CHAPTER II

DESIGN OF THE STUDY

TITLE: AGRARIAN TRANSFORMATION IN ARID AND SEMI-ARID LAND (ASAL) IN KENYA - CROSS COUNTRY EVIDENCES IN KENYA AND INDIA IN DEVELOPMENT OF DROUGHT TRACTS

STATEMENT OF THE PROBLEM

Both Kenya and India belong to the category of third world developing countries. They have more or less similar socio-economic characteristics. Agriculture and allied sectors constitute their base for major economic activities. Geographically, the two countries lie far apart i.e., Kenya in Africa and India in Asia. Kenya lies astride the equator, whereas India lies astride the tropic of cancer. Kenya therefore and almost half of India lies within the tropics. The ecosystems of the two countries relate quite equitably. At one time or the other, both countries remained under one common colonial master. Kenya was colonised by the British in 1893 and got independence after seventy years i.e., 1963. India on the other hand was colonised during the year 1747 by the British, only to attain Independence in 1947 after a period of two hundred years under the British rule. A common feature observable in both countries is that during
the colonial period, the Government paid little or no attention to the development of drought tracts of the two countries. Instead, concentration was focussed on the exploitation of the wet rainy lands with high development potentials.

It has been recorded that, "About 88 per cent of Kenya's total land area is either arid or semi-arid and support about 20 per cent of the country's total population." In the case of India, "More than 70 per cent of the total cultivated land area is dryland and contributes about 42 per cent of the total foodgrains production in the country."² Food production in these areas is low and fluctuates widely depending on the behavior of rains. Thus, given the enormous area under drought tracts in both countries and the rapidly growing population, the two countries have little or no option but to develop their drought tracts. A beginning in this direction has been made and there are tremendous efforts made by both the Governments to develop these areas.

2 Government of India, Planning Commission, Sixth Five Year Plan (1980-85), India, p.103.
The two countries are therefore in a better position to share lessons and experiences with reference to the development of drought tracts. These lessons and experiences may date back to the period before and after independence. The experiences so gained could serve as a boon as well as a source of strategy modification and planning to enhance further development.

Keeping the fore-going points in view, the present study makes an attempt to analyse the Agrarian transformation in Kenya's drylands and record (cross country) evidences with special reference to the development of drought tracts or rainfed areas of Kenya and India. This may lead to the identification of the problem for more precise investigation, and emphasis here is on the operational part of the ideas put into action.

SELECT REVIEW OF LITERATURE - INDIA

Rangaswamy deals with problems of achieving a breakthrough in dryland agriculture with which the planners are

Rangasamy P., Dry Farming Technology in India, New Delhi, 1990. p.203,
at present seriously concerned. The author has done a careful economic evaluation of the new dry farming technology as developed by the All India Co-ordinated Research Project on Dryland Agriculture in two selected areas, viz., Kovilpatti and Hyderabad. While the main focus of the study is on the profitability of the technology, the author has also made an analysis of the risk and factor-saving biases associated with it and the impact of these factors on the adoption performance of various categories of farmers.

Yet another report by Diana Hunt has concentrated more on practical issues such as credit, land tenure and technical innovations. However this did not throw light onto two related areas in different continents and/or countries. The main focus of this research was to study constraints to expanded production in Arid and Semi-Arid Areas but not to study Arid and Semi-Arid Land Programme.

ICRISAT (1979) "Proceedings of International Workshop on Socio economic constraints to Development of Semi-Arid

Diana Hunt, A report on Dry Lands of Kenya, Occa-
Tropical Agriculture" This report highlights the various socioeconomic constraints from different resource persons in different countries with regard to the development of Semi-Arid Tropical Agriculture. The report does not study in depth one programme and relate it onto the other in another country within the Semi-Arid Tropics. More concentration is centered on socio-economic analysis of existing farming systems and practices in different countries within the semi-arid tropics.

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The Kenya Geographer - Proceedings of the Nairobi Workshop (August 1981) on the strategies for Developing the Resources of the Arid and Semi-Arid Areas of Kenya, in its publication, concentrated mainly on defining appropriate strategies for developing the arid and semi-arid regions of Kenya.

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The Kenyan Geographer - Recorded Proceedings of the Nairobi Workshop on Strategies for Developing the resources of the Arid and Semi-Arid areas of Kenya.
The Proceedings of the All India Symposium on Drought Prone Areas of India, recorded the exchange of ideas between scholars working on various aspects of drought and the policy makers and administrators concerned with the mitigation of drought.

STUDY OBJECTIVES

A general objective of the study is to record cross country evidences with special reference to the development of Drought tracts or rained areas of Kenya and India. Specific objectives however, are as follows:

1. To examine in depth, Government initiatives with regard to the development of drought tracts of Kenya and India, in the Pre and Post Independence period;

2. To record cross country evidences with reference to the development of Drought Tracts of Kenya and India through Secondary Sources and also Primary Micro-Studies and
3. To draw a Policy Agenda for Dryland Development and a specific policy option for the development of Drought Tracts of Kenya.

WORKING DEFINITIONS OF THE CONCEPTS

Evaporation - is the process by which water vapour escapes from a free water surface or moist soil into the air or atmosphere.

Evapo-transpiration - is a combined process by which water vapour escapes from a free water surface or moist soil and from plants into the atmosphere.

Sprinkler irrigation - is a system of irrigation in the case of which water pressure is applied to the surface of any crop or soil in the form of a thin spray from above.

Surface irrigation - refers to the process by which water is directly applied to the surface of the soil and is spread by gravity flow incidental to the slope of land. There are several methods in this system, the commonest being flooding from a ditch, check basin, ring and basin, border strip and furrow.
Energy - refers to the conventional mode of consuming energy for domestic, commercial and industrial use from sources such as oil, firewood, charcoal, gas, and electricity generated through fuel. The non-conventional sources of energy are geothermal energy, solar energy, wind and tidal power, etc.

Drip irrigation - also known as "Trickle irrigation".

It involves the slow application of water, drop by drop, as the name signifies, to the root zone of a crop.

Cropping Pattern - the yearly sequence and spatial arrangement of crops or of crops and fallow on a given area.

Farming System

This constitutes the entire complex of development, management and allocation of resources as well as decisions and activities which, within an operational farm unit or combination of units, results in agricultural production, and the processing and marketing of the products.

Adapted from Krantz et al., 1975.
Sole Cropping – refers to one crop variety grown alone in pure stands at normal density. This is synonymous with solid planting and it is the opposite of intercropping.

Monoculture – is the repetitive growing of the same crop on the same land.

Rotation – is the repetitive cultivation of an ordered succession of crops (or cops and fallow) on the same land. One cycle may take one or more years to complete.

Multiple Cropping – is the intensification of cropping in time and space dimensions. Growing two or more crops on the same field in a year.

Relay Cropping – is the growing of two or more crops simultaneously during the part of the life cycle of each. A second crop is planted after the first crop has reached its reproductive stage of growth but before it is ready for harvest,

Sequential Cropping – is the growing of two or more crops
in sequence on the same field in a farming year. The succeeding crop is planted after the preceding crop has been harvested. Crop intensification is only in time dimension. There is no intercrop competition.

Owner Cultivator - is a dry land farmer owning land privately and individually for the purpose of crop farming and or livestock rearing to generate income and support members of the household. It should however, be noted that in the case of Turkana District, sample respondents under owner cultivators have only user rights to the land. The entire land is communally owned. For the sake of data analysis and comparison on land ownership, the land temporarily occupied and used by the respondents in Turkana is treated as the owner's.

Service Providers - are persons or sample respondents temporarily engaged in Wage employment by way of rendering their services e.g., working in hotels, schools, church compounds etc.

** The Farming year is 12 months for irrigated lands and is limited to the period of adequate soil moisture availability for crop growth in rainfed lands.
Artisans - are handicraftsmen whose occupation consists of making and selling artistic items like baskets (vyondos), walking sticks, carvings etc.

Agro-Forestry - is a system of farming in which the forest tree species and arable crops can be grown together on the same piece of land, without either of them affecting adversely the production of the other, e.g., Acacia tortilis plus Sorghum plus Pegeon pea plus Castor.

Silvo-Agricultural - is a system of farming in which fodder trees and arable crops are grown on the same piece of land in the ratio which provides maximum returns without any detrimental effect on natural resources, e.g., Leucaena Leucocephala plus Sorghum and Castor.

Silvo-pastoral - is a system of farming in which trees (forest fodder species) and pasture are raised on the same unit of land at a given time in the ratio which provides maximum economic return with least deterioration of natural resources, e.g., Leucaena Leucocephala - a fodder and fuel tree plus Grasses like Cenchrus ciliaris and Stylosanthes hamata.
Nomadic - is a system where the entire household moves long
distances during the year, often returning to the same
general area during severe drought. Nomads generally have
a livestock economy, though not all do. Nomadic
hunters/gatherers may have no livestock at all. There may
also be nomadic farmers.

Pastoralists - constitute people who live mainly from live­
stock (the formal definition is that more than 50% of total
household income including that obtained through market
transactions and that obtained by direct consumption of
household production, comes from livestock-based activi­
ties); pastoralists may also cultivate or follow other economic activities.

Agropastoralists - are people whose household income comes in greatest part from agriculture, but for whom livestock­
based activities are a substantial secondary source of income.

Wasteland - is a virtually degraded and non-productive land.
Degraded by soil erosion, water logging and or salinity.
Irrigated land - is land with the availability of artificial application of water for the purpose of crop production. Irrigation water is meant to supplement water available from rainfall and the contribution of soil moisture from surface as well as ground water.

Earner Dependent Ratio - refers to the ratio of dependent members to the total number of earning members in a family.

Asset - refers to the total present value of all inventories i.e., land, buildings, wells & irrigation structures, fences, livestock and dead stock, also includes physical inventories like utensils, radio, cycle, watch etc, and liquid assets like Jewels (gold & silver) and savings.

Cultivable land - is land that has potentialities of being cultivated.

Dryland - is land without availability of artificial application of water for crop production. This is purely rainfed in scanty rainfall areas.
Agricultural Labourers - are sample respondents who work on other's lands for wage payment which may be either in cash, kind or both.

Business - includes sample respondents who run commercial enterprises as a way of earning income.

Farm Produce - are Products produced within the farm premises and include honey, eggs, fruits, charcoal, hides and skins, meat, milk, livestock blood, sorghum, millets, maize etc. Also includes farm cottage industrial goods like spears, stools, walking sticks, baskets, headrests etc.

Elementary Class - constitutes family household members educated from first to eighth standard.

Secondary Class - constitutes family household members educated from nineth to twelth standard.

Young Non-Schooling - also referred to as "Non-starters", constitutes family household members in the age brackets of eight years and below who have not joined school yet.
On-farm activity - is an act or practice of tilling or cultivating land.

Off-farm activity - is a practice of working outside land tillage.

Livestock - refers to domesticated animals which include Cattle, Buffaloes, Sheep, Goats, Camels, Donkeys, Pigs etc.

Shoats - refers to sheep and goats.

Traditional Irrigation Furrows - are canal-like irrigation structures, dug following the natural contours of the land to minimise extensive application of engineering structures. They are mostly ingenious, and are used to divert water from a river to farm-lands. Their original construction must have required a vast amount of toil and patience. They are a property of clans and not individuals. Furrows high up in the hills follow narrow and precipitous routes with aqueducts commonly made from hollowed logs and the flumes from an assortment of materials ie., poles, sticks, grass and stones.
Jowar - Sorghum.

Kharif - Monsoon season in India (June-September).

Lakh - Hundred thousand.

Rabi - Winter season in India. (November - March).

Taccavi - Emergency loans - India.

Taluka - Sub-district administrative area - India.

Ayacut - The area registered as irrigable from tank.

Tank - A small reservoir consisting of an earthen dam or bund that captures surface water, which can then be channelled through sluices in the bund to irrigate fields in the ayacut below.

Livelihood - Income, whether cash or in kind derived either from employment or asset ownership or both, that is adequate to maintain the year-round physical and social well being of a household and security against impoverishment.

1 Hectare - Equivalent of 2.47 acres
Small Farmer – is a farmer having land holding of 2.5 to 5 acres of dryland or half of it in the case of irrigated land. (India).

Marginal Farmer – is a farmer of land holding of 2.5 acres of dryland and 1.25 acres of irrigated land or below (India).

Landless Agricultural Labourer – refers to one who is not in possession of land and who is engaged in and depend upon farming and non-farming activities for wages (India).

Household is a family unit with a common kitchen and common accounts maintained commonly even for those employed outside.

SIGNIFICANCE AND SCOPE OF THE STUDY

Facts suggest that innovations can be introduced either by applying the findings of research conducted elsewhere or by using data obtained locally but needing limited trials for adaptation or refinement purposes. Although research must be homegrown, researchers must have access to different
but related environments and various institutions both within the country and elsewhere. The present study deliberately gives priority to a South-South Region basis, meant to foster networks with similar experience, particularly in comparable agro-ecological environments.

The study highlights achievements and failures in accordance with the study objectives. To planners, programmers policy makers and managers, the study results provide and insight on how and when to make their decisions and modify their planning strategies where necessary and applicable, in order to achieve desired goals. Donors interested in ascertaining causes of both successes and failures of related programmes in different settings will nurture on the results of the study. Further, the results of the study as obtained from areas in two different continents stand to facilitate and encourage both Governments and their respective donor countries to concentrate and direct their investment to areas where socio-economic implications of their programmes is comparatively low, by modifying their strategy and approach. Areas that have achieved higher socio-economic implications within the drought tracts need to be maintained, if not improved. Policy options would be a replication of positive results with the necessary adjustments in
either case. Negative results, however, should be deemed with the seriousness they deserve to serve as signals to avoid repetition of poor results.

LIMITATIONS OF THE STUDY

The area referred to as 'Drought Tract' in both countries viz; Kenya and India is large. Further, India is a sub-continent and has got a larger area as compared to Kenya. Kenya has got a total area of 582,646 sq. kilometers, whereas India has a total area of 3,287,782 sq. kilometers. Thus Kenya goes into India about 5.6 times. Kenya as a country can perhaps be compared to only a single state in India in terms of area and size, though, some states are still larger than Kenya.

A number of development programmes have been initiated in dry tracts of both countries. In India, programmes such as Drought Prone Area Programme (DPAP), Command Area Programmes (CAD), Integrated Dryland Agriculture Development Projects (IDADP) etc. are in various stages of implementation in different parts of the country. In Kenya on the other hand, 22 Districts have been designated under a spe-
cial programme known as Arid and Semi-Arid Lands (ASAL) Development Programme. This Programme is operational in only 13 Districts. Other government departments and Non-Governmental Organizations (NGOs) too, have programmes operative in the dry tracts of Kenya. The present study has delimitied the study on a limited area in both countries. Financial and time constraints being foreseeable, the inves­tigator has selected only a manageable sample for analysis.

The operative period for various programmes in Kenya and India vary. In Kenya for example, Arid and Semi-Arid Land (ASAL) programme commenced in 1979, though some Arid and Semi-Arid Lands (ASAL) designated districts picked up the programme much later. In India on the other hand, programmes like Drought Prone Area programme (DPAP) and command Area Development Programme (CAD), and Desert Devel­opment Programme started during the Fourth Five Year Plan (1969-70 to 1973-74). This underscores a possibility of variance in the research findings. The findings, therefore, need to be generalised with caution. Added to this is the fact that some programmes are caution. Added to this is the fact that some programmes are initiated in 'Drought Prone Areas' for example Drought Prone Area programme (DPAP) of India, whereas some other programmes like the Arid and
Semi-Arid Land (ASAL) programme in Kenya are initiated not necessarily in drought prone areas, but in either Arid or semi-Arid tracts. The differences in Agro-ecological systems, may have direct bearings on the results of the study, consequently, limiting an overall generalisation.

DATA COLLECTION

TOOLS FOR DATA COLLECTION

An Interview schedule has been administered to collect the required data for the study.

SOURCES OF DATA

Data for the current study has also been obtained from various sources viz., plan documents, annual reports, ses- sional papers and other relevant publications. The Primary data has been obtained through personal interviews with the beneficiaries of the Drought Prone Area Programme and Arid and Semi-Arid Land Development (ASAL) Programme in India and Kenya respectively. Secondary data has been obtained from records at various levels. In the Indian case, data has been obtained at the District, Block and Village levels, whereas in the case of Kenya, the same has been obtained at
the District, Division and Locational/Sub-location levels. Through personal interview and discussion, more data has been generated from various implementing agencies of the two programmes at different levels.

REFERENCE PERIOD

The study has been confined to both Pre and Post Independence period of the respective Government initiatives, to the development of drought tracts of Kenya and India.

CONSTRUCTION OF TOOLS FOR DATA COLLECTION

Data for the current study has been classified broadly into two types i.e., primary data and secondary data. The former has been obtained from the grassroot respondents and also from the various programme field officers. Secondary data has been obtained at various levels viz; District, Division/Block, Location/Village levels. Added to these, other sources comprise of Agricultural colleges/institutions and Research institutes. Extension officers at various levels have provided valuable source of field data. Interview schedule administered at the grassroot level sought to obtain primary data.
A full description of the important tools used in the collection of relevant field/primary and documentary/secondary data is given below.

1. DISTRICT DATA SHEET

A district data sheet has been drawn up to obtain information on Administrative and socio-economic set up of the District. It consists of detailed questions on such items as number and names of Divisions/Blocks. Total area in square kilometres, land usage, rainfall, number and names of rivers, dams, etc. It also has questions on population, number of agricultural/non agricultural families, number and names of Divisions/Blocks electrified. Part II of the questionnaire consists of questions on Programme (ASAL/DPAP) design, initiation and implementation. Part III deals with questions specifically on Agriculture in the district.

Parts IV, V and VI comprise of questions pertaining to Irrigation, Livestock and Education respectively. Part VII deals with questions on Health.
2. DIVISION/BLOCK DATA SHEET

A Division/Block data sheet has been drawn up to obtain data on Administrative and Socio-economic aspects of the area. Detailed questions seek information on the total area of the Division/Block, number of locations/villages, land usage, rainfall, population, occupation - main/subsidiary, irrigation, livestock, education, health, co-operation and Industry. The main sources of information in this case are reports and records of the selected Divisions/Blocks. Assistance of the Divisional/Block staff officials has been sought in the process of getting the required information/data from the reports and records.

3. FARMER/NON-FARMER INTERVIEW SCHEDULE (GRASSROOT RESPONDENTS)

This marks the most important of all the devices employed in the current study. The schedule is divided broadly into seven sections. The first section (General) consists of identification items, viz; serial number, Division/Block, Location/Village, Religion and the name of the respondent. Personal Data is the subject matter of the second section. Sex, occupation, age marital status and family size of the respondent constitute key items in this
section. The third section deals with land particulars, major, minor, commercial and subsistence crops, cropping pattern, on-farm and off-farm activities and labour source. Sections four and five deal with irrigation and livestock respectively, whereas section six deals with the respondent's participation in respective development programmes. Section seven deals with education status of the respondent.

In order to discard unsuitable and irrelevant questions and answers, and also for further refinement of the interview schedule, it (schedule) has been subjected to pre-test before administering it.

**SAMPLING**

**KENYAN PERSPECTIVE**

As noted earlier, Drought Tracts in Kenya are subdivided into four Agro-ecological Zones (AEZ) vis-a-vis Agro-ecological zone iv, v, vi, and vii, on the basis of rainfall amount. There are 22 Drought Prone Districts classified or stratified into four namely A, B, C, and D strata on the basis of dryness. There are 6 Districts in stratum 'A' stated to be 100 per cent dry and constitutes Agro-ecological zones vi and vii. In stratum 'B' there are 5 Districts
stated to be 85-100% dry, and constitute Agro-ecological zones iv, v, and vi. In stratum 'C', there are 8 Districts stated to be 50-85% dry and comprise of Agro-ecological zones iv and v. In stratum 'D' there are 3 Districts stated to be 30-50% dry, and constitute Agro-ecological zone iv or v.

Operationally, Arid and Semi-Arid land (ASAL) Development Programme is currently in 2 districts in stratum A, 2 Districts in stratum B, 8 Districts (all) in stratum C and 1 District in stratum D.

In the selection of sample for the current study, the researcher has put into consideration the literal period of operation of Arid and Semi-Arid Land Development Programme for various Districts. Only Districts in which the programme has been in operation for a period of at least six years and above are considered suitable for study and analysis.

A multi-stage stratified mixed sampling design has been applied for the/current study, with a view to obtaining maximum representation of the varied physical and socio-economic conditions of the region and also the different
The first stage, consists of selection of Districts, in the second stage, selection of Divisions, in the third stage, selection of grassroot level respondent (Farmer/Non-farmer). The sample is thus stratified at four main administrative levels viz-a-viz, district, Division, Location/Sub-location (grassroot level respondents). Districts are also stratified and selected per stratum on the basis of their representativeness of the main Arid and Semi-Arid Land (ASAL) Agro-ecological zones (AEZ) iv, v, vi and vii.

Given below is a detailed description of the sampling procedure adopted.

**SAMPLE STAGE 1 : SELECTION OF DISTRICTS**

**STRATUM 'A' DISTRICT**

There are 6 Districts in this stratum namely Isiolo, Marsabit, Garissa, Mandera, Wajir and Turkana. Arid and Semi-Arid Land (ASAL) Development Programme is operational in only 2 Districts i.e, Isiolo and Turkana. The programme has been in operation in both Districts for the past 9 years. Turkana District is, however, purposively selected
in order to minimise travelling costs and also to save time on the part of the researcher.

**STRATUM 'B' DISTRICT**

There are 5 Districts in this stratum i.e, Kitui, Tana River, Taita Taveta, Kajiado and Samburu. Arid and Semi-Arid land (ASAL) programme is currently operational in only 2 Districts viz, Kitui and Kajiado. The programme has been in operation in Kitui District for 8 years as compared to only 2 years for Kajiado District. Going by the set criteria of selecting only districts in which the programme has been in operation for at least six years and above, Kajiado District is excluded from the sample and Kitui District is Purposively selected.

**STRATUM 'C DISTRICT**

There are 8 Districts in Stratum 'C and this constitutes the bulk of Districts in Arid and Semi-Arid Land (ASAL) Programme. The various Districts are Embu, Machakos, Meru, Kilifi, Kwale, Baringo, Laikipia and West Pokot. The programme is operational in all the eight Districts, though periods of operation vary from District(s) to District. In Kwale, Kilifi and Laikipia Districts, the programme has been
in operation for the past 5 years. By six-year minimal period of operation criteria, all the three Districts are eliminated from the sample. The programme has been in operation in Embu and Meru district for 9 years concurrently. For Machakos, Baringo and West Pokot Districts, the programme has been operating for the years 15, 10, and 8 respectively. Five Districts thus qualify for sample selection and West Pokot District is purposively selected due to its proximity to the researcher.

**STRATUM 'D' DISTRICT**

There are 3 districts in this stratum namely Lamu, Narok and Elgeyo Marakwet. Arid and Semi-Arid Lands (ASAL) Development Programme operates in only one District viz., Elgeyo Marakwet. The programme has been in operation for 7 years. The District is therefore purposively and unilaterally selected.

Four districts vis-a-vis Turkana, Kitui, West Pokot and Elgeyo Marakwet have, therefore, been selected for sample study and analysis.
SAMPLE STAGE II : SELECTION OF DIVISIONS/BLOCKS

In the stratified selected sample of 4 Districts, a random sample of 4 Divisions representing one Division per District has been drawn. The Divisions drawn are shown in the table below:

Table 2.1
DIVISIONS

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the District</th>
<th>Name of Division</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Elgeyo Marakwet</td>
<td>Northern</td>
</tr>
<tr>
<td>2.</td>
<td>West Pokot</td>
<td>Chepareria</td>
</tr>
<tr>
<td>3.</td>
<td>Kitui</td>
<td>Mutomo</td>
</tr>
<tr>
<td>4.</td>
<td>Turkana</td>
<td>Katilu</td>
</tr>
</tbody>
</table>

SAMPLE STAGE III SELECTION OF GRASS-ROOT LEVEL RESPONDENTS AT THE LOCATION/SUB-LOCATION LEVELS

Out of the four randomly selected Divisions, a total manageable sample of two hundred and forty respondents has been randomly drawn up representing sixty respondents per selected Division.
INDIAN PERSPECTIVE

As noted before, the problems of dry farming areas in India were brought into sharp focus after the onset of the 'Green Revolution'. The Rural Works Programme initiated in 1970-71 was a precursor to the Drought Prone Area Programme. Originally, 54 districts, spread over 13 states were selected for the implementation of Drought Prone Area Programme. The Programme now covers 74 districts.

SAMPLE STAGE I : SELECTION OF THE STATE

Drought Prone Area Programme is currently operable in 13 states in India. Tamil Nadu state being one of the states, it has been selected purposively to minimise travelling costs and to save time.

SAMPLE STAGE II : SELECTION OF DISTRICT

There are twenty districts in Tamil Nadu State, out of which, the Drought Prone Area Programme is operative in only four districts. The four districts are:
Pudukottai District has been purposively selected because of its accessibility to the researcher. However, it is also noted that UPAP has been in operation in the District for more than six years, commencing from 1982-83.

**SAMPLE STAGE III: SELECTION OF BLOCKS/DIVISIONS**

In the selected Pudukottai District, Drought Prone Area Programme is operational in only four blocks viz., Pudukottai, Thiruvarangulam, Gandarvakkottai and Karambakudi. Two blocks, namely, Pudukottai and Thiruvarangulam have been randomly selected for the present study.

**SAMPLE STAGE IV: SELECTION OF VILLAGE/LOCATIONS**

Out of the two randomly selected Blocks, three villages viz., Ichadi and Neppiyapatty in Pudukkottai Block and Kalandai Vinayakhar Kottai in Thiruvarangulam Block have also been randomly selected.
SAMPLE STAGE V: SELECTION OF GRASS-ROOT LEVEL RESPONDENTS

Out of the three randomly selected villages, a total sample of 60 respondents has been randomly drawn at the grassroot level.
CHAPTER - III