



IMPACT ASSESSMENT IN SOCIAL SCIENCE RESEARCH

Seminar Report



2022

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IInd Doctoral Seminar Report

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Introduction

Impact is measured in terms of positive and negative, primary and secondary long-term effects produced by an intervention, directly or indirectly, intended or unintended. Assessing effects of an intervention on the user group is a crucial component for assessing the utility of a technological intervention. According to the World Bank, impact assessment is intended to determine more broadly whether the program had the desired effects (both positive and negative) on individuals, households, and institutions, and whether those effects are attributable to the program intervention (Baker, 2000). Impact assessment (IA) is an integral part of programme planning, implementation and evaluation. IA, along with processes like monitoring and evaluation, are employed to ensure progress of the work according to the programme objectives and to verify if results obtained are as desired by the implementing agency. Impact assessment is straightforward in development projects. There is a large literature underpinning impact, a wealth of experience and accepted norms and practices. This is not the case for the humanitarian sector. The rationale for impact arises from the introduction of Results Based Management techniques and a mindset that sees impact practice in the developmental sector as transferable to the humanitarian sector. It is not. And this is the nub of the problem. Until there are agreed norms and standards across the humanitarian sector then impact assessment will remain a contentious issue. In this backdrop the current seminar is conceptualized with the following objectives

- ◆ To understand the concept of impact assessment in social science research
- ◆ To discuss types and approaches of social, environmental and economic impact assessment
- ◆ To review related research and case studies

Meaning of Impact Assessment

Impact Assessment is a means of measuring the effectiveness of organizational activities and judging the significance of changes brought about by those activities. It is neither Art or Science, but both. Impact assessment is intimately linked to Mission, and, in that sense, ripples through the organization. Being able to assess and articulate impact is a powerful means of communication.

Impact Assessment Framework

Impact assessment (IA) is an integral part of programme planning, implementation and evaluation. IA, along with processes like monitoring and evaluation, are employed to ensure progress of the work according to the programme objectives and to verify if results obtained are as desired by the implementing agency. IA measures the achievement of project milestones, outputs, outcomes and their impact on the targeted population. The quality of impact assessment depends on the soundness of the programme implementation process

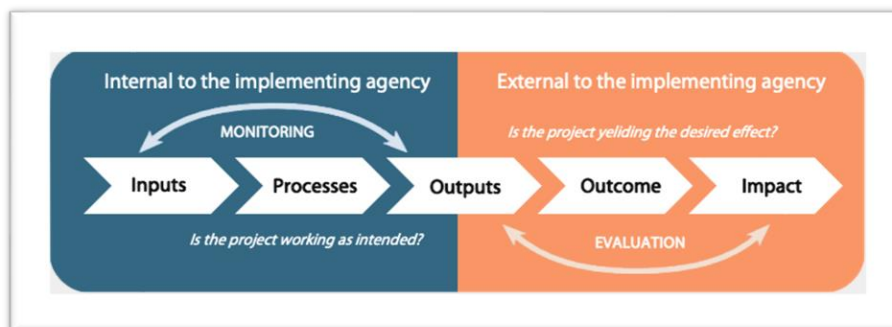


Fig. 1 Impact Assessment Framework

Impact is a measure of the changes made and impact assessment seeks to establish a causal connection between inputs and changes in terms of magnitude or scale or both. The framework (see Fig. 1) provides the starting pointing for integrating impact assessment with monitoring and evaluation. Impact assessment should be seen as the contribution of the outputs and outcomes to purpose and overall goal. Impact is not usually incorporated into the framework. Figure 1 illustrates how the process of impact assessment takes place.

Definitions of elements in the Impact Assessment Framework

- ❖ **Inputs** – All the resources that contribute to the production and delivery of outputs. Inputs include finances, personnel, equipment and buildings
- ❖ **Outputs** – The final products, or goods and services produced for delivery
- ❖ **Outcomes** – The medium-term results for specific beneficiaries that are a consequence of achieving specific outputs. Outcomes should relate clearly to an institution's strategic goals and objectives set out in its plans. Outcomes are 'what we wish to achieve'
- ❖ **Impacts** – The long-term results of achieving specific outcomes, such as reducing poverty and creating jobs.

Types of Impact Assessment		
1	Social Impact Assessment	
2	Economic Impact Assessment	
3	Environmental Impact Assessment	
4	Human Rights Impact Assessment	
5	Institutional Impact Assessment	

Indicators for impact assessment:

Indicators are common tools to assess the performance and then the impact of the technology/ extension/communication interventions. They measure the accomplishment of the project's goals and targets. Indicators should be defined during the formulation stage, but they often need to be specified in greater detail during implementation. Indicators should measure intangible as well as tangible changes, particularly in projects that value factors such as personal and social development

Indicators for assessing impacts of technology or extension interventions

What should be measured?

- ✓ Technical aspects: physical input-output of goods and services
- ✓ Institutional aspects: organizational and managerial aspects, including customs, tenure, local organizations, and cultural setting
- ✓ Socio-cultural aspects: broader social implications, resource and income distribution, and employment opportunities

- ✓ Commercial aspects: business and financial, securing supplies, and market demand
- ✓ Economic aspects: economic efficiency, costs and benefits

Environmental aspects: biological and physical effects

Social and behavioral indicators

- Changes in awareness, knowledge, skills level of beneficiaries
- Increases in the number of people reached
- Policy changes
- Changes in behavior, e.g., adoption
- Changes in community capacity
- Changes in organizational capacity (skills, structures, resources)
- Increases in service usage.

Socio-cultural indicators

- Food security
- Poverty reduction
- Status of women improved
- Distribution of benefits across gender and geographical locations
- Changes in resource allocation
- Changes in cash requirement
- Changes in labour distribution
- Nutritional implications.

Technology level indicators

- Adoption of improved technology – symbolic and actual adoption
- Horizontal impact – increase in area under improved variety/breed
- Vertical impact – increase in productivity of improved variety/breed
- Reduction in cost of production
- Risk reduction
- Increase in annual income/economic capacity
- Jobs created

Environmental impact measures

- Effect on soil erosion and degradation, silting, compact soil, soil contamination, water contamination
- Changes in hydrological regimes
- Effects on biodiversity, air pollution, greenhouse gases

Institutional impact measures

- Changes in organizational structure;
- Change in the number of scientists;
- Change in composition of the research team;
- Multidisciplinary approaches and improvements;
- Changes in funding allocated to the program
- Changes in public and private sector participation
- New techniques or methods

Importance of Impact Assessment:

In National Agricultural Research and Education System (NARES), the impact assessment is used

- ✓ It helps in assessing the socio-economic effects of an extension, technology or communication intervention
- ✓ It has significance in identification of problems associated with technologies and processes in the user system
- ✓ Impact Assessment is required for developing research and development priorities
- ✓ It improves accountability for resources and efforts invested in the intervention

Approaches for Impact Assessment

Broadly, impact assessment approaches can be classified into quantitative, qualitative, participatory, and mixed-methods. Quantitative methods focus on generating quantitative data on the impact indicators, while qualitative methods are concerned with impacts within local socio-cultural and institutional context. Participatory methods include an exploratory assessment of impacts wherein users and mixed-methods combine both qualitative and quantitative approaches so as to provide a comprehensive view of the impacts within the socio-cultural milieu

Quantitative impact assessment approaches

- ✚ Focus is on assessing the degree and extent of the impacts quantitatively. Some degree of quantification may be necessary in all impact assessments, in order to evaluate the success of the Intervention and the extent of any adverse effects
- ✚ Largely depends on micro-economic approaches following econometric models
- ✚ Involving baseline studies – The precise identification of baseline conditions, definition of objectives, target setting, rigorous performance evaluation and outcome measurement
- ✚ Costly and limited scope – Limited in the types of impacts which can be accurately measured and may pose difficulties for inference of cause and effect.

Types of Impact Assessments

A. Based on time period of assessment: Impact assessment may take place before approval of an intervention (ex -ante), after completion (ex post), or at any stage in between.

1. Ex ante assessment

Ex ante impact assessment is part of the need analysis and planning activity of the policy cycle. It involves doing a prospective analysis of what the impact of an intervention might be, so as to inform policymaking – the policymaker's equivalent of business planning. Forecasts potential impacts as part of the planning, design and approval of an intervention;

Example – Assessment of adoption of Genetically Modified Rice variety.

2. Ex post assessment

Ex post impact assessment is a part of the evaluation and management activity of the policy cycle. Broadly, evaluation aims to understand to what extent and how a policy intervention corrects the problem it was intended to address. Impact assessment focuses on the effects of the intervention, whereas evaluation is likely to cover a wider range of issues such as the appropriateness of the intervention design, the cost and efficiency of the intervention, its unintended effects and how to use the experience from this intervention to improve the design of future interventions. Identifies actual impacts during and after implementation, to enable corrective action to be taken if necessary, and to provide information for improving the design of future interventions.

Example – Knowledge gain of trainees from a multimedia CD on SRI method of cultivating rice.

B. Based on research design: Impact assessment may be conducted using various designs – Experimental, quasi-experimental and non-experimental designs.

1. Experimental approaches

(i) Randomized evaluations

In randomized evaluations, the programme benefits are extended to a randomly selected treatment group (beneficiaries), while keeping an identical group as control. The progress of the treatment and control groups on selected impact indicators is tracked over time (Khandker et al., 2010). Randomized evaluations are used when the eligible population is large enough to deliver the programme; A program needs to be gradually phased in until it covers the entire eligible population. The major advantage of this approach is its ability to avoid bias in selecting respondents.

(ii) Pre-test/Post-test with random assignment to intervention or comparison groups

In these randomized experiments, study subjects are randomly assigned to a group that receives the technological intervention (study or treatment group) or a comparison group that does not receive the intervention (control or non-treatment group). Data for each group are collected before and after the intervention. At the end of the experiment, differences between the intervention and comparison groups can be attributed directly to the effect of the intervention, if the sample is large enough. Used in small samples consisting of less than 30 persons per group

(iii) Post-test only randomized experiment

Two groups are randomly assigned the subjects and treatment conditions; Data collected only after the intervention; Statistical tests used are: Regression, t test, ANOVA.

2. Quasi-experimental approaches

(i) Pre-test/Post-test with non-random assignment to intervention or control groups

In this design, data are collected before and after the intervention. Assigning subjects to the intervention and comparison groups is non-random. Comparison groups in the quasi-experimental design can be identified through propensity score matching. Propensity score

matching – The control population (non-beneficiaries) is selected by ‘matching’ them with the actual beneficiaries on a few observable characteristics (personal and socio-economic attributes). The matched control groups can be selected either before project implementation (prospective studies) or afterwards (retrospective studies);

(ii) Two group post-tests only with non-random assignment

In this Data are collected only after the program has ended among participants who had received the Intervention and among non-participants. Matching participants and non-participants with similar characteristics and accounting for any relevant differences are especially important in the post-test only design to isolate effects of the intervention.

(iii) Double difference or difference-in-differences (DID) methods

Estimates the effect of a specific intervention by comparing the changes in outcomes over time between a population that is enrolled in a program (the intervention group) and a population that is not (the control group). It can be applied in both experimental and quasi-experimental designs and requires baseline and follow-up data from the same treatment and control group. The mean difference between the ‘after’ and ‘before’ values of the outcome indicators for each of the treatment and comparison groups is calculated followed by the difference between these two mean differences. The second difference i.e., difference in the difference is the estimate of the impact of the program;

(iv) Regression discontinuity design

A pre-test – post-test comparison method design that elicits the causal effects of interventions by assigning a cut-off or threshold above or below which an intervention is assigned; In this design, the participants are assigned to intervention or comparison groups solely on the basis of a cut-off score on a pre-intervention measure. The average treatment effect is estimated by comparing observations lying closely on either side of the threshold. It is used in those conditions in which randomization is unfeasible and the researcher is interested in targeting an intervention or treatment to those who most need or deserve it

3. Non-experimental designs (MLE, 2013): These designs have only an intervention group without any control; Weakest designs for impact assessment. It is used under (i) limited resource

condition, (ii) researchers are unable to create a comparison group, (iii) When an intervention covers the entire population.

(i) Pre-test/post-test designs

The researcher measures pre- and post-intervention changes in the specific phenomenon (outcome indicator) between subjects; When changes occur in outcome indicators among the intervention participants, they cannot attribute all these changes to the intervention using this design alone because there is no comparison group.

(ii) Time-series designs

The changes in outcome indicator over time is estimated to determine trends; The data is collected multiple times before and after the intervention to analyze trends before and after.

(iii) Longitudinal study

The researcher records repeated measures of the same variables from the same people; A panel design is a special type of longitudinal design in which evaluators track a smaller group of people at multiple points in time and record their experiences in great detail.

(iv) Post-test only design

Researchers observe the intervention group at one point in time after the intervention, focusing particularly on comparing responses of sub-groups based on such characteristics as age, sex, ethnicity, education or level of exposure to the intervention.

Table 1. Advantages and disadvantages of various designs

Design	When to use	Advantages	Disadvantages
Randomization	When there is variation at the individual or community level	Gold standard Most powerful	Not always feasible Not always ethical
Regression Discontinuity	If an intervention has a clear, sharp assignment rule	Project beneficiaries often must qualify through established criteria	Only look at sub-group of samples

			Assignment rule in practice often not implemented strictly
Difference-in-Differences	If two groups are growing at similar rates Baseline and follow-up data are available	Eliminates fixed differences not related to treatment	Can be biased if trends change Ideally have 2 pre-intervention periods of data
Matching	When other methods are not possible	Overcomes observed differences between treatment and comparison	Assumes no unobserved differences

Table 2. Impact Assessment Methods and Techniques

Impact type	Method	Technique
Intermediate impact Institutional changes Changes in the enabling environment	Survey, monitoring	Simple comparison/trend analysis
Direct product of research	Effectiveness analysis using logical framework	Simple comparison: target vs. actual
Economic impact	Econometric approach, surplus approach	Production function, total factor productivity, index number methods, and derivatives
Socio-cultural impact	Socio-economic survey/ adoption survey	Comparison over time
Environmental impact	Environmental impact assessment	Various • Qualitative • Quantitative

1. Social Impact Assessment



A Social Impact Assessment is a process of research, planning and the management of social change or consequences (positive and negative, intended and unintended) arising from policies, plans, developments and projects (UNEP, 2007). The core focus of an SIA is on the important impacts of projects and developments beyond the impacts on natural resources. Examples of social impacts includes (Vanclay, 2003) people's way of life, their culture, their community, their political systems, the health and well-being. Social impact assessment (SIA) is the process of identifying and managing the social impacts of industrial projects. It can also be applied to policies, plans and programmes. Phases of social impact assessment includes: understand the issues; Predict, analyze and assess the likely impact pathways; Develop and implement strategies at the last design and implement monitoring programmes. The core focus of an SIA is on the important impacts of projects and developments beyond the impacts on natural resources. Examples of social impacts include (Vanclay, 2003):

- People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- Their culture – that is, their shared beliefs, customs, values and language or dialect.
- Their community – its cohesion, stability, character, services and facilities.
- Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratization that is taking place, and the resources provided for this purpose.
- Their health and well-being – health is a state of complete physical, mental, social and spiritual well-being and not merely the absence of disease or infirmity

In general, an SIA calls for close collaboration with community members, as well as other stakeholders and experts. This usually covers the following specific areas to identify impacts and mitigation measures (State of Queensland, 2013):

- Community and stakeholder engagement
- Workforce management

- Housing and accommodation
- Local business and industry content
- Health and community well-being

Identification of Social Impact Assessment Variables

Social impact assessment variables point to measurable change in human population, communities, and social relationships resulting from a development project or policy change. After research on local community change, rural industrialization, reservoir and highway development, natural resource development, and social change in general, a list of social variables under the general headings of:

1. Population Characteristics
2. Community and Institutional Structures
3. Political and Social Resources
4. Individual and Family Changes
5. Community Resources

Social impact assessment variables point to measurable change in human population, communities, and social relationships resulting from a development project or policy change

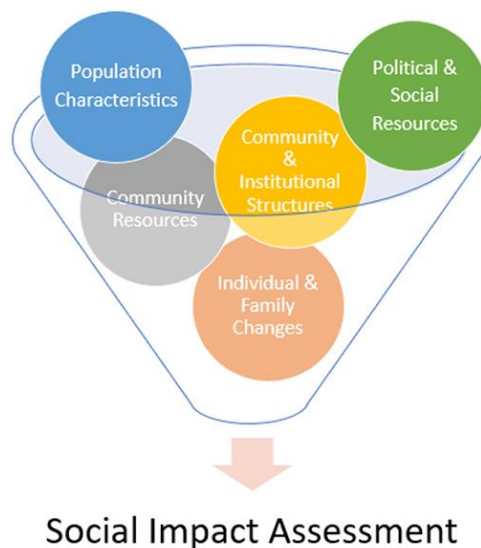


Fig. 2 Social Impact Assessment Variables

SIA is an interdisciplinary social science that incorporates many fields including sociology, anthropology, demography, development studies, gender studies, social and cultural geography, economics, political science and human rights, community and environmental psychology, and environmental law, among others



Fig. 3 Social impact assessment Framework

Steps in the Social Impact Assessment Process

1. Public Involvement - Develop an effective public plan to involve all potentially affected publics
2. Identification of Alternatives - Describe the proposed action or policy change and reasonable alternatives.
3. Baseline Conditions - Describe the relevant human environment/area of influence and baseline conditions
4. Scoping - After obtaining a technical under-standing of the proposal, identify the full range of probable social impacts that will be addressed based on discussion or interviews with numbers of all potentially affected
5. Projection of Estimated Effects - Investigate the probable impacts
6. Predicting Responses to Impacts - Determine the significance to the identified

7. Indirect and Cumulative Impacts - Estimate subsequent impacts and cumulative impacts. social impacts
8. Changes in Alternatives - Recommended new or changed alternatives and estimate or project their consequences
9. Mitigation - Develop a mitigation plan
10. Monitoring – Develop a monitoring program
11. Projection of Estimated Effects - Investigate the probable impacts
12. Predicting Responses to Impacts - Determine the significance to the identify

Principles for Social Impact Assessment

1. Involve the Diverse Public – Identify and involve all potentially affected groups and individuals.
2. Analyze Impact Equity – Clearly identify who will win or who will lose, and emphasize vulnerability under-represented groups
3. Focus the Assessment – Deal with issues and public concerns that really count, not those that are just easy to count. Impacts Identified by the Public.
4. Identify Methods and Assumptions and Define Significance – Describe how the SIA is conducted, what assumptions are used and how significance is determined
5. Project Planners – Identify problems that could be solved with changes to the proposed action or alternatives. Provide Feedback on Social Impacts
6. Use SIA Practitioners – Trained social scientists employing social science methods will provide the best results
7. Establish Monitoring and Mitigation Program – Manage uncertainty by monitoring and mitigation adverse impacts
8. Identify Data Source – Published scientific literature, secondary data, and primary data from the affected area
9. Plan for Gaps in Data

Social impact assessment is predicted on the notion that decision-makers should understand the consequences of their decisions before they act, and that the people affected will not only be appraised of the effects, but have the opportunity to participate in designing their future. The social environment is different than their future. The social environment is different than the natural environment because it reacts in anticipation of change, but can adapt in reasoned ways to changing

circumstance in part of the planning process. In addition, persons in different social settings interpret change in different ways, and react in different ways. Perhaps because of this complexity, or the political consequences of making explicit the social consequences of projects and programs, social impact assessment has not been well-integrated into agency decision –making. The guidelines and principles presented herein are designed to assist agencies and other institutions in implementing SIA within the context of NEPA process. If a well-prepared SIA is integrated into the decision-making process, better decisions will result

The main challenges of Social Impact Assessment

1. Scope, timing and integration
2. Building shared understanding of issues and approaches
3. Enabling meaningful community participation
4. Building trust in the assessment process
5. Influencing outcomes

2. Environmental impact assessment (EIA)



Environmental Impact Assessment (EIA) is a tool used to assess the significant effects of a project or development proposal on the environment.

EIAs make sure that project decision makers think about the likely effects on the environment at the earliest possible time and aim to avoid, reduce or offset those effects. This ensures that proposals are understood properly before decisions are made.

Principles of Environmental Impact Assessment (EIA)

- ✚ Participation – appropriate/timely access for interested parties
- ✚ Transparency – open and accessible assessment decisions
- ✚ Certainty – process/timing agreed in advance

- ✚ Accountability – decision makers responsible for their actions and decisions
- ✚ Credibility – undertaken with professionalism/objectivity
- ✚ Cost effectiveness – environmental protection at the least cost to society
- ✚ Flexibility – adaptable to deal efficiently with any proposal and decision situation

Stages of the EIA process

1. Screening

- ❖ Deciding if an EIA is required

2. Scoping

- ❖ Deciding what needs to be covered in the assessment and reported in the 'EIA Report

3. Preparing the EIA Report

- ❖ The EIA report has to include the likely significant environmental effects of the development

4. Making an application and consultation

- ❖ The EIA Report and development application must be publicized (including electronic advertisement), interested parties and the public must be given an opportunity to give their views on it

5. Decision making

- ❖ The EIA Report and any comments made on it must be considered by the competent authority before they decide whether to give consent for the development. The decision notice has to be published

6. Post decision

- ❖ The developer starts any monitoring required by the competent authority.

Importance of Environment Impact Assessment (EIA)

- ❖ Links environment with development for environmentally safe and sustainable development.

- ❖ Provides a cost-effective method to eliminate or minimize the adverse impact of developmental projects.
- ❖ Enables the decision makers to analyse the effect of developmental activities on the environment well before the developmental project is implemented.
- ❖ Encourages the adaptation of mitigation strategies in the developmental plan.
- ❖ Ensure that the developmental plan is environmentally sound and within the limits of the capacity of assimilation and regeneration of the ecosystem

3. Economic Impact Assessment (EcIA)



Economic impact assessment (EcIA) is a formalized analysis of the overall economic impact of a single firm, investment project or sector on the national and/or local economy.

This impact consists not only of the goods or services produced but also jobs generated or taxes paid by the company/investment/sector itself.

An economic impact assessment measure:

- ❖ Economic output
- ❖ Regional value-added
- ❖ Jobs
- ❖ Household earnings

Example: The new Walmart store had a positive impact on the economy in the town as a whole due to the new jobs it created, but a negative economic impact on nearby small businesses.

Types of Economic Impact

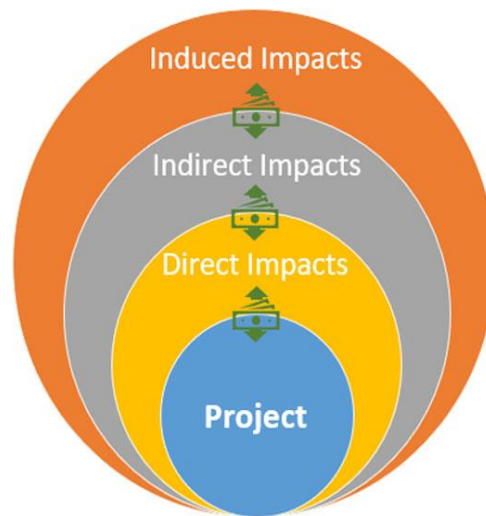


Fig. 4 Types of Economic Impact

An example of this would be the increased spending on consumer products, entertainment, food, etc. by employees that found themselves with more disposable income as a result of getting a job due to the new distribution center project.

For example, if you've hired a technology firm to add an IT infrastructure to your new distribution center, the money you pay that firm is a direct impact. But when that firm buys IT hardware from a supplier to fulfill the project, the revenue the supplier generates from the purchase is considered an indirect economic impact.

For example, if you were building a new distribution center in a city, you would need to hire labor, buy materials from suppliers, and contract services for technology infrastructure.

Methods of Economic Analysis

- ❖ **Cost/Benefit Method:** This looks directly at the cost of a project versus the expected benefits of that project.
- ❖ **Cost/Effectiveness Method:** This looks at project costs versus the actual effectiveness of a project, it looks past the expected benefits to the actual outcome.

- ❖ Deductive Method: Begins with the project concept, develops a hypothesis, then confirms or disproves the concept through the economic impact analysis. (General to Particular / Top Down approach)
- ❖ Inductive Method: Begins with an economic analysis of a region and any potential for opportunity, then based upon the data, a project is developed. (Particular to General / Bottom Up approach)

Importance of Economic Impact Assessment

- ❖ An Economic Impact Assessment serves to highlight the importance of a particular type of operation or project using standard measures of economic activity including Gross Domestic Product (GDP), employment, wages and tax revenues.
- ❖ Decision-makers, including local councilors, mayors and members of parliament need to know how economies will be affected by certain projects or policy / regulatory changes.
- ❖ These economic consequences can influence decisions regarding development or environmental approvals.

Case Studies

Case Study 1:

“Zanzibar Beach Hotel and Resort Upgrade and Extension by Zanzibar Environmental Consultancy”

2006

Purpose: The assessments of the environmental and social impacts that the upgrade to Zanzibar Beach Hotels and Resorts may have on the local area

The Environmental Impact Assessment (EIA) was developed. The EIA and the SIA approach were used for the study

- Main tools used to collect and analyze data were
- A literature review to collect information
- A policy reviews relevant for impact assessment and social impacts
- A Participatory Rural Appraisal (PRA) with both quantitative and qualitative surveys

Results

A tourism zone exists within Matemwe, within which there are several hotels and guesthouses. As such, the report stated that no major impacts would occur as a result of the hotel expansion. An increase in tourism, in part as a result of the hotel expansion, will have both positive and negative socioeconomic impacts.

Potential positive impacts are as follows

- Rise in local community employment opportunities at the hotel.
- New outlets for agriculture and fish products available in the village.

Potential negative impacts may include:

Increase cost of fish to villagers as hoteliers demand the product at higher prices for tourists. Overfishing of the already declining fish stock to meet tourist demand

Case Study 2:

“SIA Study of Land Acquisition for Construction of Khurda Road Bypass line in Puri District”

2018

Purpose

Social Impact Assessment study for Acquisition of 1.61 acres of private land. The study conducted by Centre for Market Research & Social Development Pvt. Ltd, New Delhi.

Methods of the study

Here in this study both ‘census survey method’ and ‘Sample survey method’ were followed. Survey was undertaken in Godiput Matiapada village involving 50 PAF (Project Affected Families) & 10 non-land losing HHs (Households)

Impact of the project

1. Project Benefits: Social & economical
2. Impact on Loss of land
3. Impact on sharecropper, wage labour & vulnerable families
4. Impact on livelihood
5. Impact on common property resources
6. Impact on local business
7. Awareness & Expectation of affected families
8. Problems & Benefits of the Project

Assessment of Social Impact

- It was observed that out of 50 surveyed families, 46 (92.00%) have agreed on the benefits of the project.

- The social benefits of the project reveal that, highest 84.78 percent (39) opined that the Khurda road railway by-pass line project will create easy communication facilities to the local people
- The economic benefits of the project and it reveals that out of 46 surveyed families (agreed with the benefits of the project) 80.43 percent (37) opined for high rate of property value in the locality due to construction of Khurda road by-pass line

Case Study 3:

“Social Impact Assessment of Road Over Bridge in Mandi Gobindgarh”

Land for ROB over X-ing in the area of Sub-Tehsil: Mandi Gobindgarh, District: Fatehgarh Sahib. The level crossing at Mandi Gobindgarh is '151-C Railway crossing'. It is one of the busiest railway crossings because of which it remains closed for most of the time. It is a long pending project and the absence of it is a cause of concern in the area which leads to daily issues in the lives of residents of the area

Research Methodology

A total of 16 land/house/factory etc. was proposed to be under acquisition by ROB project, having altogether 41 owners and shareholders going to be directly affected. Total 11 women from directly affected family were also interviewed

Components of SIA

- Impacts on land, livelihoods, and income of the affected families.
- Impact on physical resources, including their natural resources.
- Impacts on their private assets and public services facilities
- Impact on health and community wellbeing with special emphasis on women's health and the health of the elderly.
- Impact on culture and social cohesion
- Impacts at different stages of the project cycle

Results

- The anxiety status of the project affected population under study, it is clearly seen that 46.88 per cent people had minimal anxiety, 37.50 percent faced severe anxiety and 15.63 percent people had moderate anxiety
- It is reported that 69.70 per cent people out of the total affected population reported they had stress due to proposed acquisition, while 30.30 percent people did not face any stress due to proposed acquisition
- The construction of ROB will definitely boost the opportunities for market places and tourism in the area
- There it is found that 16.60 percent affected people said they want relocation which may access to family or friend, 33.33 percent want income from business activities, 16.67 percent want place close to market, 16.67 percent will have money as factor for relocation, and the rest 16.60 percent project affected people said both access to family and income from business activity are the factors which will be considered for relocation

Case Study 4

“Socio-Economic Impact of Bt Cotton - A Case Study of Karnataka”

V.R. Kiresur and Manjunath Ichangi

2011

The performance Bt technology and its impact on farming community have been assessed in northern Karnataka based mainly on primary data processed using production functions, decomposition analysis and logit model.

Methodology

A sample of 60 farmers was chosen using the multi-stage random sampling method. In the first stage, the district with highest area under Bt cotton crop in Karnataka during 2007-08, namely, Haveri district, was purposively selected for the study. Secondly, Hirekerur and Hanagal taluks were purposively selected for the study

Results

- On an average, per farm area under Bt cotton was 2.21 ha, accounting for 66.00 per cent of the total landholding. With a yield of 24 q/ha, Bt cotton has registered 31.00 per cent higher yield and 151 per cent higher net return over non-Bt, the net additional benefit being 18,429/ha
- A yield of 24 q/ha, the Bt farmers could realize an additional cotton yield of 5.60 q/ha (30.43%) over non-Bt farmers
- Farmers opined that there was a positive and significant impact of Bt technology on their farm income (94%), standard of living (87%), educational level (77%), employment (70%) and equity (60%)

Case Study 5

“Impact Assessment of Watershed Programme through Remote Sensing and Geographical Information System”

U. K. Shanwad *et. al.*

Introduction

Impact assessment of watershed development activity assumes greater importance in present day agriculture. Considering the ability of remote sensing technology in watershed monitoring and impact assessment, a study was carried out

Objective of the study

To investigate Impact Assessment of Karnataka Watershed Development Project in Koralahallihalla Sub watershed in Sindagi taluk of Bijapur district in Northern Karnataka

Study Area

Study conducted using satellite data of two periods i.e., IRS1 C, LISS-III data of 30 December, 1997 (pre-treatment) and IRS P6, LISS-III data of 17 December, 2004 (post-treatment).

Table 3 Land use / land cover statistics during 1997 and 2004 along with the changes in Koralahallihalla watershed, Sindagi taluk, Bijapur district

Sl. no	Category	Pre-treatment area 1997 (Ha)	Percentage	Post-treatment area 2004 (Ha)	Percentage	Changes	
						Ha	Percent
1	Kharif crop	986.04	55.81	1088.76	61.62	102.72	5.81
2	Rabi crop	364.48	20.63	177.90	10.07	-186.58	-10.56
3	Kharif + Rabi (Double crop)	253.27	14.33	348.78	19.74	95.51	5.41
4	Fallow Land	1.08	0.06	3.35	0.19	2.27	0.13
5	Land with scrub	17.54	0.99	12.58	0.71	-4.96	-0.28
6	Land without scrub	69.74	3.95	38.93	2.20	-30.81	-1.75
7	Prosopys juliflora	15.28	0.86	14.99	0.85	-0.29	-0.01
8	Lake / Tanks	51.25	2.90	49.63	2.81	-1.62	-0.09
9	Village	8.26	0.47	10.15	0.57	1.88	0.10
Total		1766.93	100.00	1766.93	100.00	0.00	0.00

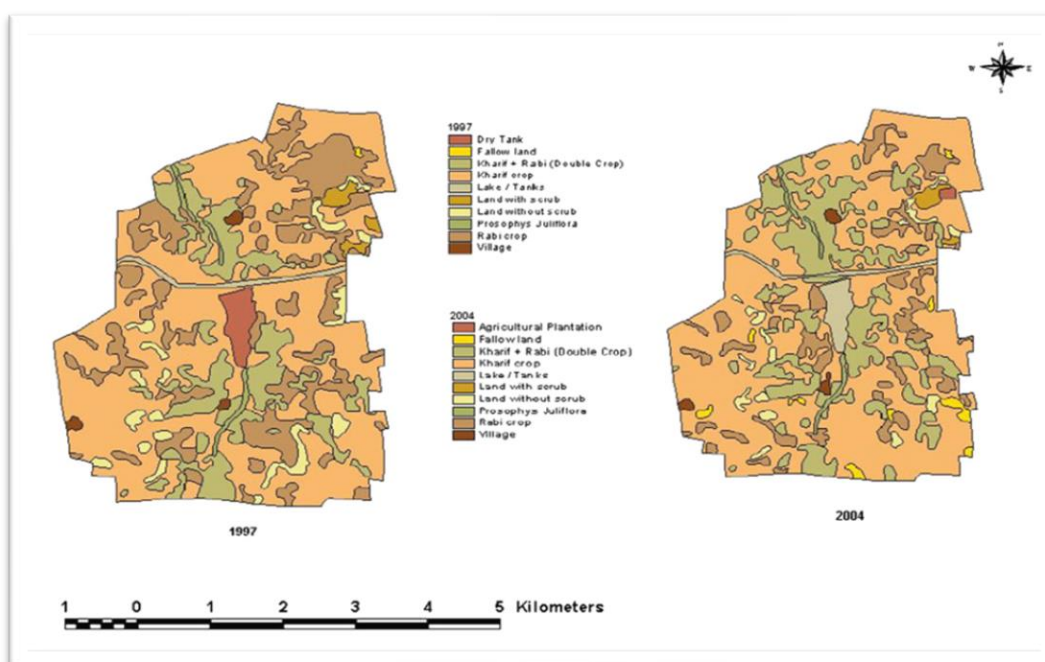


Fig. 5 Comparison of land use / land cover maps (1997 and 2004) of Karnataka Watershed Development Project (KWDP) of Koralahallihalla watershed, Sindagi taluk, Bijapur district, Karnataka, India

Table 4 Socio-economic parameters of farmers during 1997 and 2004 of Koralahallihalla Subwatershed, Sindagi taluk, Bijapur district

Sl. no.	Particulars	Percentage of farmers	
		1997	2004
1.	Annual income		
	a) Less than Rs. 10,000	35	7
	b) Rs. 10,000 to 50,000	32	41
	c) Rs. 50,000 to 1,00,000	25	38
	d) More than Rs. 100,000	8	14
2.	Educational level		
	a) Illiterate	49	14
	b) Lower primary (1st to 5th standard)	26	36
	c) Higher primary (5th to 10th standard)	16	31
	d) Matriculation and above (10th and above)	9	19
3.	Property		
	a) House (owned)	80	84
	b) Land (both irrigated and rainfed)	32	37
	c) Livestock (more than 2)	36	45
	d) Vehicles (2 wheelers, 4 wheelers, etc)	16	23

Case Study 6

“Social and Economic Impact Assessment of Cotton Farming in Madhya Pradesh” 2018

Introduction

The above entitles study was commissioned by C &A Foundation in partnership with Think step India. A social impact assessment on the characteristics of organic cotton farmers and conventional cotton farmers in the Khargone district of Madhya Pradesh, India.

Methodology

A survey with a large sample of 3,628 households to draw comparisons in socio-economic outcomes between organic cotton farmers and conventional cotton farmers

INDICATOR	MAIN MEASUREMENT TOOL
Wealth	Asset index
Debt	Outstanding debt and interest rate on debt
Consumption Expenditure	Total expenditure on main categories of consumption
Income	Farm income + business income + labour income
Physical Well-Being	Self-reported exposure to pesticides
Female Empowerment	Self-reported role of women in decision related to agriculture
Material Inputs	Self-reported use of inputs such as pesticides, chemical fertilizers, and organic fertilizers
Labour Inputs	Self-reported labour inputs in cotton cultivation (sowing, weeding, fertilizer application, supervision, harvesting) by gender and child/adult
Cotton Cost	Calculated from farming inputs and labour inputs and market wages
Cotton Revenue	Self-reported harvest quantity and market price
Cotton Profit	Calculated from cotton costs and cotton revenue

Results

- ✓ On average, exclusive organic cotton farmers use 66 days of family labour, and 430 days of wage labour. While non-exclusive conventional cotton farmers use 114 days of family labour, and 524 days of wage labour.

- ✓ The average debt of conventional farmers is Rs.4,14,758 while the average debt of organic farmers is Rs.2,60,792.
- ✓ This difference is again statistically significant suggesting that conventional cotton farmers are more likely to be in debt than organic cotton farmers
- ✓ Overall, the results indicate that male household members make decisions about agriculture and receive payments in 94.00 percent of the organic cotton farming households.

Conclusion:

Impact assessment is crucial for judging the utility of an intervention. IA measures the achievement of project milestones, outputs, outcomes and their impact on the targeted population. Social impact assessment is predicted on the notion that decision-makers should understand the consequences of their decisions before they act, and that the people affected will not only be appraised of the effects, but have the opportunity to participate in designing their future. If a well-prepared SIA is integrated into the decision-making process, better decisions will result

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Discussion

Q 1: What is the difference between Outcome and Output?

Ans: The outcomes are what the project or intervention wants or needs to achieve. The outputs are the actions or items that contribute to achieving an outcome.

Q 2: What should be measured in Impact Assessment researches?

Ans: Technical aspects, Institutional aspects, Socio-cultural aspects and Commercial aspects

Q 3: Which method of Impact Assessment will be employed when there is situation like both Before and After and Beneficiary and control exists and How?

Ans: Double difference or difference-in-differences (DID) method suits this condition. This method estimates the effect of a specific intervention by comparing the changes in outcomes over time between a population that is enrolled in a program (the intervention group) and a population that is not (the control group). It can be applied in both experimental and quasi-experimental designs and requires baseline and follow-up data from the same treatment and control group. The mean difference between the 'after' and 'before' values of the outcome indicators for each of the treatment and comparison groups is calculated followed by the difference between these two mean differences. The second difference i.e., difference in the difference is the estimate of the impact of the program

Q 4: What are the components of Impact Assessment Framework?

Ans: There are five components in Impact Assessment Framework, they are as follows;

1. **Inputs** – All the resources that contribute to the production and delivery of outputs. Inputs include finances, personnel, equipment and buildings
2. **Process** – It is series of action involved since from inputs to outputs
3. **Outputs** – The final products, or goods and services produced for delivery
4. **Outcomes** – The medium-term results for specific beneficiaries that are a consequence of achieving specific outputs. Outcomes should relate clearly to an institution's strategic goals and objectives set out in its plans. Outcomes are 'what we wish to achieve'
5. **Impacts** – The long-term results of achieving specific outcomes, such as reducing poverty and creating jobs.