le total de 21 études menées par l'Organisation d'eau régionale d'Azerbaïdjan oriental, ont été retenues pour l'examen des méthodes adoptées.

Quatre étapes importantes ont été choisies dans l'analyse actuelle. Dans la première étape, les rapports disponibles ont été comparés avec les services fournis à l'organisation. Deuxièmement, les rapports ont été comparés avec les normes établies pour gérer les études en sciences sociales. Troisièmement, les points de vue des experts sur les méthodes de ces études ont été pris en considération. Enfin, une analyse a été faite pour rechercher la relation entre le chercheur et le terrain, le niveau d'information fourni et le comportement du chercheur.

Une liste de vérification sur les services et les principes des méthodes de réalisation d'une étude en sciences sociales a été préparée, et les études retenues ont été comparées avec cette liste. Les opinions d'experts ont été étudiées sur les problèmes méthodologiques de ces études. Les systèmes d'irrigation de deux villages ont été examinés. Les personnes âgées et les membres du conseil du village ont été interrogés. Les méthodes d'étude de trois systèmes d'irrigation ont été examinées compte tenu de la base et des théories Parsner et Merthon en ce qui concerne l'échelle, le crédit et la cohésion. Une méthodologie convenable est proposée sur la base des conclusions pour mener des études sur les systèmes d'irrigation.

Mots clés : *Enquêtes sociales, projets d'irrigation, utilisation de l'eau, participation du peuple, Azerbaïdjan oriental.*

1. INTRODUCTION

Ever increasing population and the consequent increase in water demand in agricultural, drinking and industry have caused that policy makers and programmers to seriously consider the water resources limitation in Iran. Implementation of water resources development projects and optimal exploitation of irrigation and drainage networks are necessary and will be feasible through public participation. Social studies are complex, thus knowledge and adoption of proper methodology are required in these studies.

Due to the problems faced by the agriculture sector such as low efficacy, competition from other water users, lack of comprehensive regulations and other social-economic difficulties, an appropriate approach towards optimal development and utilization of irrigation and drainage networks will be necessary. In this approach, the beneficiaries and their socio-economic structure are prime items of consideration. This will provide the required platform to transfer from low efficiency government controlled traditional system to a modern and people-operated networks (Tamanna, 2005). Globally, there are several evidences where the role of governments has been reduced in exploitation and management of the irrigation networks in favour of elected local organizations. There is a relationship between scope of transfer, socio-economic situations and local management capacities. The proper pattern of agricultural water consumers, authority and grade of network canals should be selected based on local conditions (National Irrigation and Drainage Committee, 1998).

According to recent investigations, consideration of social studies has increased the probability of plans' success in realizing the desired goals in an efficient manner, equity in resource allocation and empowerment of the local communities (Masomi Parsa, 2005).

Due to the importance of social issues in exploitation and implementation of water resources development projects, east Azerbaijan regional water firm has studied socio-economic aspects besides technical investigation. However, the results were not satisfactory and they did not provide required condition for optimal water utilization and attracting public participation. It seems that improper research method is one of the reasons (Seifadini, 1996).

2. THE NECESSITY OF RESEARCH

A review of the previously conducted social studies with respect to water resource development and use shows certain shortcomings in different stages. The attention paid to the social studies appears to be lesser as compared to that paid to technical studies. Some of the shortcomings were:

1. Implicit explanation of services or misunderstanding of consultants as a result concealment of sociology complexities and other aspects in place of implementation.
2. Improper perception of consultant and employer and ambiguity in conditions, demands and contracts.
3. Long-term studies and locks of usage of results in technical phase.
4. Emphasis on financial participation and indifference toward interested aspects.
5. High expectancy from social studies vis-à-vis time devoted to such studies.
6. Superficial social studies due to non utilization of skilled specialists' experiences.
7. Non consideration of regional characteristics and unrealistic assessment of problems.
8. Methodological mistakes.

The reasons for limitations in the previous studies and the errors in conducting the studies in east Azerbaijan can be summarized as follows:

- a. Use of vague rural development models y consultants, lack of coordination and commitment, uniform study method for every region despite regional differences,

employing foreign specialists having no perception of the local issues, failure to comprehend the dynamics of the society.

- b.** Methodology issues such as unplanned investigation of the society, incomplete usage of data, relying upon foreign experience, infrequent contact between the research group and the target population, failure in adherence to scientific principles in the research process, improper utilization of statistical methods in data analysis.

This research has been carried out in order to evaluate social studies from methodology view point and promote their quality in future, giving specific emphasis to:

1. Empowerment of social from methodology view point and enhance findings efficacy.
2. Determination of required conditions for researchers and colleagues by consultant engineers and employers.
3. Elimination of disadvantages and strengthening of positive aspects.
4. Help in improvement of services by employers.
5. Assessment of weak and strong points of the studies from methodology view.

3. QUESTIONS ADDRESSED

1. Are socio-economic study methods proper?
2. Are studies representative of the region?
3. What is the manner of data collection by consultants and what is the data collection tool?
4. Are validity and reliability of the data optimal?
5. What are the bottlenecks in the methodology and how can they be eliminated?
6. How are social studies done in similar countries?

4. METHODS

This research is descriptive and it involves methods of description of conditions and studied phenomenon in order to recognize current situations and aid decision making. Using different techniques and methods of data collection is necessary for doing so. Published and unpublished documents of consultants and water organization, irrigation and drainage networks, social studies projects have been used in the study. Field study was conducted and the questionnaires were completed by members of councils and elders. In order to measure the reliability in each network two villages were selected and all individuals were interviewed. Judgment about quality of research methodology and their categorization and principles were made considering three conditions:

- a)** Evaluation should be disciplined, explicit and clear.
- b)** Formal evaluation after design and implementation is ineffective. Hence assessing the effectiveness is necessary.
- c)** Assumptions, comment and specially relying on the causative relationship among data, processes and results are subjected to critical examination. Also in evaluation of value, optimality, effectiveness and efficacy are judged based on defined criteria.

The statistical population consists of social studies and exploitation discipline in east Azerbaijan water organization reports. According to the latest information 21 dams and irrigation and drainage Networks have been investigated based on socio-economic and exploitation discipline studies. Of these, three cases have been considered for the present study. The three selected cases are:

Sahand irrigation and drainage network: as a representative of large network.

Idogmush irrigation and drainage network: as a representative of small network.

Khoda Afarin irrigation and drainage network: as a representative of network in tribal areas.

The earlier social study reports are in four volumes for each of the projects. So, 12 reports have been investigated based on experts viewpoints and mistakes of their methodology. In field study two villages were selected from networks and each region was divided into two sections and from each section one village was selected. Village of Garloje and Daglou in Khoda Afarin and village of Yanig and Yele Gashou in Sahand and villages Garaje and Akram Abad in Idogmush were selected. Member of councils and some individuals were interviewed collectively. Questionnaires were provided in order to collect data from consumers. Tables 1 to 4 give the results.

5. RESULTS AND DISCUSSION

The aim of this research is to investigate social studies methodology in irrigation and drainage networks. For doing so, Sahand, Idogmush and Khoda Afarin networks in east Azerbaijan province were selected by four principles steps: In the first step the reports were compared with offered services explanation. In the second step the reports by social studies scientific norms were investigated, in the third step the opinions of experts about methodology were studied and finally field study was conducted in order to understand the relationship between the report and the level of users' satisfaction.

5.1 Services explanation

From observation of services explanation items in social studies viewpoint and according to 12 volumes reports indices followings were observed in agreement with social studies services explanation:

- **Report of population and human forces:** This section involves design, goals and necessities of social studies, introduction of case study region, effects of project implementation on characteristics of population and human forces, introduction of sampling and sample volume, analysis method and data collection.

Table 1. Population and human force report indices

Serial	Studied indices
1	problem explanation
2	goals and necessities of social studies
3	method
4	techniques of data and required information collection (interview, observation, questionnaire)
5	introduction of statistical population
6	introduction of sampling method and sample volume
7	methods of data analysis and compilation
8	activity and its level
9	unemployment its level and shapes
10	occupation, employment and its level in current situation
11	economical and population burden
12	revolution in activity, unemployment, occupation, economical and population burden levels during recent 3 decades
13	negative and positive effects of human force characteristics on implementation of the project
14	dimension (household volume)
15	population age structure
16	population sex (gender) structure
17	education and training of population and its effect on implementation of the project
18	population indices changes (household) dimension, age and gender structures and education during three recent decades)
19	population changes (natural changes and investigation of main indices and location changes (immigration, reasons types and its goals)
20	age structure of users and its positive and negative effects on implantation of the project
21	immigration of users and its positive and negative effects on implementation of the project
22	education, skill and knowledge of users and their effects on implementation of the project
23	proposition of absent users content and manner of their availability

Table 2. Exploitation discipline characteristics report indices

Serial	Studied indices
1	recognition of exploitation discipline types in country and their revolution
2	recognition of exploitation disciplines types in region and their revolution
3	introduction of effective factors on reliability and efficacy of exploitation discipline
4	exploitation disciplines characteristics in studied region
5	number and composition of exploitation disciplines
6	scale and size of ownership (based on dry and wet lands) based on regional divisions
7	number and dispersion of lands according to region inner divisions
8	introduction of land exploitation previous and current discipline (desert and block)
9	introduction of the relationship between exploitation discipline and social discipline in region and their revolution
10	evaluation of current exploitation and identification of usable elements in the project
11	investigation current irrigation system in plan limits
12	introduction of water utilization discipline and determination of fee and manner of blocking of lands
13	investigation the relationship between water and land utilization in current condition
14	identification of water and land utilization discipline organization
15	investigation of work power efficacy in project villages from cooperation viewpoint
16	identification and investigation of users viewpoints relative to ownership rights in farmers and cooperation activities
17	measurement of possibility of using traditional and modern formations in implementation of the plan
18	investigation and evaluation of current exploitation disciplines and introduction of principle issues and difficulties in exploitation discipline (based on technical, social, legal, custom and etc issues)
19	investigation and evaluation of the effect of establishment of network on fee in improved and downstream lands
20	introduction of optimal exploitation discipline by separation of improved and development lands
21	proposing required solutions for elimination of problems in exploitation discipline

Table 3. Sociology characteristics and users participation report indices

Serial	Studied indices
1	explanation of problem about the effect of sociology and participatory backgrounds on implementation of the project in region
2	goals and necessities of public participation and reciprocal effects of project in preservation and empowerment of participation in region
3	investigation and proposition of experiences about public participation in irrigation and drainage project
4	offering data analysis methods
5	investigation and evaluation of race, local, regional and micro cultures of farmers interactions and their effects on the project and vice verse
6	investigation of power structure and decision making and effect on implementation of project
7	introduction of beneficiary groups and their role in acceptance and implementation of the project
8	investigation and evaluation of participatory (formal and informal) organizations and public participation by separation of project limit villages and level of people satisfaction
9	users financial power
10	expenditure and income of family
11	family expenditure
12	family income
13	family savings
14	expenditure and income during implementation of the project
15	users participation share (main, secondary)
16	measurement of financial power for payment of participation share
17	measurement and evaluation of viewpoint, interest and believes of users for financial participation in implementation of the project
18	acceptance of pattern and composition of proposed plan and cultivation
19	pattern and cultivation in dam basin
20	pattern of cultivation in arable limits
21	proposed desertification and blocking discipline
22	integration and reduction of exploitation pieces (organizing of exploitation units)
23	proposed exploitation discipline
24	utilization and preservation of irrigation network

Table 4. Activities report indices

Serial	Studied indices
1	integration and unification of lands in order to provide possibility of optimal utilization of water or soil resources or unit management in execution of cultivation policy and irrigation system in farm
2	determination of proper exploitation discipline in network
3	determination of proper exploitation discipline in secondary network and lands and establishment of farmers and users production and economic formations
4	attraction of users financial participation by using bank facilities in order to establish main irrigation and drainage networks
5	determination of required land ownership in order to establish dam and main irrigation and drainage networks
6	fee discipline lands in improved and downstream lands during project implementation
7	prioritization of civic areas based on study findings from participation viewpoint and etc
8	proposition of empowerment plan in order to transfer current exploitation discipline to proposed discipline to acceptance of its responsibility and preservation of the network and its establishment process
9	designing of activities process
10	investigation and identification of users educational needs and preparing operational programs for establishment of sample field and training classes

- **Characteristics of exploitation discipline:** Explanation of the problem, goals, necessities of project implementation, identification of present organizations of water and land utilization disciplines, measurement of possibility of using traditional and modern formations, investigation and evaluation of the effect of establishment of network on wing and fee discipline in improved and downstream lands, introduction of optimal exploitation discipline by separation of improved and developed lands.
- **Sociology characteristics and participation of the users report:** Investigation on experiences in public participation in irrigation and drainage projects, acceptance of implementation of the project, proposed irrigation methods, land ownership, implementation by government, users' financial power, family expenditure and income, expenditure and income during project implementation, users' financial participation, measurement solvency in making payment for the services, evaluation of viewpoint, interest and opinions of beneficiaries for financial participation, pattern and cultivation in dam basin, pattern of cultivation in field and efficacy and preservation of irrigation network.
- **Activities report:** Prioritization of civic areas based on study findings from participations' viewpoint.

5.2 Separation and organization

In order to carry out scientific social studies research following should be considered:

Explanation of problem, goal and importance and necessity of research, theoretical framework, hypotheses or questions of research, variables indexing, techniques of data collection, statistical population and sample volume, data analysis and results, in most of the social studies this trend is not observed, in majority of social research explanation of problem and goals are proposed in methodology, but they are not methodology. Methodology can be accompanied by explanation of problem and goals research.

5.3 Expression (explanation) of problem and its importance

In this part the importance and necessity of the subject matter have been considered. But in expression of problem socio-economic changes (income, occupation, immigration and etc) after implementation of the project have not been addressed. In reports the importance of research has been expressed by theories not documents and witness.

5.4 Theoretical framework

In theoretical framework and viewpoints Raggars psychological rehabilitation theory has been selected among development viewpoints. Do all problems of studied areas have psychological nature? Is only problem acceptance of rehabilitation after providing agriculture water? Thus new viewpoints and research theoretical framework have not been considered?

5.5 Goals

The manner of expression of goals in scientific research is using doing verbs that divided into general and detail verbs in order to comprehend the aim of research. In this research general goal has been expressed implicitly.

5.6 Hypotheses

In descriptive studies research question is used. In these studies many hypotheses have been proposed without hypothesis test. Even in descriptive way most of the hypotheses have not been considered. The results of tests should be proposed separately. Also research hypotheses should be proportionate with theoretical framework and goals. Some hypotheses are vague and implicit.

5.7 Variables

In scientific research variables of hypotheses or research questions should be defined conceptually, in most of the network studies the variables have not been defined functionally.

5.8 Method of study

Several methods have been used in order to collect data, but it is not clear that which methods study what variables.

- Logic of using methods has been explained clearly.
- Methodology has not been defined functionally.
- Methodology limitations have not been proposed.

5.9 Introduction and selection of statistical sample

In most of the studies methods of determination of sample volume and sampling method are not clear. Only in KhodaAfarin network reports the sample volume is identified. The method of sampling is randomly but there is no logic for selection of this methods thus in most reports.

- The method of sampling is not clear
- The method of determination of sample volume is not defined.
- The steps of sampling have not been explained.

5.10 Measuring tools – documentation

The validity and reliability of the questionnaires have not been tested. Most of the questions have been proposed vague that they can be divided into several questions. Only measuring method of some variables has been proposed that indicates unreliability of tools. Spectrum method (for example in innovation and renovation) is incorrect. Spectrum scores are not sum scores of some items are varied between 0-6 and 0-10. Some items do not test the mentioned variable like changing job for test of innovation variable. So devices of measuring of beneficent sociology characteristics are unreliable.

Thus sociology characteristics study questionnaires.

- Are improper for measuring of variables
- The tools are improper
- They are unreliable (do not have allowable reliability)

5.11 The result of studies

In these studies the aim of sociology variables is not defined. What is the solution of low innovation in one region for this problem? Is there any relationship between low innovation and acceptance of civic projects? What is the reason of this result? What is the result of the test? The author concluded that unreliability, social alienation and participation are high in these societies. At first these results are contradicted secondly how can understanding of this subject help plan progress. In conclusion the answers of hypotheses are given; there is no relationship between conclusion and hypotheses. All sociology and psychology characteristics have been considered the same for all villages. There is no separate result for village. While in field study we concluded that there are different social barriers for participation in plan in two adjacent villages.

5.12 References

There are no references in text and reports. The research without reference is invalid.

5.13 Activities (actions) options propositions

The propositions should be based on research findings. Some propositions are not based on findings.

According to the author proposition public association of production services corporation firm will be hold by attendance of chief members and members of board of directors will be selected among these individuals. So without social acceptance this proposition did not require study.

The author points to the close relationship between exploitation discipline and social discipline. In general family exploitation discipline has been emphasized. Where is the position of organizational structure in social discipline?

Scientific research methodology is evaluated based on parsons and Morton theories by three indices of criterion, reliability and integration (coherence) **criterion:** According to result and final conclusion it is specified that components of studies are not concordance with accepted methodology logic criteria. **Reliability:** According to weakness in generalization (incorrect and undefined sampling), weakness in statistical power, lack of primary test and reliability tests, they have less reliable.

Integration (coherence): There is no rational relationship in research components like theoretical framework, goals, hypotheses and results.

6. PROPOSITIONS

6.1 Methodology propositions

In order to obtain scientific result principles of a social studies report should be considered like: introduction, expression of problem, goal, importance and necessity of research, theoretical framework, hypotheses or questions variables indexing and techniques of data collection, introducing statistical population, volume of sample, data analysis and results.

Expression of problem and its importance: the research problem should be proposed explicitly according to documents by referring to the importance and necessity of research.

Goals of research: The goals should be related to research problem and expressed with doing verbs.

Hypotheses and questions: They should be explicit, exact, brief, non contradictory and non interference.

Variables should be defined conceptually and functionally method of research: The rational should be defined clearly. Methodology and documentation should be explained explicitly.

Introduction and selection of statistical sample: In order to generalization of findings to total society the findings should be reliable and the population should be defined correctly. The sample volume should be determined based on principles and finally steps of sampling should be explained.

Measuring tools: Tools should be correct and reliability and validity test are necessary. These tools were not employed in these reports.

Data analysis: In these studies the effect of methodology variables on participation and acceptance of plan are considered and hypotheses are proposed, so inferential statistical tests are necessary, these tests are organized as tables, clear graphs.

The results of research: they should be based on findings and they are rational and concordant with present theories related to hypotheses.

References indicate reliability of scientific research. Thus references should be new and authentic.

6.2 Executive propositions

According to the fact that social studies have special methods and these methods require specialty, it is necessary that they be conducted by knowledge able social research. In research of consultants it seems that individuals did not have sufficient specialty in methodology so hypotheses, measuring variables, documentation, sampling method and data analysis are in agreement with scientific norms. Social studies field questioners should be familiar with questioning methods in order to obtain real responds by correct interaction. Thus author's scientific competency, best technicians, skilled research group, communication of researcher, population and sample, skilled researcher, familiarity of researcher with field can be effective in reliable research.

6.3 Organizational propositions

Continuous relationship between organization and author because of supervision and help researcher increases group efficiency and provide sufficient resources and equipment proportionate with project goals thus it is recommended that

- Research group should be supervised continuously and interaction between group and organization should be established.
- All reports send to experts and their opinions should be considered.
- Executive assurances is necessary for expert opinions and the expert should be assured about his/her viewpoints.

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REFERENCES

- Tamanna, s., 2005. The role of social studies in optimal exploitation of irrigation and drainage networks. Articles of the 2nd conference of technical, engineering, research experiences exchange, Tabriz, Mahab Gods consultancy engineering firm.
- Seifadini, farank, 1996. Methods of evaluation of social sciences research, articles of conference of investigation of methods and techniques used in education and research of social sciences. Higher education programming and investigation institute.
- Iran national irrigation and drainage committee, 1998. Universal experiences, farmers participation in irrigation management, articles of farmers participation in irrigation networks management conference.
- Masomi, Kave and Mohammad Reza Asgar Zade, Parsa, 2005. The role of local development institute in increase of efficacy of water resources expansion plans, the second conference of engineering, technical investigation experiences exchange in Tabriz.