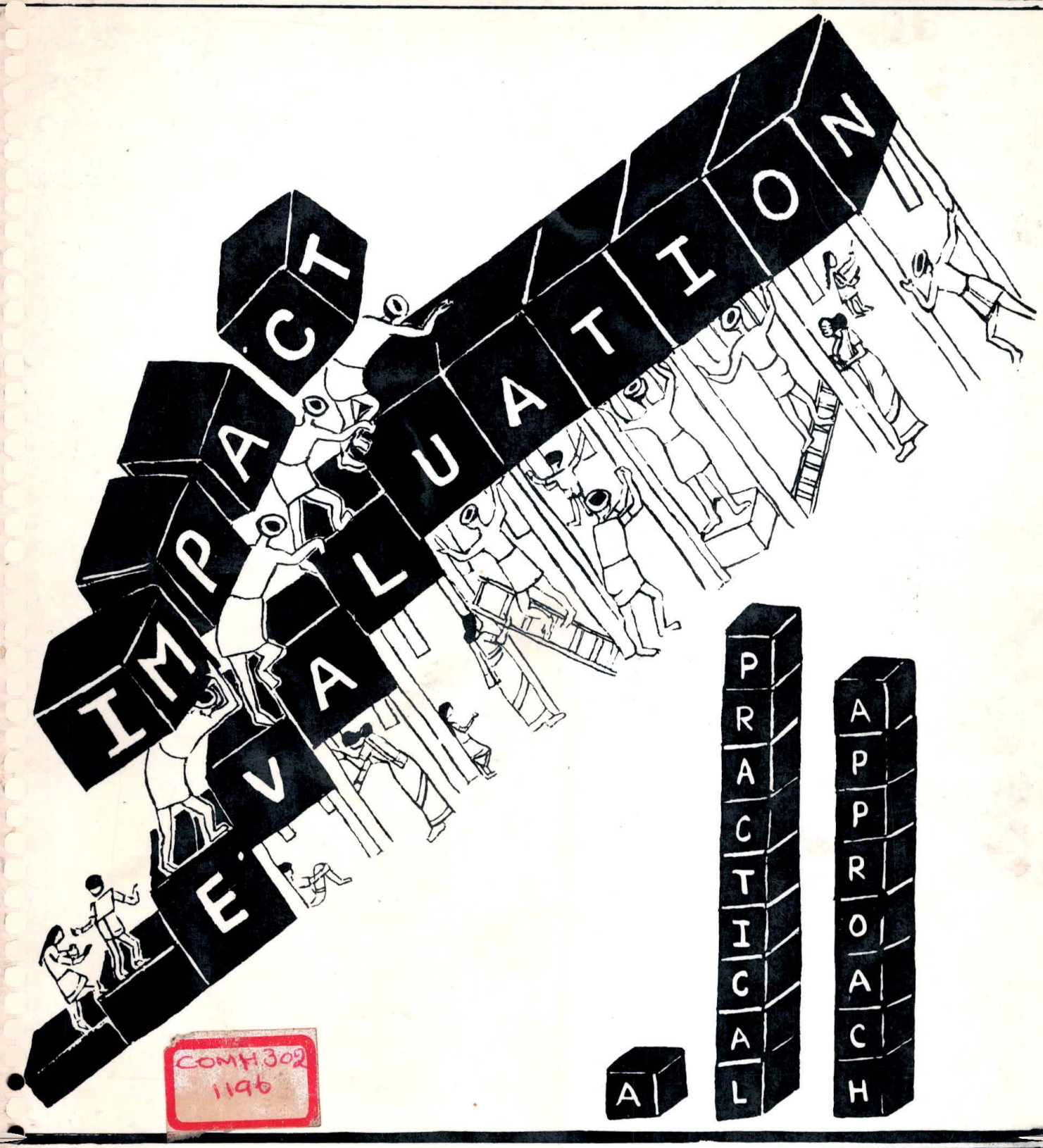

Action Aid

INDIA

I M P A C T E V A L U A T I O N

A PRACTICAL APPROACH

VANAJA RAMPRASAD

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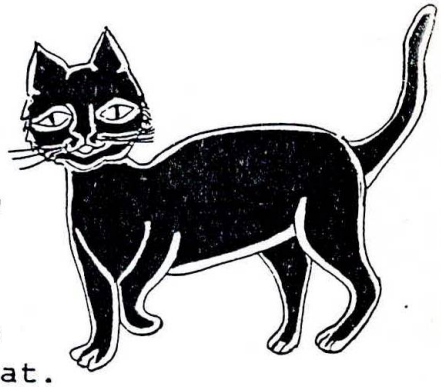
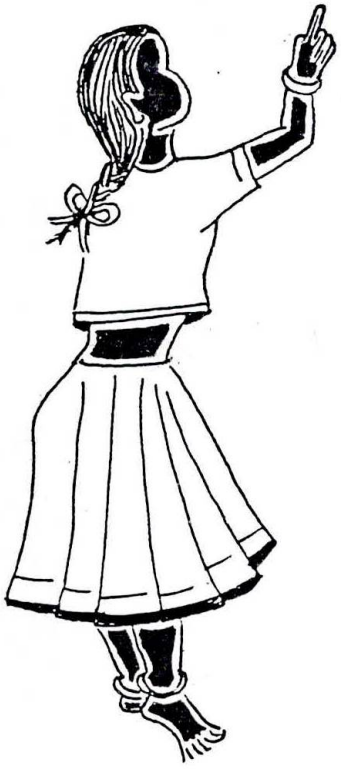
"Cheshire-Puss", Alice began,
rather timidly
"would you tell me, please,
which way I ought to go from here?"



"That depends a good deal on where
you want to get to" - said the cat.

"I don't much care where"-said Alice
"Then it doesn't matter which way you go"
said the cat.



".... so long as I get somewhere"
Alice added as an explanation

"Oh, you're sure to do that" said
the cat "if you only walk long
enough"

Alice in Wonderland

C O N T E N T S

FOREWORD

This Source book on Impact Evaluation is an attempt to offer a practical approach to the problems of measuring the effectiveness of our work in the field.

It follows several workshops on Evaluation in which we have involved our field staff and our project holders. As a result of these deliberations and our own field tests we have arrived at certain definite poverty indicators, methods and frequencies of data collection, some standard formats and methods of analysis.

This is by no means the last word on the subject of evaluation but an attempt to introduce standard method of impact evaluation across all our major project initiatives in India. We are sure that there are several approaches to this subject and many different methods that can be tried. We believe that what follows in the Source Book is one such approach.

Ravi Narayanan

PREFACE

As a result of the last one year's exploratory effort through various levels of interaction,this source book was conceptualised. While putting this experience together I have consciously tried to combine some academic rigour with what is relevant to the field and yet made a concerted effort to keep the text very simple, in the interest of the field persons. In this attempt I have been fortunate to have the co-operation of the projects, particularly CODE, SAMUHA, REDS, RDO, PRIDE, to name a few. I gratefully acknowledge their co-operation.

This Source book would have never taken shape but for the encouragement and constant pressure from the Executive Director and I thank him for the same. Needless to say that the field staff of Action Aid have contributed to this process. I particularly wish to thank Sathya, Suresh and Adarsh, who took a keen interest and gave shape to the section on the Monitoring and Evaluation of the literacy programmes. I am grateful to the Accounts and Administrative staff who came to my rescue whenever I needed help. To break the monotony of the text we have used a lot of illustrations and I thank Dr. Uma for her painstaking work which I think has added value to this effort. It has taken a lot of patience and perseverance on the part of Amarnath Bhat and Shoba Mathai of Oriental Software to attempt analysis of field level data. I wish to record my appreciation for the same. I am grateful to Prof. Vinod Vyasulu and Prof. Vijay Padki for their valuable comments on the text.

In taking leave of Action Aid, I wish to add a word of caution to the field staff who will hopefully put this

to use. It would have been ideal to field test the concepts before attempting to put it together. However, due to pressure of time we couldn't postpone bringing this out. Therefore, it is imperative that in transferring this knowledge to various project staff,we have to involve ourselves in rigorous training efforts and discussions on the implications of the processes attempted. Secondly, we have to use caution in interpreting the analysis of the data.

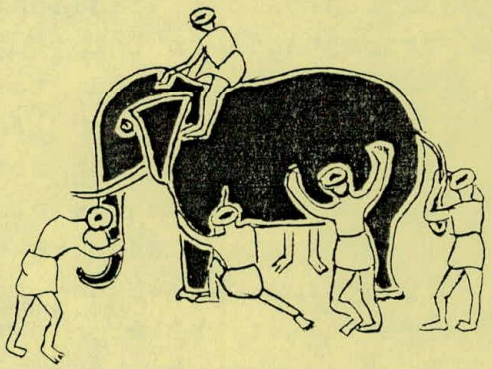
In acknowledging the numerous sources of help,I wish to add that only I am responsible for any shortcomings in this attempt.

Vanaja Ramprasad

INTRODUCTION

Why the Concern about Evaluation?

Evaluation is a term defined in almost a hundred different ways. It brings to memory the poem that narrates the tale of the 6 blind man who described an elephant. Each formed his own idea about what elephants are like. The situation is similar in describing Evaluation. Yet, the whole idea of evaluation revolves around questions like:



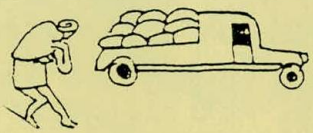
Why ? What? Who?
* Focus
How?
* Design
How Accurate ?
How Useful ?
*Data Collection
What meaning
* Data Analysis
How simple ?
* Reporting

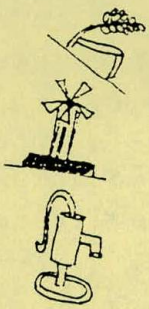
Evaluation is a term used with great reservation because of the punitive overtones attached to its usage in programme assessment. It is also the experience of many, bewildered by the mystification of the concept, to be threatened by the very word.

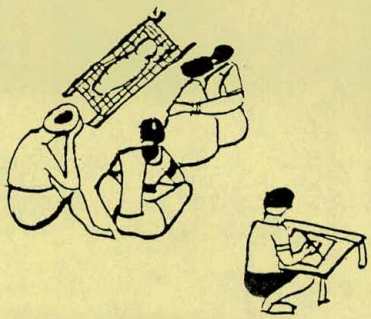
Therefore, this Source book is an attempt to focus on why we need evaluation, what do we need to evaluate and who will do the evaluation?

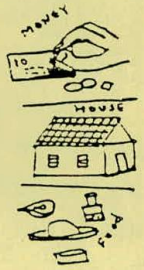
After working many years in India with an overriding emphasis on education, Action Aid is moving towards support of multi-sectoral integrated development strategies in an attempt to tackle the major causes of poverty.

Action Aid's realisation that it is simultaneously accountable to the people it serves and to the sponsors makes it important to produce comprehensive evidence that children and families are benefitting. Hence ActionAid's concern about Evaluation. This takes us on to the question: what do we need to Evaluate? Is the impact anticipated "a better" quality of life? In the long run can we say more children can read and write? Are fewer children dying in infancy? Do more families have access to basic needs through improved economic conditions?









The question that arises next is: Who will do the Evaluation?

The answer obviously is - Evaluation is an integral part of planning and hence a natural and legitimate responsibility of the implementors of the programme as an on-going process. If we agree that evaluation is an inbuilt process, what is the design envisaged? This is what the source book is all about.

What does the Source Book contain?

In Chapter 1, there is an attempt to recognise that the value premises of the implementing agencies are important considerations in arriving at the methodology for evaluation, in identifying the indicators for measuring impact and in going beyond mere quantification. Evaluation is a term covering a broad spectrum of activities and gives rise to mystification on the one end and confusion of terms on the other. The different dimensions of Evaluation are dealt with in chapter 2. Chapter 3 discusses the place of Evaluation in the planning process.

Indicators to measure social development and physical quality of life have evolved over time. Chapter 4 attempts to briefly describe the use of indicators and list some of the impact indicators. The main focus of the source book is impact evaluation and chapter 5 deals with this aspect in great detail. The scope of discussion broadly limits itself to Action Aid's frame of reference to identify indicators and baselines.

Some of the important indicators and their operationalisation are also discussed.

Finally, chapter 6 describes qualitative methods of Evaluation without which process outcomes would be eclipsed.

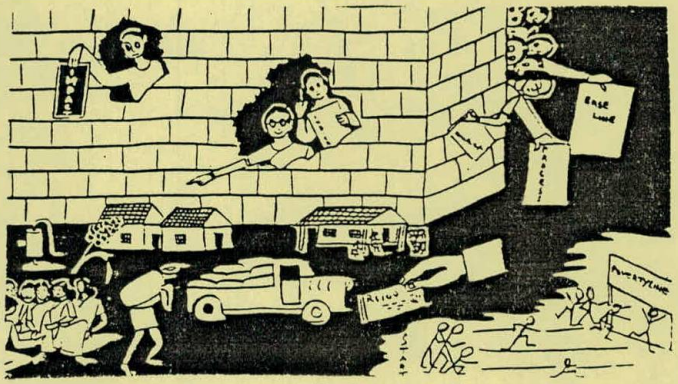
The baseline provided for assessment of literacy and numeracy skills of children follow as a separate section. This is envisaged both as Monitoring and Evaluation tool.

The sample formats for data collection provided in the annexure are spelt out in broad terms and should be adapted to local conditions. As for example , in land ownership and incomes, conditions vary from place to place. Therefore it is necessary to field test and make the required changes.

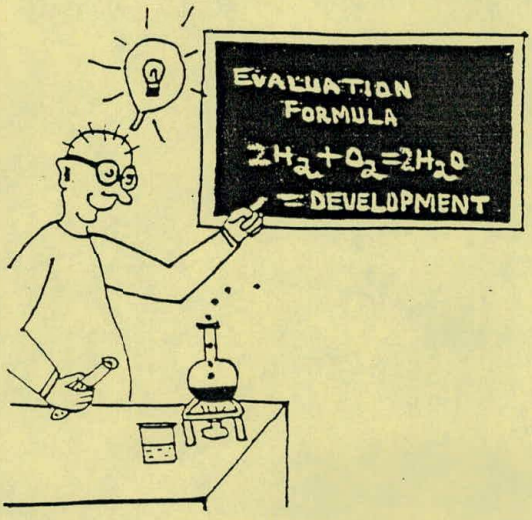
As information of interest some indicators at National level are provided.

In no way does the source book claim to cover the entire range of topics under impact evaluation. It is not the intention to make this a "how to" guide book and that is precisely the reason why we have consciously avoided the word "hand book" or "guide book".

The real reasons for writing this source book is by way of suggestions about how we might proceed sometimes, within the given frame of reference of the agency.



Before proceeding, it must again be emphasised -



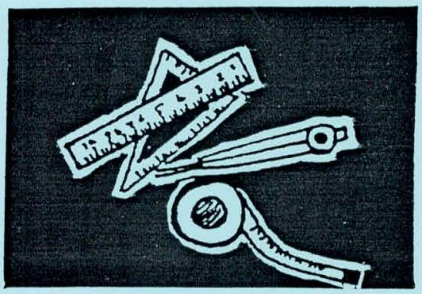
The Source book offers NEITHER ready-made solutions to development,

NOR

a magic formula for easy evaluation.

VALUE PREMISES OF NGO'S & PEOPLE'S SELF REVIEW

When programme goals are multiple, diffused and intangible, can conventional methods capture the complexities?



Even before going on to adopting a conventional approach to impact measurement, the fact that different social development programmes cannot be contained within a common design and analysis cannot be ignored. ActionAid does recognise that social programme goals are multiple, diffused, sometimes intangible and are very much borne out of the value premises of organisations. Sometimes NGO's intervene on the premise that "people are responsible for their own development ".

The situation envisaged by them is that change is not something to be imposed by external change agents but it is the prerogative of those who live in the community.

Lasting development is that process through which people grow in their ability to take control over their own lives and initiate the changes to improve the conditions of life.

Any effective change can take place only if the intervention is community based.

Change is possible through a catalytic role of the change agent.

These are some commonly held views, governing in turn, the approaches to development by many NGO's. The underlying values are as important to the NGO's as the content of developmental activity.

While none of the above values can be disputed, such goals and value premises assume that the purpose of development activity is not only to generate measurable changes according to some socio-economic indicators, but to increase the ability of people to take greater control over their lives.

Some NGO's also consider any raise in economic levels as only a means to the larger objectives of strengthening the position of the class of poor. Therefore, evaluation of such a value-based goal cannot be confused with inventorisation or intermediary changes in some of the socio-economic indicators.

This is precisely the reason why this aspect has been dealt with before introducing the concept of indicators and measurement of these indicators to monitor "intermediary" levels of impact.

Therefore as perspective for NGO performance,evaluation is envisaged to be broader than a few specific indicators. For example measurement of overall organisational effectiveness as compared to measurement of intangible process variables such as morale, participation and leadership. Other parameters such as values, goal conflict, power equations, organisational hierarchy, organisational capabilities vis-a-vis community needs, are some of the interesting aspects of evaluation.

One very important aspect of "development as if people mattered" is the people's own self-review, which subscribes to the principles that people will not only take collective action to control their lives but will collectively reflect upon their ongoing experience of action.

Some broad lines on which such a reflective exercise would be undertaken are:

- to analyse both the social and economic situation before people get organised

- examine the oppressive/ exploitative socio-economic processes,

- the objectives in organising people could be varied

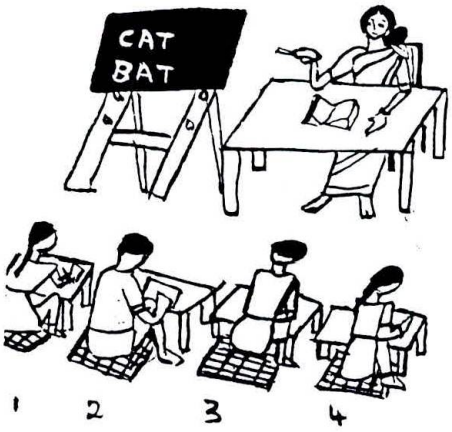
- economic ?
- access to resources ?
- fight against oppression ?
- achieve certain rights ?
- understand the successes and failures in the attempt to effect changes ?

Finally the intervening agency would benefit greatly by documenting the people's self review and reflecting upon their own activities and by using the feedback for for formulating future strategies in organising people.

UNDERSTANDING EVALUATION

How do we distinguish between Evaluation as a generic term and Evaluation as one act at the end?

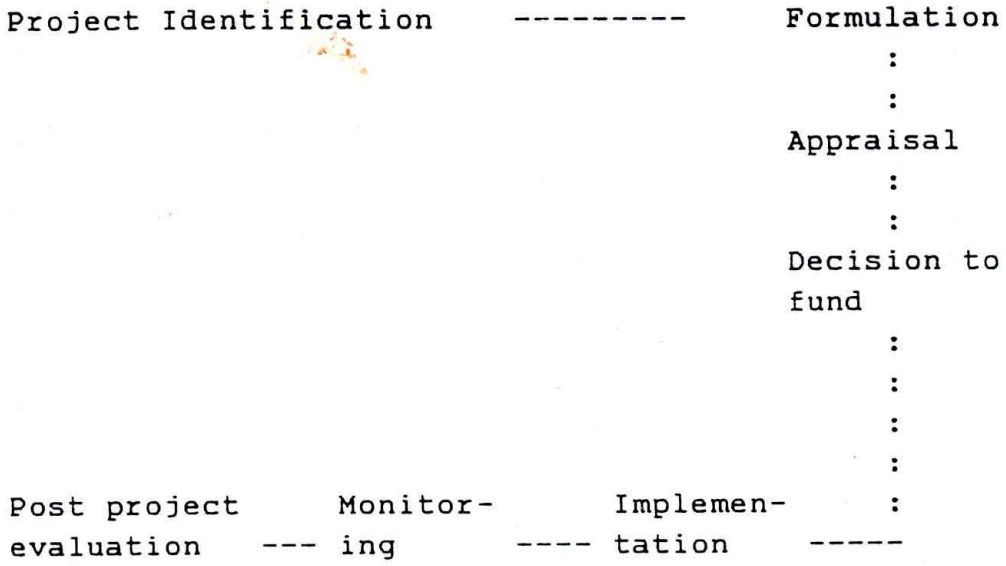
A review of the current Evaluation practices highlights the methods commonly talked about as project appraisal and evaluation. The term project appraisal refers to the analytic procedures visualising the outcomes of a project before the project is undertaken.



On the other hand project evaluation refers to the analysis of outcomes and experiences from a project either during or after the project's life span.

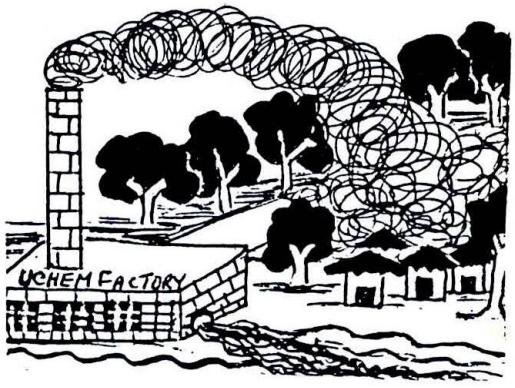
A project appraisal is used to guide the decision whether or not to proceed with an investment proposal. Appraisal procedures provide criteria by which to accept or reject a single project proposal and to decide between alternative investment proposals whereas evaluation is related to accountability and in addition provides valuable feedback for planning and decision making requirements.

What is project Appraisal ?



Why Appraisal?

- Implications of time span
- Funds are Limited
- Other Alternatives Exist
- To understand Social Costs and Benefits



Criteria for Appraisal

In the appraisal of any project there are two important aspects that should be examined. One is the span of time within which the project was to yield results. The second is with respect to alternatives available. The two aspects are interlinked. For example, the choice of alternatives could be between three or four types of income generation programmes like - poultry, dairying, sericulture or basket making. The returns from each of these propositions could vary depending on the time taken to yield returns and other factors such as availability of raw material, marketing infrastructure and the skills required.

The basic question about when to evaluate and what to evaluate put the understanding of evaluation in its proper perspective. The time span within which evaluation is undertaken determines the type of outcome whether it is immediate, first order, 2nd order, 3rd order or spin-off effects. The case of a small scale irrigation scheme will illustrate this point. Tube wells and other facilities necessary for their operation might be provided as inputs. The immediate outcome expected may be in terms of a larger area under irrigation.

The first order effect is observed as in, increase in the productivity of the land.

The second order effect would be in the increased incomes of the farmers as a result of crop output. As a third order effect it would be hoped that beneficiaries enjoy higher levels of consumption. There would also be spin-off benefits at the various levels.

The same impact could be measured at various system levels such as the individual child, the family, the community and the block level.

CHILDREN

FAMILY

The integration of the two "dimensions" above gives rise to different methods of measuring the impact of programmes.

COMMUNITY

Choice of unit for Evaluation could be:

a an individual

b a household

c co-operative or operational group

d village or social group

e a plot of land

f a farm

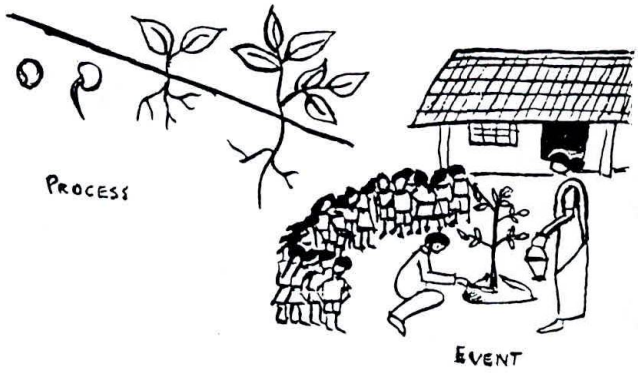
g a mapped area

h a place where group activity occurs

Process Outcome Vs. Product Outcome

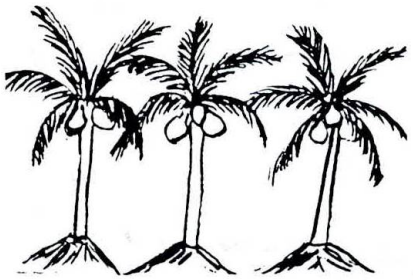
"Development is a process, not an event". Yet another dimension of evaluation may be spelt out in terms of the nature of the outcome, ie. Process Outcome (by qualitative assessment) or product outcome (by quantitative assessment).

If development is a process and not an encapsulated event that occurs sporadically, evaluations should aim at elucidating the dynamics of this process. Process evaluations focus on the how and why of product outcomes.



Knowing "why" a particular impact was observed or not observed is more important than just measuring the impact.

Evaluations done during the life span of a programme are termed as ongoing evaluation or



formative evaluation while evaluations done

after the life span of a programme are called expost or summative.

EVALUATION AS AN INTEGRAL PART OF PLANNING

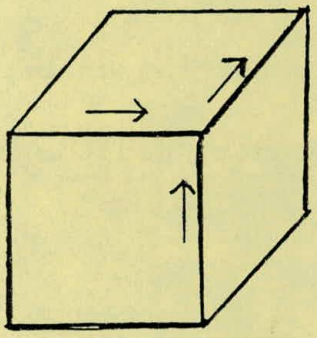
How does Evaluation become a part of the planning process ?

Three dimensions of EVALUATION

PROGRAMME

PROCESS

IMPACT

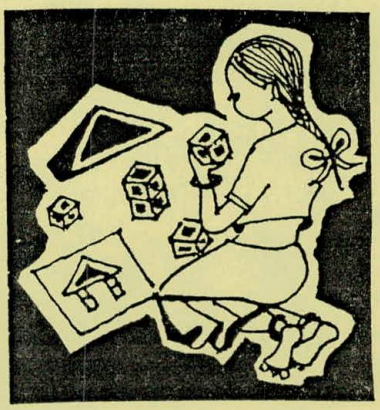


The purpose of evaluation is twofold.

1 Evaluation may be required to indicate whether or not objectives set by the project are being achieved, and

2 For purposes relating to planning & decision making, feedback from the evaluation may be utilised to modify the project.

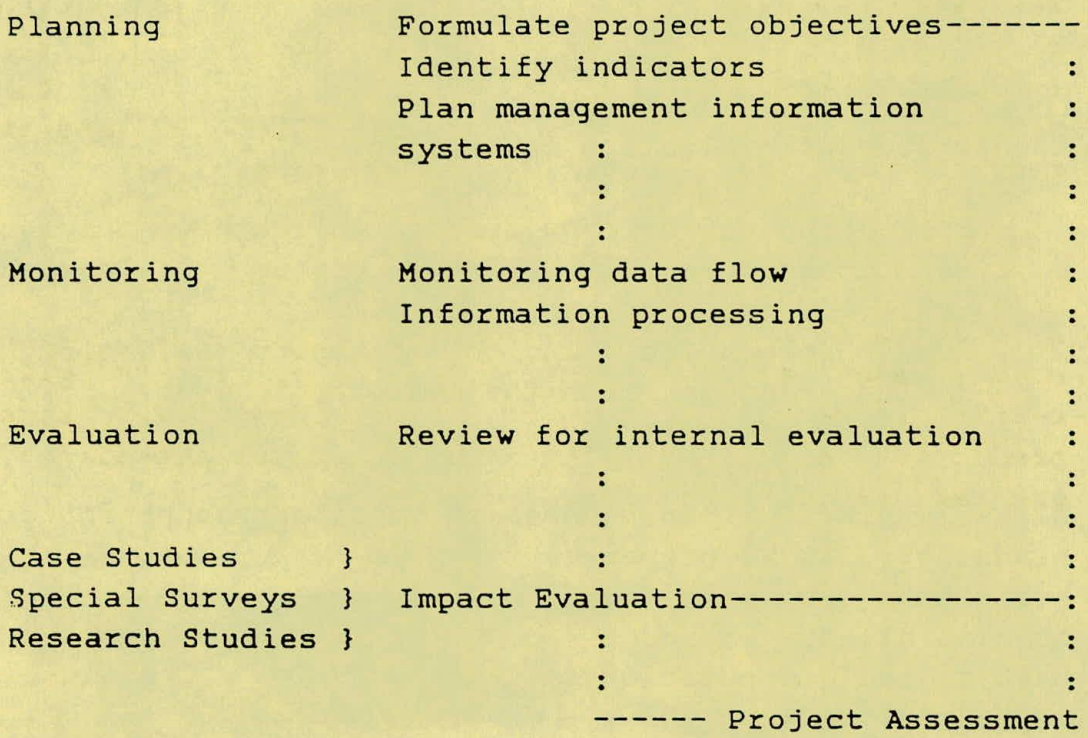
Either way, evaluation becomes an important component of planning. If a proper evaluation system is to be installed, it goes back to the formulation of objectives & identifying the indicators.



Monitoring refers to the continuous gathering of information of project activities. Monitoring is a sub-set of evaluation. The aim of monitoring is to check whether everything proceeds according to original plan or are they deviating?

To put the concept in a nutshell:

Project Monitoring & Evaluation

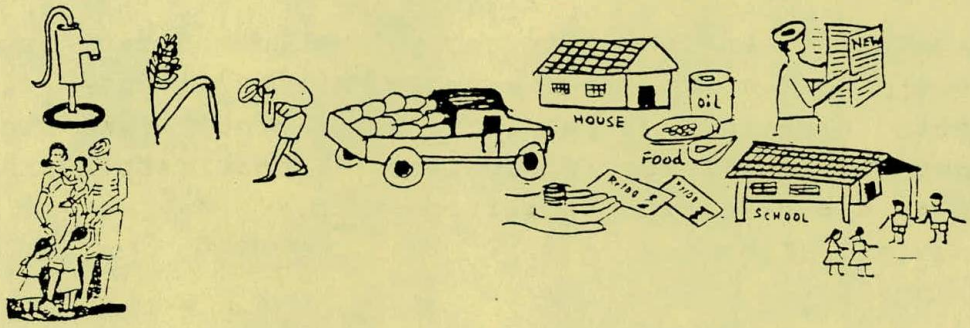


At the monitoring stage, a proper information system is crucial to monitor the data flow. The data processed at this level forms the basis for reviewing the internal evaluation. This exercise becomes part of an ongoing programme while an evaluation examines the impact of the programme in a more inclusive form in multi-dimensional terms.

The impact Evaluation may, in addition, be tied up with certain special surveys which complete the loop in the feedback to the planning process. The findings of the monitoring system ideally lend themselves to answer many questions raised within the programme.

11 Evaluation is an inclusive concept, accommodating both effect and impact. For example, use of inputs will result in certain output in terms of crop, live stock production, skill acquisition, larger school attendance, greater use of health facilities, etc.

The 'effect' of these outputs will be felt on the change in income, expenditure level, patterns of health and other social, health consequences. These effects in turn create an impact on the social and economic life in the community. Effects and impact tend to reinforce each other. The difference is largely in terms of scale and system-wide generalisation. Effects appear sooner, apply to the direct beneficiaries and relate to specific aspects of the activity. Impact measures the final total result, taking into account direct and indirect effects that produce changes in the community as a whole.

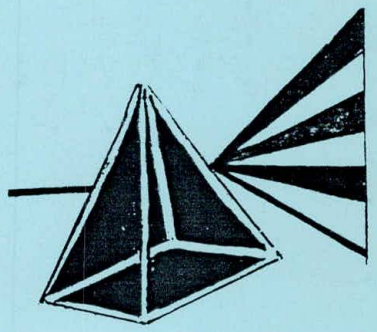


INDICATORS

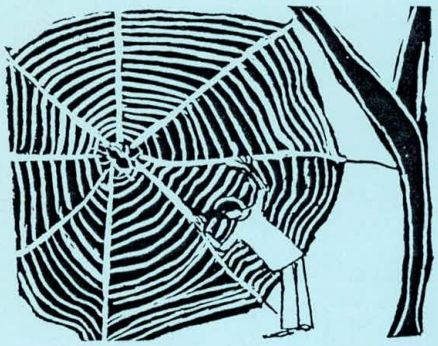
How useful are indicators ? Don't we find ourselves trapped in the fallacy of judgement on a flux of events by just observing one phenomenon ?

"Every set of phenomena can be interpreted in various ways, in fact in infinitely many ways. It is our privilege to choose among the possible interpretations the ones that appear to us most satisfactory, whatever may be the reason for our choice" FR Moulton*.

The social phenomenon that one attempts to understand is like a prism that disseminates various shades from a common rubric. The attempt to comprehend this social process and quantify the concepts provides only a partial picture and as a result is inadequate as a tool of analysis and as an input for policy making.



* Kundu, Amitabh: Measurement of Urban Processes
Popular Prakashan



Therefore, we find ourselves trapped in the fallacy of judgements on a flux of events and a web of several inter-related activities by just observing one aspect of the phenomenon.

Several criticisms have also been levelled against the relevance and use of social indicators in the present limited understanding of "social theories".

The issues related to the limitations of using indicators are still unresolved. Yet the use of these indicators is considered worthwhile, since the indicators do capture the occurrence of a given phenomenon, as long as it is interpreted in the context in which it occurs.

Some of the commonly used Socio-Economic Indicators are:

- demographic factors, like rate of population increase, internal migration;
- economic factors, like gross national product, gross domestic product, income distribution;
- employment factors, like level of employment/un-employment;
- educational factors, like adult literacy rate, number of pupils per teacher;
- basic needs factors, like housing, food and water availability;
- health factors, like life expectancy, under five mortality rate and infant mortality

In the various attempts to measure development, over a hundred indicators have been used. Morris and Morris, (Morris David Morris and Michelle B. McAlpin Measuring the Condition of India's Poor, The Physical Quality of Life Index) have advocated the use of three indicators - infant mortality, life expectancy and basic literacy and formed the composite index called PQLI - Physical Quality of Life Index. PQLI was designed primarily to measure the performance of the world's poor countries in meeting the most basic needs of people.

Indicators provide a yardstick whereby progress can be compared. Some indicators are used for monitoring programmes, like, how far targets are being achieved. There are other indicators that describe the impact of programmes. It is necessary not to confuse the indicators for they describe different aspects of the programmes. When programme objectives are not clear, it is difficult to have clear indicators. One of the more important uses of health indicators is to monitor the progress of overall socio-economic development of a country. The level of health and nutrition itself is a direct indicator of the quality of life and an indicator of overall socio-economic development. Increasingly, development planners and economists are looking for social indicators such as health status measurement.

Indicators can broadly be classified as: (Marie Theresa Feurestin "Partners in Evaluation" McMillan Publishers)

- indicator of accessibility
- indicator of utility
- indicator of coverage
- indicator of availability
- indicator of effort
- indicator of efficiency
- indicator of quality etc. and
- indicator of impact

One area for which it is extremely difficult to identify indicators is that of Social Development/ Community Organisation. This exercise was part of a workshop with project partners.

The outcome is shared as an example of indicators for observing activities of community organisation.

Indicator of availability (No. of Sanghams, types)

Indicator of accessibility (Membership - composition, periodicity of meeting, rules of the Sangham)

Indicator of utilisation (No. of members attending the meetings, using the Sangha facilities).

Indicator of effort (Guidance, seminars, training facilities offered)

WATER SUPPLY

Indicator of impact (Awareness created of the socio-political situation, issues taken up for action, the group dynamics, the changing patterns of interaction within the group, the ability of the group to function independently, participation in group decision making, power equations within the group are some of the impacts that can be measured using more than one method.)

IMPACT EVALUATION

Impact Evaluation on a micro-level. Does it not have limitations because of the distinction we have to make between changes that occur due to interventions vis-a-vis changes that occur due to other external factors ?

Betterment of the material situation of the rural poor and to assess whether,how & to what extent their intervention has improved the economic conditions of the community in which they are working is an important concern for the NGO's. While doing this,it is important to make a distinction between changes which occur as a result of their intervention and changes which occur because of other factors like industrialisation, breaking up of the feudal system,land reforms, other governmental programmes, etc.

Some of the areas for Evaluation are:

- employment and wages
- access to resources and uses
- access to forest and fodder
- access to credit
- terms of trade and relationship with markets
- analysis of consumption patterns
- food intake
- health conditions
- clothing and shelter

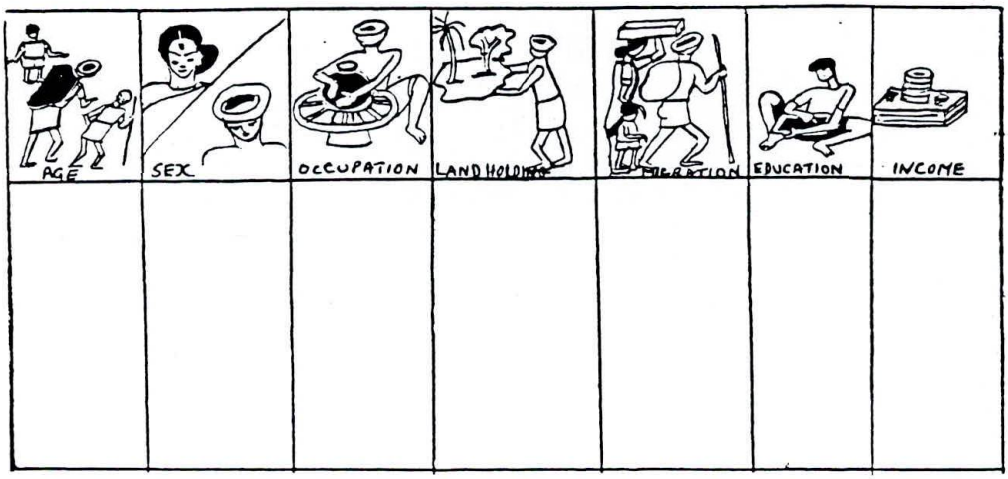
The 1st step towards a systematic approach to Evaluation requires a baseline data. A baseline survey is done prior to commencement of a project. The most common method of formal rural research is the questionnaire survey. Conventional questionnaire surveys have many drawbacks if the aim is to gain insight into the lives and conditions of the rural poor, for the "pathology of rural surveys follows common paths".

The temptation to increase the scope for more data lingers. The outcome is excessive data to collect and therefore less likelihood that the data will be well collected or that they will be checked, coded or analysed. Hence any large scale survey designed can give rise to misleading results. It is important to underscore the fact that questionnaire surveys are not to be abandoned, but to realise that the limitations of the survey results sometimes outweigh benefits. Yet, useful surveys have been interdisciplinary in nature, well thought out and done with utmost care. For example interrelationships of disease, nutrition, social conditions and poverty is an interdisciplinary approach, requiring high quality, well planned longitudinal surveys. It is beyond the scope of this source book to go into details of survey techniques or sampling methodologies. Therefore the source book very briefly touches upon these aspects within its limited frame of reference.

Baseline:

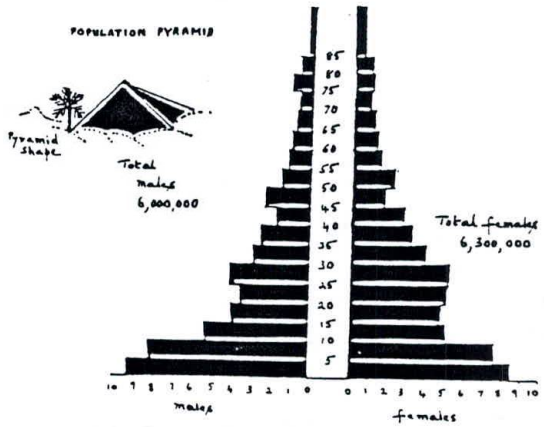
A very simple baseline is suggested to give the profile of the population with bare minimum details of the age, sex profiles of the families, their occupations, castes, land holding patterns, incomes from various sources, migration patterns and educational status. (Annexure Format No: 1).

Basically in drawing the profile of the population, the underlying objective is to highlight the poverty status and the caste-class compositions, so that it provides a database for an analytical approach to planning and comparisons at a later stage.



The kind of analysis suggested are of 4 types:

- frequency distributions of populations by diverse variables such as age, sex, caste, incomes, literacy, nutritional status, land ownership, etc.



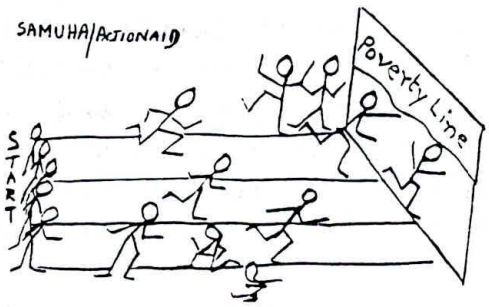
The population of a country by age and sex

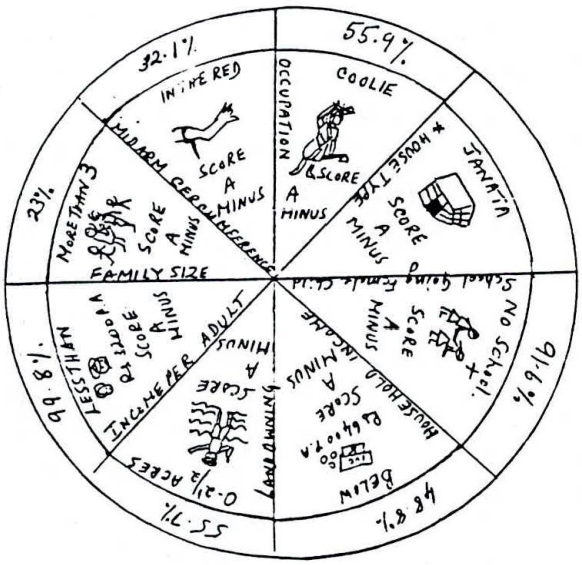
- secondly, to relate the different variables, eg. the nutritional status of children of families with different land ownership and draw inferences.

- thirdly, to arrive at poverty scores based on as many indicators as possible for each household. A simple method is to score each variable on a + or - scale and to arrive at a composite score. On the composite scoring, families emerge as very poor, poor, less poor and not so poor. How does this scoring help us? Families are identified as poor not by just one indicator such as income alone.

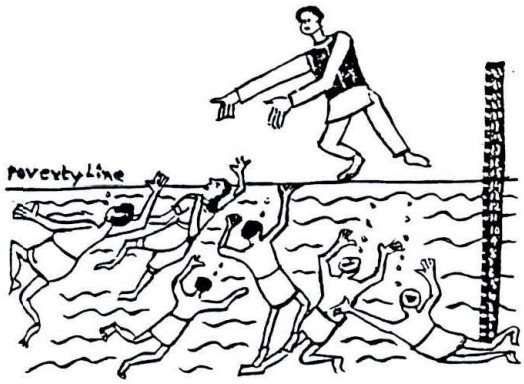
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	+
-	-	-	-	-	-	+	+
-	-	-	-	-	+	+	+
-	-	-	-	+	+	+	+
-	-	-	+	+	+	+	+
-	-	+	+	+	+	+	+
-	+	+	+	+	+	+	+
+	+	+	+	+	+	+	+

Eg. of a Gutman Scale, where each of the 8 indicators was assigned either as + or -





SAMUHA/ACTION AID



The other indicators that describe poverty like, poor housing, malnutrition, occupations that need no skill or resources, are also considered and by using an appropriate cut off, the fact that a family is poor by many factors is reinforced. These are the families that projects precisely intend to work with. Therefore identifying such families becomes important, so that benefits do not get syphoned by the better off.

The concept of poverty line as described by the government gives a head count of the millions of people, which really does not describe the inequality in incomes, and the gap between the person who is earning the highest and the lowest within the group. The analysis of the income level of the families gives insight into the concentration of poverty levels. This will be a powerful indicator to observe over a period, the movement of the target group of people and to observe the changes in income levels within the conditions of normal rainfall or otherwise. Sen's* Poverty measure describes the weighted measure of the shortfalls of all people who are judged to be poor. Poverty measure is the function of the number of poor, aggregate poverty gap and the inequality of income distribution, below the poverty line.

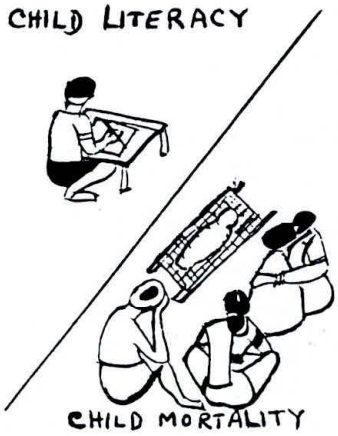
* Sen, Amartya; Poverty & Famines - An Essay on Entitlement & Deprivation, Clarendon Press, Oxford

Impact Indicators:

What do these specific indicators portray? What are the socio-political implications of using these indicators?

Specific indicators suggested for purposes of monitoring the impact are:

- per consumption unit of calories from non-cereal food



- child mortality and
- child literacy

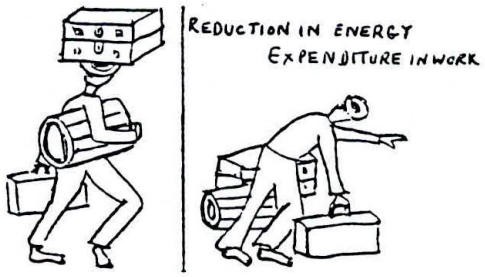
Food Consumption as a Basic Need:

Why measurement of calories from non-cereal food?

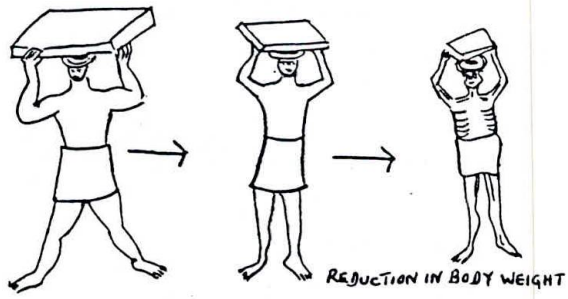
It is common knowledge that data on incomes of non-salaried classes, especially the rural folk, is extremely difficult to compute. One of the several approaches suggested in defining poverty levels is the income approach where poverty is measured in terms of the most basic need, ie. food described in terms of minimum required caloric consumption.

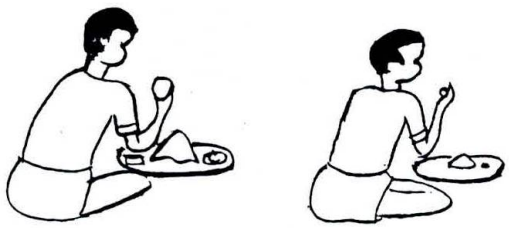
The physiological implications of a continuous deprivation in energy intake can result in:

- reduction in energy expenditure in work



- a reduction in body weight leading to a new equilibrium which has its own costs





- a reduction in nutrients available

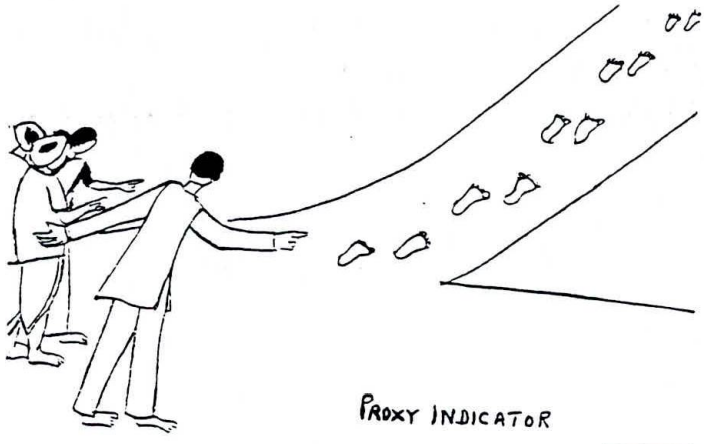
These costs in energy intake are likely to be even greater for the poor, since they are engaged in higher energy activity in a poor sanitary environment with greater morbidity, mortality & related nutrient losses.

It has been argued time and again that the importance of caloric intake not withstanding, there are severe limitations in the use of this as a single indicator. Some variations of this direct measurement of per consumption unit of caloric intake are per capita expenditure on food, percentage of calories derived from the non-cereal food and average daily consumption of milk per household, etc.

PER CAPITA EXPENDITURE ON FOOD

Nation-wide surveys have established that 80% or more of the calories of the poor come from the cereals consumed. This is rather acceptable from the knowledge of the kinds of foods consumed by the rural people. Secondly, this is reinforced by the fact that state governments are distributing grains either as food for work or at subsidised rates. Under such circumstances considering the absolute caloric consumption can be misleading. If consumption of other foods like oil, milk or pulses is reported, it is reflective of the better consumption levels.

Also at the request of FAO, the NSSO (National Sample Survey Organisation) took up in 1976, a tabulation programme for obtaining the caloric values of the energy yielding components of food consumed in the country. It was observed that in rural households 82.4% of the total per day per consumption unit of calories was derived from starchy foods. Pulses, nuts, seeds contributed 7.3% and the rest from other foods. The analysis also indicated that the percentage of calories contributed from the starchy foods differed with the expenditure class; the lowest class being as high as 89,4% and this gradually dropped down to 66.4% in the higher expenditure class. Therefore the percent of calories consumed by a family from non-cereal food is considered as a proxy for incomes.



Sampling

Various aspects such as seasonal implications and validity of collecting the consumption data only for a day have been considered in the design. It is suggested that a sample of 10% of the families from each of the villages using random numbers are chosen and data on consumption of all foods over a period of 7 days in two seasons is collected. (Format C Annexure).

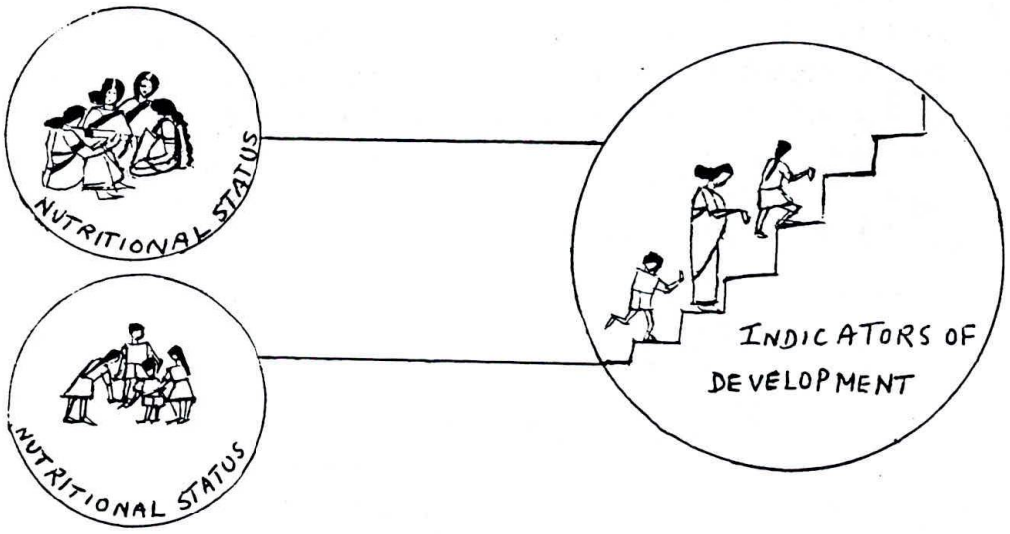
The data should provide information on -

- per consumption caloric intake for the family
- percent of calories from non-cereal foods
- quantity of proteins consumed
- quantity of oil consumed and similar relevant data

(Random Numbers Annexure)

Nutrition Levels as Socio-economic Indicators

We have come a long way in understanding that malnutrition and illhealth are correlates of poverty. The problems of poverty will be overcome as and when problems of malnutrition, deprivation and disease are overcome. Therefore, indicators of nutritional status of especially the vulnerable groups such as children and women are considered as indicators of development.

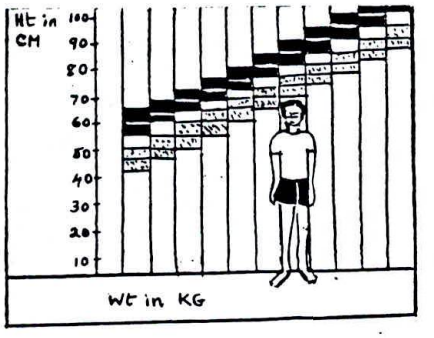


Composite Index Using Height and Weight of Children - Under Five

There is little agreement as to which anthropometric measure to use. The most common combinations of measure are :

- weight for age

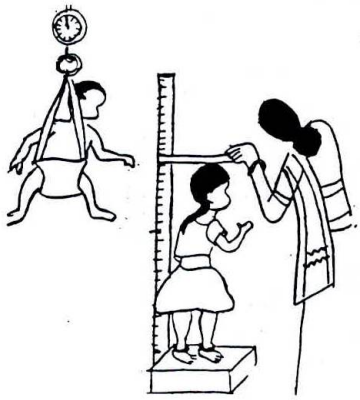
- height for age



The New Thinners chart

Red Normal yellow

- weight for height



- arm circumference

Each measures different aspect of growth and therefore offers a different picture of the child's nutritional status. With all these indicators to choose from, one must understand that each does not provide the same diagnosis. Each measures different aspects of growth and therefore offers a different picture of the child's nutritional status. Though there is no perfect indicator to assess the programme impact, evaluating children with current acute malnutrition as indicated by weight for height seems a reasonable approach. In order that the stunted children are not missed, height for age is combined with weight for height and formed into an index.

Taking the 50th percentile of the standards as reference points, the following composite index is suggested:

		weight	
		>80%	<80%
Height	>90%	Normal	Wasted
	<90%	Stunted	Stunted and wasted

Implications of wasting, stunting or wasting and stunting in children are far reaching in indicating the developmental status of the communities. Wasting occurs under poor conditions of hygiene and environment and poor nutritional intakes. On the other hand stunting is a result of long term deprivation of food to which the body adapts and the worst is reflected when there is a combination of stunting and wasting. Recent studies from India and other developing countries have shown that well to-do children brought up in good environment have heights and weights similar to any developed country.

Mortality Levels

The major contributory factor to high mortality levels, especially infant mortality, is poverty. Infant mortality rates can be computed from large populations and data at the district level is available only from the civil registration system.

UFMR

Under-five mortality has been suggested as an indicator in the place of infant mortality rate due to the inherent problems in arriving at reliable estimates of IMR for small populations. Assuming there are no errors in reporting of births and deaths in order to be able to say that out of 100 times, at least 95 times the estimate given is reliable, the different sample size to be covered for the survey, the number of births and infant deaths observed to compute IMR and the standard error of the estimation have been arrived at. Refer Table 1:

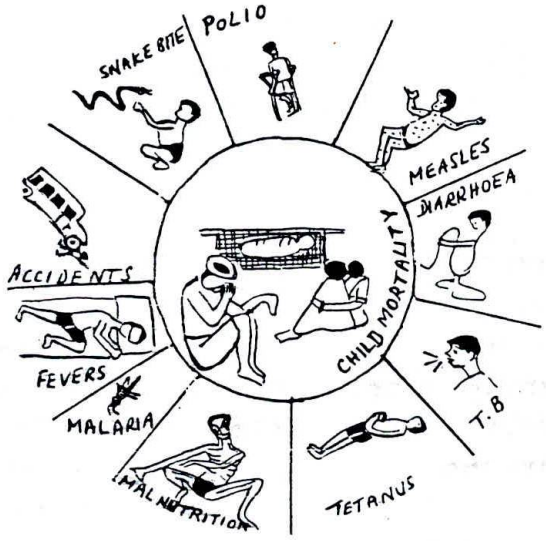
TABLE 1. Infant Mortality Rate: Sample Size and Confidence Interval

Sample size: number of persons	No. of births observed	No. of infant deaths observed	95% confidence interval for the infant mortality rate
1000	40	4	4 - 196
5000	200	20	58 - 142
10000	400	40	70 - 130
50000	2000	200	87 - 113
100000	4000	400	91 - 109
250000	10000	1000	94 - 106
500000	20000	2000	96 - 104

Source : WHO - Development of Indicators for Monitoring Progress Towards Health for All by the Year 2000; Geneva 1981

Under five mortality rate is calculated by

$$\frac{\text{No. of deaths under 5 yrs. of age in the given year}}{\text{Total no. of children under 5 years of age at the middle of the year}} \times 1000$$

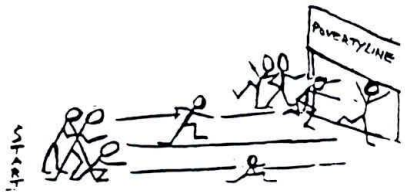


The source of data for estimation of under-five mortality is through collection of data on pregnancy histories which done very meticulously should throw light on various aspects such as pregnancy losses, still births, neo-natal deaths, infant deaths & child deaths. The information elicited also gives adequate support to understanding causes of mortality. Under-five mortality information is not only an indicator but also provides the platform for planning specific programmes. For eg. high levels of maternal mortality, pregnancy losses, indicate poor health status of women. High neo-natal death could indicate poor delivery practices. Causes of death like malnutrition, diarrhoea, give indicators of programme aspects.

Sampling

To select a sample of villages from the total number of villages, covered by the programme, the villages are arranged in an ascending order according to the size of the population. A sample size of 10 or 20% is decided depending on the number of villages the programme covers, by choosing every 5th or 6th village. After the village is selected, every women ever married in the age group of 15 - 40 is covered for the pregnancy history. The updating of births and deaths is to be done every year which gives an account of the most recent occurrence of the vital events.

Such data have to be interpreted taking into consideration the socio-political implications. To explain this further, there is a widespread erroneous impression that just because infant mortality rates and child mortality rate in Kerala are much lower than in other parts of the country including Punjab, the nutritional status or consumption of food of people in Kerala is also vastly superior. On the other hand, poverty is widespread in Kerala as in UP and other States (except in Punjab) and the actual diets of the poor segments of population in all these States are nearly similar and deficient. At the same time, it is misleading to argue that just because mortality rates in Kerala are low despite poverty and poor diets, those diets are in fact "adequate" and that the rest of the country need only to combat infection and ill health to reduce mortality. The lesson drawn indicates that there is no state in India which can boast of the degree of economic development achieved by Punjab plus the degree of social development achieved by Kerala.



QUALITATIVE APPROACHES

Case Study

How good is a case study method in Evaluations?
How can you generalise from a single case?

A case study describes in detail the analysis of a single event, situation, person, group or programme within a given context. The limitation of direct methods of data collection have been highlighted in the earlier sections. Sometimes the findings of a large scale survey do not throw enough light on the qualitative details. A case study method of inquiry lends detailed supportive evidence to the findings and answers many of the questions raised. The main task of designing a monitoring and evaluation system would be to combine different methods that will use resources most effectively. The insights from using a repertoire of methods will identify key relationships and constraints and will generate hypothesis.

The hesitation to use case study methods stem from the lack of rigour and practice. Secondly the question frequently posed is "HOW CAN YOU GENERALISE FROM A SINGLE CASE?" A third element is that they are too long and result in massive unreadable records.

v		---- from the particular to the general	Theory
a	a	:	
l		:	
u		---- from the general to the particular	Illustra-
e	c	:	tion
	a	:	
o	s	---- from fragmented to holistic	System
f	e		patterns

The 3rd is what make it especially valuable for the development angle.

A basic list of commonly required skills in conducting a case study are:

- should be able to ask the right questions

- be a good listener

- be adaptive and flexible

Apart from these skills, the person must have a firm grasp of the issues being studied and should be able to proceed without any pre-conceived notions.

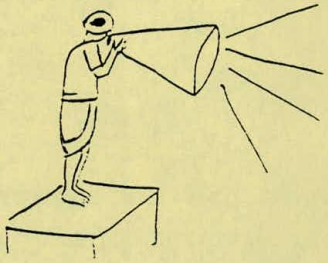
The data collected for case study should be from multiple sources. This should be followed by organising the data to form a good data base. The data flow should maintain a chain of evidence from the initial research question to the ultimate conclusion.

CONCLUSION

In the kind of analysis and interpretations suggested, there is the danger of treating the small unit as an isolate situation. The smaller units that the projects work with are intrinsically linked up with the larger systems of the society. Village level studies provide a firm grasp of the empirical situation. But to generalise on the basis of the study also has inherent limitations. At the same time, in macro-studies one has to reckon with the problem of a multi-sectoral, socio-economic formations which may lead to over-generalisation and over-simplification. Therefore, in studying the phenomenon of poverty, it is suggested that caution is exercised to avoid claims of extremes drawn from the methodology.

To conclude it is emphasised here that the intention of this approach to impact evaluation is not one of a punitive measure and is delinked from funding polices.

In interpretation of the kind of analysis and indicators suggested, the NGO's have to do so with a clear understanding of the socio-political reality of the area. The underlying assumption in the design of impact evaluation is that the programme inputs would be intense enough to create the anticipated impact. It is also possible that there could be a wide range of reasons why the anticipated impact did not take place. The interest is to know why or what factors contributed and the outcome of such an exercise to have no negative implications on the funding of the programmes.



A N N E X U R E

INSTRUCTIONS

The formats include :

- Baseline
- Pregnancy histories
- Non-cereal calorie consumption

* The formats are labelled as A, A1, B,B1 and C. A & B are to be retained and the project level and extracts from A and B to be transferred on to A1 and B1 & sent to this Office for processing. Form C is to be sent as it is.

* The baseline format is a sample design. Any adaptations, changes required must be made at the project before using it

<******>

FURTHER READING

- Quinn Panton, Michael,
"Qualitative Evaluation Methods",Sage Publications
7th Edition

- David Morris and Michelle B. Mc Alpin,
"Measuring the Condition of India's Poor", (The
PQLI) - Promila Publishers

- Yin, Robert K,
"Case Study Research" - Design & Methods, Sage
Publications

- Fowler, Floyd J Jr.,
"Survey Research Methods", Sage Publications

- Struening, Elmer L & Merilynn B Brewer,
"Hand book on Evaluation Research, Sage Publications

- Fernandes Walter & Rajesh Tandon,
"Participatory Research and Evaluation", ISI Publications

- UNIDO,
"Guidelines for Project Evaluation", Oxford and IBH Publications

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BASELINE FORMAT (detailed) A

Sch No 1 Street : _____ Religion : _____
Village : _____ Caste : _____

No mem.	Age	Sex	Rel to HOH	MS	Educ	Occupation M	Occupation S	Earnings M	Earnings S	Days Emp	D	Hlth	MAC R	MAC Y	MAC G

* Education : record as upto the Standard completed
Age : to the nearest month
M : Main
S : Sub
D : record major Disability (if any)
Hlth : record major Health problems (if any)
MAC : Mid-arm Circumference (R = Red, G = Green, Y = Yellow)
MS : Marital Status

BASELINE FORMAT (detailed) A (contd)

Land Holding : (Y/N) __ Leased in : _____ Water Source : _____
(If Yes) Waste : _____ " out : _____ Power : _____
Dry : _____
Wet : _____ Operation Holding : _____

Tree Type	No	Ann Inc
_____	___	_____
_____	___	_____
_____	___	_____

Assets:
Plough Bullocks : _____
Bullock Cart : _____
Tractor/Implemnt: _____
Diesel Pump : _____

Sheep : ___ Cycle: ___
Milch Cows: ___ Radio: ___
Goats : ___ Steel
Pigs : ___ Almir: ___
Poultry : ___ Other: ___

Homeless (Y/N) : __ House roof : _____ Electrified (Y/N): ___
(Stone slab/Traditional/ House well (Y/N): ___
Thatch/Others)

Migration during Lean season (Y/N) : ___
(If Yes) Where : _____ What kind of work : _____

Cereal Consumption (Previous Day):

Food	Qty (Kgs)	Value (Rs)
Rice	____	_____
Rice Prod:		
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____

Food	Qty (Kgs)	Value (Rs)
Wheat	____	_____
Atta	____	_____
Wheat Prod:		
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____
_____	____	_____

Food	Qty (Kgs)	Value (Rs)
Jowar	____	_____
Bajra	____	_____
Maize	____	_____
Small Millets	____	_____
Ragi	____	_____
Total:	____	_____

FORMAT FOR CONSOLIDATION OF BASELINE DATA A1

Cluster No : ___ Name : _____ Village No : ____ Name : _____

HH No	Members	Sex	Age	Mar. Stat	Educn.	Occupation M	Occupation S	Earning M	Earning S	Days Emp. M	Days Emp. S	Migrtn (Y/N)	Disabled (Y/N)	MAC R	MAC Y	MAC G	Religion	Caste

FORMAT FOR CONSOLIDATION OF BASELINE DATA (contd) A1

HH No	Land Holding (Y/N)	Wet	Dry	Barren	Operational	Water Source	Income Land	Trees	Others

Note: Operational Land = (Own Land - Leased out) + Leased in

FORMAT FOR CONSOLIDATION OF BASELINE DATA (contd) A_1

ASSETS

HH	Plough	Bullock	Tractor	Diesel Pump	LIVESTOCK					Material Possesions			
					Sheep	Goat	Pigs	Poultry	Others	Cycle	Radio	Almir.	Others

PREGNANCY HISTORY FORMAT B

HH No : _____ Area/Village: _____

Name	Age Yrs	Age Mths	Sex	Rel to HOH	Educn	Mar Stat	Occupn	Perm. Residence	Preg (Y/N)

Family Type : __
(1 = Nuclear/2 = Joint/3 = Extended)

Religion : __
(H = Hindu/M = Muslim/C = Christian)

Total Household Income : _____

Per capita Income : _____

PREGNANCY HISTORY FORMAT (contd)

Probe for new additions and deletions to the family

Second Visit Date : _____ HH No. _____

Name	Age Yr	Age Mths	Sex	Rel to HOH	Educn	Marital Status	Occupation

Third Visit

(Note changes like additional women through nmarriage, deaths & new borns)

BIRTHS: (for each Birth - Date; Sex; Place of Birth; Other relevant information
DEATHS: (for each Death - Date; Sex; Age; Place; Cause

B

SECTION 2 PREGNANCY HISTORY
(Only for women below 45 years)

1. Name of woman : _____

2. Number of years married : _____

3. Age at Menarche: ____ 4. Age at Marriage: ____ 5. Age at Present : ____

6. I would like to ask you some questions about your children. Have you ever given birth to children? ___ (1 = Yes; 2 = No)
(If YES goto 10)

7. (Probe) Have you ever given birth to any boy or girl, who later died, even if the child lived for only a short period of time? ___ (1 = Yes; 2 = No)
(If YES goto 14)

8. Have you ever been pregnant? ____ (1 = Yes ; 2 = No)
(If YES goto 16)

9. Have you ever been pregnant even if that pregnancy lasted only for about two months? ____ (1 = Yes; 2 = No)
(If YES goto 16; If NO goto Last)

10. Do any of your children live with you? ___ (1 = Yes; 2 = No)

11. If YES, how many? Daughters : _____ Sons : _____

12. If NO, how many live elsewhere? Daughters : _____ Sons : _____

13. Have you ever given birth to any boy or girl who later died, even if the child lived for only a short time? ___ (1 = Yes ; 2 = No)

14. If YES, how many of your children have died? Number : _____

15. Summing up, you have given birth to - Number: _____

16. (If YES, proceed to ask about each child. If NO, probe further for a correct response).

B

SECTION 2 PREGNANCY HISTORY (contd)
(Only for women below 45 years)

Sl No	Date of Delivery	Gestatn Period	Complications (if any)	Outcome	Current Status (L/D)	(If Dead) Age at Death	(If Dead) Cause

KEY : Current Status : L = Living ; D = Dead
Outcome : L = Live births ; S = Still born A = Abortion

Are you pregnant now? (1 = Yes; 2 = No)
If YES, How many months : _____

Second Visit: Any births? (Check with Pregnancy History as also with the HH card).

Any deaths? (Check with Pregnancy History).

B1

PREGNANCY HISTORY FORMAT

HH No : _____ Area/Village: _____

Name	Age Yrs	Age Mths	Sex	Rel to HOH	Educn	Mar Stat	Occupn	Perm. Residence	Preg (Y/N)

Family Type : __
(1 = Nuclear/2 = Joint/3 = Extended)

Religion : __
(H = Hindu/M = Muslim/C = Christian)

Total Household Income : _____

Per capita Income : _____

SECTION 2 PREGNANCY HISTORY (contd)
(Only for women below 45 years)

Sl No	Date of Delivery	Gestatn Period	Complications (if any)	Outcome	Current Status (L/D)	(If Dead) Age at Death	(If Dead) Cause

KEY : Current Status : L = Living ; D = Dead
Outcome : L = Live births ; S = Still born A = Abortion

Section 2

PREGNANCY HISTORY (Only for women below 45 years)

First Visit : Date : _____

1. Name of the woman : _____ 2. No. of years married : _____

Age at :
3. Menarche : _____ 4. Marriage : _____ 5. Present : _____

NON-CEREAL CONSUMPTION C

Date : __/__/__ Village Name : _____ HH No : _____

Name	Rel to HOH	Age	Sex	Education	Occupation	Earning	I/D

CODING : a) Relation to HOH :
W = Wife ; S = Son; D = Daughter ; G = Grandchild ; M = Mother
F = Father; I = Son-in-law/Daughter-in-law
b) Sex : 1 = Male ; 2 = Female
c) Education : Classes 1 - 10 = No 1 - 10; Graduate = 11
d) Occupation : C = Coolie ; L = Agriculture on own land
A = Artisan; O = Others
e) I/D (Independent/Dependant) : 1 = Independant ; 2 = Dependant

DEFINITIONS : Household - those living and cooking under one roof.
HOH - Head of the Household - the decision maker in the family.

FOOD CONSUMPTION C

C E R E A L S:	1.	Rice
	2.	----------
	3.	----------
	4.	Wheat / Suji / Maida / Atta
	5.	Jowar / Bajra / Maize
	6.	Small Millet
	7.	Ragi
P U L S E S:	1.	Thuvar
	2.	Moong
	3.	Urad
	4.	Khesari
	5.	Others
M E A T Prods:	1.	Meat
	2.	Poultry
	3.	Eggs
	4.	Fish
M I L K & Milk prods.:	1.	Milk
	2.	Curd
	3.	Butter milk
	4.	Butter
	5.	Ghee
O I L Prods.:	1.	Mustard oil
	2.	Groundnut oil
	3.	Coconut oil
	4.	Til oil
V E G E T A B L E S:	1.	----------
	2.	Potato
	3.	Others
F R U I T S:	1.	Banana
	2.	Others
Others Items:	1.	Sugar
	2.	Jaggery

KEY:
C : Cash Purchase
H : Home Grown
B : Borrowed

NON-CEREAL CONSUMPTION (contd) C

FOOD CONSUMPTION (One week's data) (A)

DAYS		ITEMS: CEREALS 1 qty	1 Rs.	2 qty	2 Rs.	3 qty	3 Rs.	4 qty	4 Rs.	5 qty	5 Rs.	6 qty	6 Rs.	7 qty	7 Rs.	PULSES 1 qty	1 Rs.	2 qty	2 Rs.	3 qty	3 Rs.	4 qty	4 Rs.	5 qty	5 Rs.	MEAT PRODUCTS 1 qty	1 Rs.	2 qty	2 Rs.	3 qty	3 Rs.	4 qty	4 Rs.
1	C																															
	H																															
	B																															
2	C																															
	H																															
	B																															
3	C																															
	H																															
	B																															
4	C																															
	H																															
	B																															
5	C																															
	H																															
	B																															
6	C																															
	H																															
	B																															
7	C																															
	H																															
	B																															

NON-CEREAL CONSUMPTION (contd) C (B)

DAYS		ITEMS: MILK & MILK Prods. 1 qty	Rs.	2 qty	Rs.	3 qty	Rs.	4 qty	Rs.	5 qty	Rs.	OIL Prods. 1 qty	Rs.	2 qty	Rs.	3 qty	Rs.	4 qty	Rs.	VEGETABLES 1 qty	Rs.	2 qty	Rs.	3 qty	Rs.	FRUITS 1 qty	Rs.	2 qty	Rs.	Other Items 1 qty	Rs.	2 qty	Rs.
1	C																																
	H																																
	B																																
2	C																																
	H																																
	B																																
3	C																																
	H																																
	B																																
4	C																																
	H																																
	B																																
5	C																																
	H																																
	B																																
6	C																																
	H																																
	B																																
7	C																																
	H																																
	B																																

Random Numbers Upto 100 (an example)

53	25	43	11	85	93	74	42	48	63
10	18	90	49	42	74	92	63	68	21
97	32	32	36	59	51	86	64	21	45
84	56	18	70	91	20	0	29	24	11
85	24	16	34	38	17	6	81	69	33
53	83	63	77	71	99	27	80	1	17
71	69	92	96	9	63	19	14	81	92
22	58	10	43	71	28	78	32	51	71
24	96	81	39	72	17	49	73	85	62
79	6	40	61	19	2	28	95	54	11

Random Numbers Upto 300 (an example)

68	292	281	192	58	62	19	294	68	59
20	94	130	59	144	31	75	133	270	181
218	107	117	207	9	296	33	285	67	216
63	0	81	70	291	21	88	212	53	248
34	74	242	134	299	188	258	289	200	63
164	247	178	54	195	217	144	290	55	211
7	289	116	114	160	258	294	10	165	44
106	125	38	144	117	138	237	112	101	295
117	92	173	117	10	11	196	187	61	54
157	110	45	12	24	153	161	210	276	249
98	95	103	290	280	221	195	181	176	89
187	285	2	278	95	122	82	133	16	167
291	50	214	103	171	217	67	161	27	38
102	126	293	37	200	229	69	223	271	5
248	44	114	229	96	212	243	126	233	94
92	59	263	296	199	89	96	198	255	110
145	91	235	62	82	67	106	216	93	198
205	32	85	175	190	101	183	244	174	251
96	93	131	133	60	236	271	188	55	152
296	273	297	113	232	181	2	84	131	221
136	192	155	83	224	77	123	172	46	11

...contd

Random Numbers Upto 300 (an example) - (contd)

50	17	206	26	144	62	69	220	289	22
283	277	200	20	269	153	252	2	287	28
285	218	282	252	281	282	299	249	226	11
72	184	30	150	198	89	140	119	73	25
113	14	112	169	278	226	143	256	155	25
270	260	275	176	14	126	143	148	243	28
205	201	43	187	273	168	5	180	127	27
156	204	203	286	79	26	237	260	6	17

I N D I C A T O R S

(at National Level)

Adult Literacy Rates 1981 (for major states in India, age 15 years and above)

State	Persons	Males	Females
INDIA	40.76	54.84	25.68
Andhra Pradesh	32.32	34.32	20.03
Bihar	29.34	44.85	13.17
Gujarat	48.32	62.76	33.16
Haryana	39.28	54.43	21.58
Karnataka	77.48	56.90	28.23
Kerala	78.14	85.98	70.79
Madhya Pradesh	32.27	47.63	15.88
Maharashtra	51.68	67.98	34.56
Orissa	38.85	55.98	21.16
Punjab	42.19	50.71	32.42
Rajasthan	28.24	43.01	12.03
Tamil Nadu	50.46	65.99	34.65
Uttar Pradesh	30.50	45.36	13.92
West Bengal	48.13	61.15	33.25

Source: Census of India 1981
Refer: An analysis of the situation of children in India, published by UNCF,New Delhi 1984

Enrolment in Classes I - V (1950-51 to 1981-82)

Year	Enrolment (in millions)			Percentage of children enrolled in classes I-V to total population in the age group 6 - 11		
	Boys	Girls	Total	Boys	Girls	Total
1950-51	13770	5.385	19.155	60.8	24.9	42.6
1960-61	23.593	11.401	34.994	82.6	41.4	62.4
1970-71	35.739	21.306	57.045	92.6	59.1	76.4
1980-81(P)	44.576	28.112	72.688	99.0	66.2	83.1
1981-82(P)	44.976	28.587	73.563	99.4	66.9	83.7

(P) : Provisional Source: Ministry of Education

Refer: An analysis of the situation of children in India, published by UNCF,New Delhi 1984

Per Capita Apparent Consumption of Foodgrains

Year	Grams per day
1951 - 53	397
1961 - 63	458
1971 - 73	452
1977 - 79	458
1980	411
1981	454
1982	454

Note: The 1977-79 figures is 15.4 % more than that of 1951-53

Source :Manrai, ML and Bhatnagar, DS, "Food Strategy for Eighties" Kurukshetra, December 1983

Refer : An analysis of the situation of children in India, published by UNICEF,New Delhi 1984,pg. 47

Percentage Distribution of 1 - 5 year Children according to weight for age

Year	No. of states	N	Degree of malnutrition (Gomez Classification) Normal >90%	Mild 75-90%	Moderate 60 - 75%	Severe <60%
1969	6	18000	3.0	14.0	65.0	18.0
1974	9	2410	3.8	21.9	53.8	20.5
1975	7	1721	3.4	22.1	52.6	21.5
1976	9	6775	10.6	41.1	39.8	8.5
1978	10	4713	14.3	42.4	34.9	8.4
1980	8	4008	14.8	47.9	32.6	4.7

Source: National Nutititon Monitoring Bureau,Institute of Nutrition, 1981

Refer: An analysis of the situation of children in India, published by UNICEF,New Delhi 1984

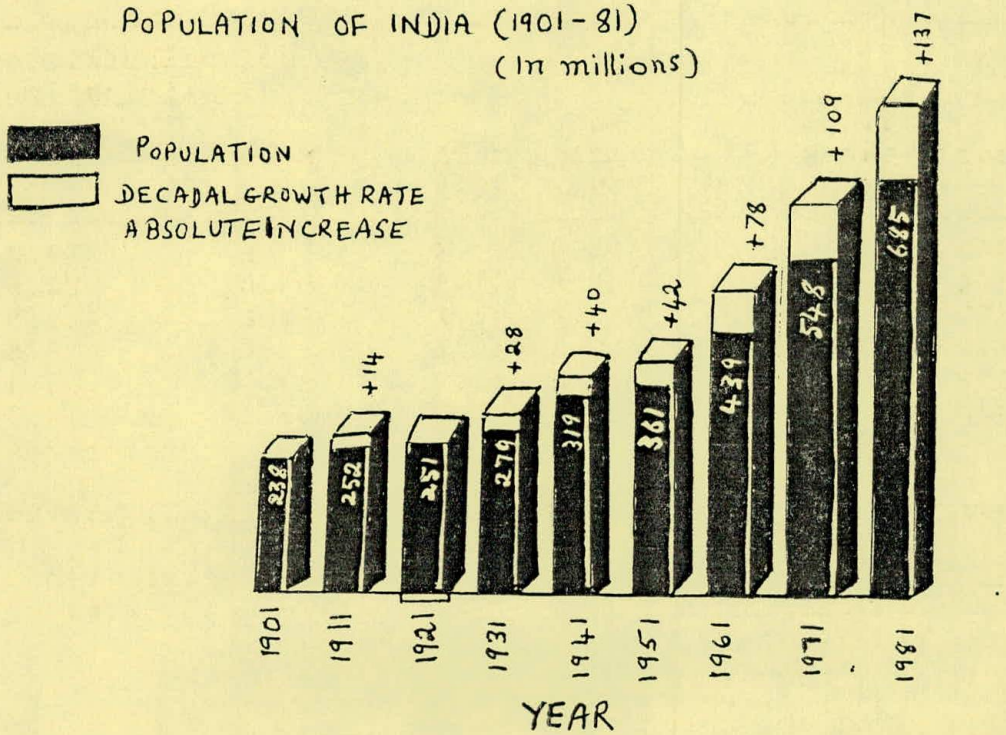
Crude Birth Rate for Major States

(per 1000 population)

Year	Rural	Urban	Total
1970	38.9	29.7	36.8
1971	38.9	30.1	36.9
1972	38.4	30.5	36.6
1973	35.9	28.9	34.6
1974	35.9	28.4	34.5
1975	36.7	28.5	35.2
1976	35.8	28.4	34.4
1977	34.3	27.8	33.0
1978	34.7	27.8	33.3
1979	34.3	28.3	33.3
1980	34.6	27.3	33.3

Source: Vital Statistics Division, Office of the Registar General

Refer: An analysis of the situation of children in India, published by UNCF, New Delhi 1984



Crude Death Rate (per 1000)

Year	Rural	Urban	Total
1970	17.3	10.2	15.7
1971	16.4	9.7	16.9
1972	18.9	10.3	16.9
1973	17.0	9.6	15.5
1974	15.9	9.2	14.5
1975	17.3	10.2	15.9
1976	16.3	9.5	15.9
1977	16.0	9.4	14.7
1978	15.3	8.4	14.2
1979	13.9	8.0	12.4
1981	13.7	7.9	12.5

Source: Sample Registration Bulletin, Vital Statistics Division, Office of the Registrar General
Refer: An analysis of the situation of children in India, published by UNCF,New Delhi 1984

Child Deaths (1-4 year per 1000 population) in Ludhiana and North Arcot District

Underlying causes	Ludhina 3 rural centres		North Arcot District			
			Rural		Urban	
	Number	Rate	Number	Rate	Number	Rate
All causes	48	6.9	358	24.0	163	15.0
Diarrhoeal diseases	11	1.6	90	6.0	34	3.1
Measles	8	1.1	37	2.5	36	3.3
Other infectious diseases	1	0.1	29	1.9	20	1.8
Nutritional deficiency	5	0.7	---	---	---	---
Disease of nervous system and sense organs	1	0.1	1	0.1	1	0.1
Disease of respiratory system	8	1.1	2	0.1	---	---
Congenital anomalies	1	0.1	---	---	---	---
Other and unknown causes	12	1.7	191	12.0	67	6.1
External causes	2	0.3	8	0.5	5	0.5

Source: Arole and Rohde, 'Organisation of Health Service and Training of Physicians for Child Health Services',1983.
Refer: An analysis of the situation of children in India, published by UNCF,New Delhi 1984