Summer Training at
Gujarat State Watershed Management Agency (GSWMA)
(April 16, 2012-June 16, 2012)

Study on Detailed Project Report (DPR), in Integrated Watershed Management Program (IWMP), Gujarat
&
Assessment of Capacity Building Program under IWMP
&
Study On The supply-chain of wheat (in agricultural) crop of rural areas of Gujarat

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Post Graduate Diploma in Rural Management
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Institute of Health Management Research,
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CERTIFICATE

This is to certify that Rittika Brahmachari has under gone summer training in **Gujarat State Watershed Management Agency (GSWMA)** from 16 April to 16 June, 2012.

The candidate carried out all the studies related to the summer training. Her approach to the studies has been sincere, scientific and analytical. This summer training in partial fulfilment of the course requirement is recommended for the award of Postgraduate Diploma in Rural Management.

I wish Her Success in all future endeavours.

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The candidate carried out all the studies related to the summer training. His approach to the studies has been sincere, scientific and analytical. This summer training in partial fulfilment of the course requirement is recommended for the award of Postgraduate Diploma in Rural Management.

I wish Him Success in all future endeavours.

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This is to certify that Megha Jhamb has under gone summer training in **Gujarat State Watershed Management Agency (GSWMA)** from 16 April to 16 June, 2012.

The candidate carried out all the studies related to the summer training. Her approach to the studies has been sincere, scientific and analytical. This summer training in partial fulfilment of the course requirement is recommended for the award of Postgraduate Diploma in Rural Management.

I wish Her Success in all future endeavours.

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MEGHA JHAMB
ABHISHEK GOYAL
RITTIKA BRAHMACHARI

TABLE OF CONTENT

(B) SECTION 2

Study on Detailed Project Report (DPR) in Integrated Watershed Management Program (IWMP), Gujarat

(C) SECTION-3

Study On The supply-chain of wheat (in agricultural) crop of rural areas of Gujarat.

ORGANISATION PROFILE

The Gujarat State Watershed Management Agency (GSWMA) has been formed to serve as a State Level Nodal Agency (SLNA) to undertake Integrated Watershed Management Programme (IWMP) in the state. It is registered under the Societies Registration Act, 1860 on 20.7.2007, as per G.R No. GVK/GSWMA/01/07/SFS-42/KH.2 dated 12.07.2007 issued by Government of Gujarat. GSWMA is a Non-Profit making organization managed by its Board of Governors which consists of Commissioner and Principal Secretary, Rural Development as the Chairperson along with senior officers from Government of Gujarat. The Executive team of GSWMA consists of: the CEO, a team of professional experts of different subjects like Finance, MIS, Capacity Building, Monitoring and Evaluation, Scientific Planning, etc, and other Administrative Staff. GSWMA is located at state capital Gandhinagar in the Old Secretariat. To carry out the IWMP at the district level, District Watershed Development Units (DWDUs) have been formed in all the 26 districts of Gujarat.

The organization structure of GSWMA is presented in a diagram below:

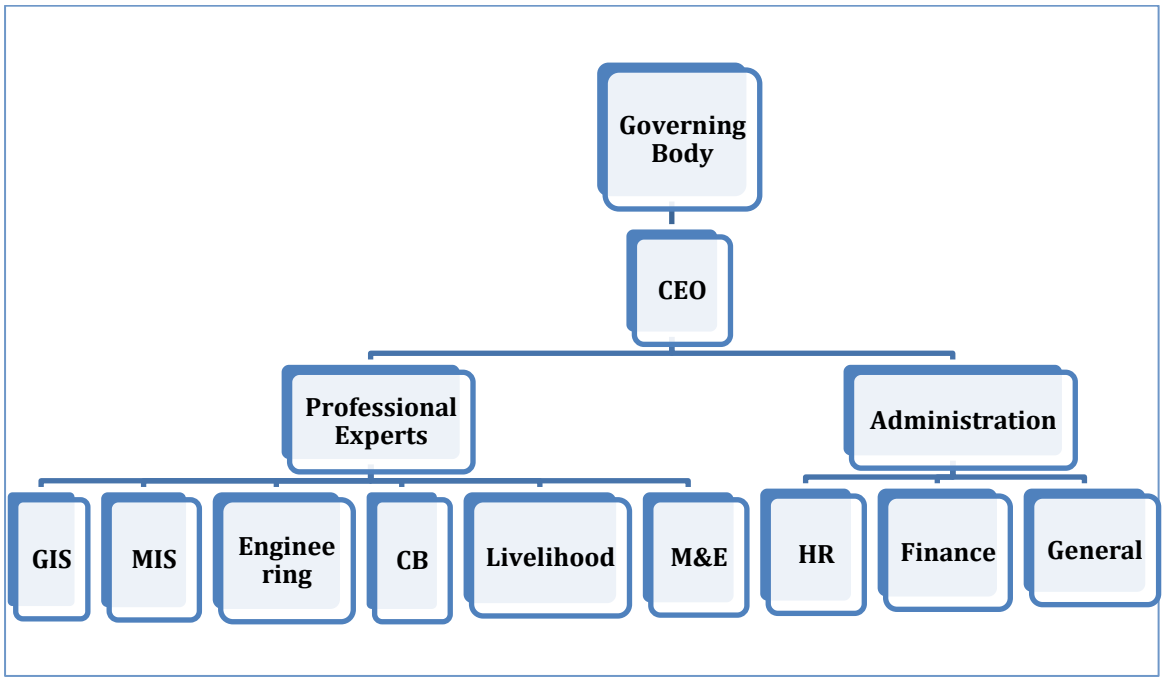

Figure no 1. Organogram of GSWMA

SECTION 1

Assessment of Capacity Building Program under Integrated Watershed Management Program (IWMP)

LIST OF ABBREVATIONS

GSWMA: Gujarat State Watershed Management Agency

AKRSP: Aga Khan Rural Support Programme (INDIA) AKRSP (I):

DWDUs: District Watershed Development Units

WDT: Watershed Development Team

WDP: Watershed Development Programme

DSC: Development Support Centre

KVK: KrishiVigyan Kendra

IWMP : Integrated Watershed Management Programme

MDT: Multi Disciplinary Team

SLNA: StateLevel Nodal Agency

UG : User Group

SHG : Self Help Group

TE : Technical Expert

NRM : Natural Resource Management

NGO : Non - Government Organization

GOI: Government Of Interest

ACC: Accountant

DEO: Data Entry Operator

SUR: Surveyor

CM : Community Mobilizer

Executive Summary

The Gujarat State Watershed Management Agency (GSWMA) has been formed to serve as a State Level Nodal Agency (SLNA) to undertake Integrated Watershed Management Programme (IWMP) in the state.The Government of Gujarat realized the importance of capacity building of all stakeholders inSuccessful implementation of watershed development and made considerable efforts towards it.List of training institutions were identified and approved by GSWMA. Out of all our study only restrict to one training institution named AKRSP (I), Sayla.

The Aga Khan Rural Support Programme (India), is a non denominational, non- government development organization. AKRSP (I) started its activities in 1984 in the state of Gujarat. As per our study, the overall objectives is assessment of training institute based upon the following criteria like Infrastructure, Resource person, Methodology of training, follow up and feedback process.

The approaches followed for the evaluation process were:

- Understanding the evolution of AKRSP (I), and its core competencies on training.
- Gathering perception and suggestion regarding training from the members of Watershed Development Team (WDT), who have undergone the training, from this training coordinator and also from the other stakeholders namely Multi Disciplinary Team (MDT), Project Director (PD)(District watershed development unit (DWDU),Junagadh and Surendranagar)
- Assessing the training contents and learning prospective provided to the trainees.
- Review of methodology adopted by AKRSP (I), and infrastructure facility.
- Review of feedback reports and summary reports.
- Review of follow up procedure.

Data collection was done by using scheduled (structured questionnaire) and open ended group discussion. Samples were selected from stratified random sampling, based upon designation and financial year. Strata were selected based upon the proximity.

The data thus collected from different stakeholders of watershed development, open discussion and observation made in the field have been processed and interpreted. Following are the findings of the study:

- The AKRSP possess adequate infrastructure and competent resource base for conducting the training program.
- There is an imperative need for making the field practice session of two weeks held in between the modules more effective and usefulness to the trainees.
- More focus should be given on demonstration method and on-field training.
- Resource persons should be invited from government officials as they have in-depth knowledge regarding watershed concepts.
- Reading materials should be given at the start of session.
- Proper follow up procedure should be adopted for sustainable result of training.
- Training program has to be scheduled on that time which will not hamper the daily routine.
- Regular review meetings should be conducted at State Level Nodal Agency (SLNA), with all the training institutions involved in training program to review the summary reports, analysis of areas requiring changes, to identify the gaps in the training content and methodology, and to identify the new training needs. `Based on the feedbacks of the various reviews and observations changes are made wherever needed.
- A suitable review and evaluation system has been developed to monitor the quality of the capacity building training programmes. In this regard, various formats have been developed to monitor the quality of the training programmes.
- Qualitative assessment has to be conducted regularly in the field by a team consisting members from various partner organizations.

Finally, we can say,A well designed participatory Capacity Building Program can go a long way in improving the efficiency and effectiveness of the Integrated Watershed Management Program,The Capacity Building Program needs to be strengthened by making it more participatory at management level,Capacity building strategy is to enhance the levels of participation & transparency in the watershed program, to mainstream the concern of equity and gender in watershed program.

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Chapter 1
Introduction

1.1 INTRODUCTION

The state of Gujarat is situated on the western side of India covering an area of 196,024 sq. km. It accounts for about six percent of the total geographical area of India and five percent of the population. The northern and western parts of the state have more rocky terrain but the central and southern regions hold soft alluvial soil on the surface. Finally, the coastal parts of Kutch and Saurashtra have limestone and related sedimentary deposits. There are no perennial rivers flowing through the major parts of the state like North Gujarat, Kutch and Saurashtra.

In Gujarat, 90 to 95 percent of the total annual rainfall is seen during the period from June to September, when the south-west monsoon prevails. But the level of rainfall varies from about 340 mm in the district of Kutch to about 1800 mm in the southern hills of Dangs and Bulsar. On an average, however, the main parts receive rainfall of about 800 mm. Nearly 20 percent of the area in 19 districts of the state is considered as drought prone.

Watershed Development refers to the conservation, regeneration and the judicious use of all the resources - natural (land, water, plants, and animals) and human - within a particular watershed.

Watershed Development Programme (WDP) is aimed at holistic and sustainable development of an area and its population based on conservation, management and development of the naturalresource base of the watershed. Watershed management tries to bring about the best possible balance in the environment between natural resources on the one side, and human and other living beings on the other.

A watershed is a geographical area drained by a stream or a system of connecting streams in which all the surface run-off originating due to atmospheric precipitation leaves the geographical limits in a concentrated flow through a single outlet.

The New Guideline, based on the technical report of the Parthasarathy Committee is very scientific and comprehensive; along with natural resource augmentation, it is also focussed on livelihoods.

Capacity Building is the process of assisting the group or individuals, organization and s ystem to identify and address issues and gain the insights, knowledge and experience n eeded to solve problems and implement change.

Capacity building is an ongoing process through which individuals, groups, organization s and society enhance their ability to identify and meet development challenges. A fundamental goal of capacity building is to enhance the ability to evaluate and addre ss the crucial questions related to policy choices and modes of implementation among develop ment options, based on an understanding of environment potentials and limits and of needs per ceived by the people of the country
Concerned (*Capacity Building - Agenda 21's definition (Chapter 37, UNCED, 1992)*

IMPORTANCE OF CAPACITY BUILDING IN IWMP

This holistic understanding only can ensure sustainability of the programme.
The most important way to achieve this is by keeping in place an organized capacity bu ilding programme. IWMP has been designed scientifically which demands right from bas eline survey to PRA survey and extensive useof GIS application at field level to freque nt and accurate monitoring. It requires manpower with relevant expertise and proper syst em in place. The manpower needs to be empowered adequately to carryout the activities r equired to perform IWMP. Hence,the capacity building of all those manpower assumes great er importance.

1.2 BACKGROUND

There has been a realization that to make watershed programmes truly participatory, there is a need to empower people through knowledge. The Technical Committee Report on Watershed Programmes headed by S. Parthasarthy states that more efforts are needed towards capacity building in order to ensure peoples' participation. There is a need for technical and legal empowerment which is possible through capacity building programs which can communicate in an easily understood language. There is also a need to develop a section of people who can absorb the findings of scientific research and implement them on field regularly and voluntarily. Common Guidelines for Watershed Development, 2008 by Government of India emphasises the need for effective capacity building and states that five percent of the total budget for IWMP is to be utilized for capacity building.

After the introduction of Common Guidelines for Watershed Development, 2008 by GoI, which outlines the project in detail, various stakeholders in IWMP have expressed the immediate and foremost need for capacity building in order to implement the project as per new guidelines. Capacity Building for IWMP involves training of various stakeholders in diverse topics such as agriculture, soil and moisture conservation, water harvesting and recharge structures, livelihood, community mobilisation, use of hi science tools such as Geographic Information Systems and Management Information System. A large number of organizations with expertise in specific areas can contribute towards the common goal of capacity building.

In order to ensure that various organisations identified for capacity building can work in coordination with each other and stakeholders, a commonly accepted process needs to be followed by all the stakeholders. Source of information regarding capacity building process in IWMP will guide all the stakeholders such as project managers, administrative staff, project team members, watershed committee members, village level stakeholders, NGOs and government organisations involved in implementation, research and extension, capacity building and academics. Continually new staff will be inducted into the IWMP projects each year. These persons will have to be oriented towards the participatory nature of IWMP and knowledge of specific disciplines will also be needed to be upgraded regularly. The capacity building manual will help in planning and conducting these trainings. Be inducted into the IWMP projects each year. These persons will have to be oriented towards the participatory nature of IWMP and knowledge of specific disciplines will also be needed to be upgraded regularly.

Watershed Development Programme is based on a combination of technical, managerial and social solutions. This requires human resource from different backgrounds ranging from remote sensing, GIS, and civil engineering to fields like rural management, agriculture, animal husbandry,
Dairy development, handicrafts, etc. All the specialists belonging to different fields should know the watershed concept as well as all other components. This holistic understanding only can ensure sustainability of the programme. The most important way to achieve this is by keeping in place an organized capacity building programme. IWMP has been designed scientifically which demands right from baseline survey to PRA survey and extensive use of GIS application at field level to frequent and accurate monitoring. It requires manpower with relevant expertise and proper system in place. The manpower

needs to be empowered adequately to carry out the activities required to perform IWMP. Hence, the capacity building of all those manpower assumes greater importance. Under IWMP programme, the project area has been prioritised and selected after a rigorous exercise applying scientific methods with GIS inputs. The profile of these project areas displays interesting patterns.

Under IWMP, there would be a professional team at the state level; each district would have a District Watershed Development Unit (DWDU) with a Multi Disciplinary Team consisting of 5-6 members and each project would have a separate dedicated multidisciplinary Watershed Development Team (WDT) consisting of 5-6 members.

There are different types of trainings given to the stakeholders like training program on scientific planning, survey and technical function, agriculture and allied activities, livelihood and enterprise promotion, project management, behavioural aspects, monitoring and evaluation (Annexure).

The training matrix has been developed to facilitate the project implementing agencies, nodal agencies and other concerned agencies/organizations could play a facilitating role to either conduct the relevant training programme themselves or get in conducted through eligible and competent training institutes, which comprises of agriculture universities, KrishiVigyan Kendra,Lead NGO's, Lead research organisations ,List of training institutes (Annexure).

1.3 OVERVIEW ABOUT TRAINING INSTITUTIONS

1.3 a) Development Support Centre (DSC):

Development Support Centre (DSC) provides knowledge-based support to NGOs, government agencies, and other stakeholders for Natural Resources Management(NRM). Its **aim** is to improve rural livelihoods through participatory management of natural resources such as land and water on which large number of rural population directly depends. Its main learning laboratory is the field. `

A well – equipped training hall, audio – visual room and well- maintained guest house with dining facilities ensure that trainings can be conducted with ease and comfort.

DSC conducts long (4 weeks) as well as short-duration (1 to 5 days) training programmes to increase the effectiveness of development managers, implementers and stakeholders in Watershed Development, Participatory Irrigation Management (PIM) and Agricultural Productivity Enhancement (Watershed Plus) Programmes. Research and Policy Advocacy also form the important critical components of DSC's activities.DSC also conducts specialised, short-duration workshops and trainings **.**DSC helps in capacity building of key functionaries in rural development, performs hand-holding operations in the field, takes initiatives for policy changes, and carries out field studies and research projects related to issues in policy and practice. DSC also implements NRM programmes with the main objective of creating "Learning laboratories" to obtain hands-on experience of the NRM programmes. And other three programmes, namely PIM, Watershed Development and Watershed Plus in about 145 villages of North, Central and Western Gujarat by setting up six field units.

1.3 b)Aga Khan Rural Support Programme (INDIA) AKRSP (I):

Aga Khan Rural Support Programme (INDIA){ AKRSP(I)} has set up AKRSP(I) Services, a training and capacity building unit ,to share the lessons learnt over the last 21 years with other stakeholders like the donors, government, bankers, NGOs and the rural community.

AKRSP (I) has a history of providing custom-based capacity building support to NGO's, government and donors and has collaboration with leading NGOs including ARAVALI in Rajasthan, DSC in Gujarat and APMAS in Andhra Pradesh.

AKRSP (I) has two major training centres: A)Tribal Livelihood Resource Center, Netrang and B) Water Centre, Sayla.

AKRSP(I) has developed a team of trainers, who conduct regular trainings on their area of expertise at this centre. Their experience in the field combined with their skill to train makes these trainings lucid and interesting and sometimes conducts trainings on gender sensitization, participatory approaches, community-based institutions, water management and watershed.

AKRSP(I) Services has provided training programmes for Government departments of Gujarat, mainly for senior officers and staff members of Irrigation Department, Forest Department, Land Development Corporation, Rural Development Department etc.and Officers and staff members of Regional Rural Banks, Nationalized Banks and NABARD and to otherCorporate houses such as Birla,, Copper, Powergen, Pentagon Charitable Trust

AKRSP(I) implemented Natural Resource Management through participation of Community in developing and managing Ground Water and Surface Water and Community Managed of Common Property Resources(Forestry, Ground water etc.) AKRSP (I) Services provides support not only to management of Enterprises and Micro Finance by the poor in general and women in particular but also to Micro Planning by village community (PRA).

1.3 C) KRISHI VIGYAN KENDRA :

The Government has established KrishiVigyanKendras (KVK) alias Agro Science Centres, across the country to meet the needs of an economy that rests heavily on agriculture. These Centres offer multiple services to the farming community, all aimed at improving the state of agriculture. The Government aspires to establish one centre in each district which is a challenging tall order. Therefore, in most cases it has established these centres through the existing Agricultural Universities. In Kodinar, on the insistence of the Government of Gujarat and the Junagadh Agricultural University ACF runs the KVK .

The establishment of the KrishiVigyan Kendra (KVK) at Kodinar has strengthened our agro-based livelihood programme. The objective of the KVK is to make new developments in technology readily available to farmers so as to build their capacity. The KVK team engages with the community through on and off campus training programmes, live demonstrations and on-farm research. Gaps in the technology available were identified through a participatory rural appraisal programme and baseline survey. Various technologies, crop varieties, cultivation techniques and integrated pest, disease and nutrient management methods were showcased at the demonstration farm in small pockets called “crop cafeteria. KVK also offers farmers on farm testing facility that can scientifically test and evaluate the farmer’s field and based on the results modify and adapt the technology to the specific conditions of the field.

Chapter 2
REVIEW OF LITERATURE

2.1 Review of literature:

Although much has been written about training needs assessment in relation to different training, there is disagreement concerning its impact on the training cycle and its potential to influence service delivery. Most of these trainings were concerned with the training of WDTstaff in more than one organisation and were classified as micro-level training needs analysis. Despite their smaller scale and more limited scope, micro-level training needs initiatives demonstrated greater methodological rigour, were more likely to consider the stakeholder perspective, to generate findings which could positively influence the rest of the training cycle.

Training need analysis Gould D, Kelly D, White I, Chidgey J in (2004) Training needs analysis is the initial step in a cyclical process which contributes to the overall training and educational strategy of staff in an organisation or a professional group or community. The cycle commences with a systematic consultation to identify the learning needs of the population considered, followed by course planning, delivery and evaluation.

Phillip C. Wright,(1992),Reports on a study of current and past training which suggests that, to be effective and to isolate both training needs and those problems having other, non-trainable solutions, training must be preceded by a needs analysis. Proposes a needs assessment model to illustrate an optimum needs assessment process, and compares this model with the Ontario Government'

Diarmuid De Faoite, Colette Henry, (2002) Discuss the importance of proving the effectiveness of training. Effectiveness is the primary motive for training. Describe ways to evaluate training's effectiveness, behaviour changes on the job being the most important. Defines an approach whereby individuals can see how they have changed and quantify the amount of change.

Diarmuid De Faoite, Colette Henry, Kate Johnston, Peter van der Sijde,(2003)A growing body of academic research has examined the effectiveness of entrepreneurship training and support initiatives, with recent studies focusing on the provision of training and other skills development opportunities. An important theme that has emerged from this work is the failure of many programmes and initiatives to take on board the particular needs of the entrepreneurs in developing training and support systems.

Kate Johnston, Peter van der Sijde, (2003)successfully measuring effectiveness in training and development can be a difficult task. Design of a valid measurement programmed should include

evaluation in key areas; including emotional reaction and knowledge gain measured after training interventions. Behavioural change and organisational impact measurements should be used on a longer time horizon to evaluate the progress and currency of the management development programme. Finally, research shows that maintaining a balance of the above measurements is the final key to success in measuring the effectiveness of training and development.

Sackett and Mullen, (1993) suggested a broader perspective on a variety of aspects of training process. The purpose of evaluation is to help organisations make decision about future training activities, and provide tools needed to assess the type of evaluation possible in a given situation, to conduct the most informative evaluation possible given the constraints of the situation, and to communicate to organisational decision makers both the strengths and the limitations of whatever evaluation data is obtained.

Kraigeret. al (1993) Proposed cognitive, skill-based and affective learning outcomes (relevant to training) and recommended potential evaluation measures. They integrated theory and research from a number of diverse disciplines and have provided a multidimensional perspective to learning outcomes and advanced the theory of training evaluation by providing a conceptually based scheme of learning constructs, measurement foci, and measurement techniques.

Lewis and Thornhill (1994)examined the relationship between training evaluation, organisational objectives, and organisational culture. Explicit recognition of organisational objectives linked to an integrated approach to training evaluation will certainly improve the effectiveness of evaluation. The absence of or ineffective practice of training evaluation within so many organisational is directly related to the nature of organisational culture.

Pearce (1995) Evaluation tends to be a neglected part of training. If it is considered at all, it is usually at a last stage in the training process. The absence of at least some evaluation can lead to an enormous waste of resources.

Mann and Robertson (1996) conducted a study in Europe to answer the question 'What should training evaluations evaluate?' They selected 29 subjects (10 female and 19 male) from a three-day training seminar for European nationals run in Geneva. The results showed that the trainees did learn from the training sessions and, although they did not retain all they learned, they did know more one month after training than they did before training. They recommended that an effective way for practitioners to evaluate training is to measure self-efficacy regarding the trained tasks, immediately after training.

Saxena (1997) undertook a study on the role of evaluation of training in designing training programmes in institutions of government, private, public and banking sectors. A total of 100 training and development programme participants were selected randomly by the investigator. They represented the four clusters: (1) Government training institutions, (2) HRD centres of private sectors, (3) HRD centres of public sectors, and (4) Training institutions of banks. Data were collected by administering the questionnaires. In addition, structured and unstructured interviews were conducted by the investigator with both the top managers of training institutions and the trainees. It was found that:

1. The institutions and HRD centres defined the scope of training evaluation from trainee's development level to the organisational effectiveness level;

2. The training institutions were very clear about the purpose of evaluating the training programmes;

3. Lack of adequate evaluation methodology', 'lack of expertise' and 'fear of exposure to weaknesses' were cited as the constraints for obtaining and collecting evaluation data;

4. 'Overall impact on the performance of organisations', 'change in skills and attitudes of trainees', and 'quality of subject matter in courses' were cited as the most important indicators of course effectiveness;

5. Training institutions concentrated their evaluation efforts mostly on reaction and learning levels; and

6. Training institutions and HRD centres were found to have plans to improve the courses by effective evaluation procedures.

Chapter-3
OBJECTIVE

OBJECTIVE OF THE STUDY

Major objectives:

- Assessment of Basic state of training institute on following criteria
- Infrastructure
- Human resource (trainer)
- Methodology of training
- follow up and feedback process

Sub objectives:

- Assessment of basic state of resources for training programme on following criteria

✓ To understand the process of training need assessment.
✓ To identify the resource person (in-house/outsource)

- Assessment of Training methodology adopted by training institute on following criteria:

✓ Review on types of method they use in classroom training.
✓ Focus on type of on-field training they adopt.
✓ Review of number of workshops/seminar they had conducted.
✓ To understand the role of training coordinator.
✓ Review of course material.

- Review of feedback reports of the participants.

Chapter 4
RESEARCH METHODOLOGY

4. METHODOLOGY:

4.1FRAMEWORK FOR ASSESSMENT

The framework outlined here was developed following an extensive review of the literature on capacity-building evaluation and the impact of educational training. The framework described aims to elucidate and substantiate the linkages between the training provided and the intended or observed benefits, thus facilitating the attribution of benefits to specific capacity-building investments.

Figure no.2, framework for assessement

4.2The Impact Assessment Processes adopted:

- Collection of data about the content, course duration, training methodology, from the training coordinator through structured questionnaire.

- Collection of primary data through discussions with the members of WDTs, Taluka level MDTs from the stratified randomly selected members who have undergone training in the sample districts selected by using structured questionnaire.

  Discussion with officials of District watershed development unit (project director) and technical expert, of watershed development works in the sample districts.
- Study and review of raining reports, feedback reports of the participants , and the pre and post training evaluation formats.
  - Review of infrastructure available for conducting the training.
  - Classification and analysis of data collected for meaningful deduction towards the objectives of the impact assessment.
- Debriefing on the major findings and recommendations to get feedback.

4.3SAMPLING METHOD AND PROCEDURE

Sample size: Total Talukas of Surendnagar and Junagadh
Sample unit: In Jungadh 3 Taluka ,InSurendnagar 9 Taluka
Sample technique: Stratified random sampling
Sample Design: Descriptive
Tools: Questionnaire

As the evaluation process covered only AKRSP SAYLA, Surendranagar the Taluka's were shortlisted under the districts by Stratified Random Sampling on the basis of financial year and designation.

In AKRSP SAYLA, They have only two district assigned as per the rules and regulations of GSWMA. One of the districts is JUNAGADH and another one is SURENDRANAGAR. In Junagadh, Integrated watershed management program works on 6 Taluka, Based upon the proximity 3 Taluka were selected, details shown here:

Total Taluka under IWMP	Selected Taluka for assessment(3 strata)	Total number of IWMP projects	Total no. of WDT members	Selected WDT members from random sampling.
Junagadh	Junagadh	2 (IWMP6, IWMP8)	12	1 (CM)
Keshod	Keshod	3(IWMP4,IWMP10, IWMP16)	18	5(DEO, SUR, ACC, CM)

Una				
Talala				
Mendarda	Mendarda	3(IWMP4,IWMP10, IWMP16)	18	3
Visavadar				
Total			48	9(20%)

Table no.1 stratified random samples (junagadh)

In Surendranagar, Integrated watershed management program works on 9 Taluka, Based upon the proximity,3Taluka were selected, details shown here:

Total Taluka under IWMP	Selected Taluka for assessment(3 strata)	Total number of IWMP projects	Total no. of WDT members	Selected WDT members from random sampling.
Chotila				
Sayla				
Limbdi	Limbdi	IWMP 11, IWMP 3	11	2 (DEO, AGRI)
Wadhwan	Wadhwan	IWMP 4	4	1(ACC)
Chuda				
Surendranagar				
Muli				
Dhrangadhra	Dhrangadhra	IWMP 7, IWMP 14	12	2 (ENG,CM)
Patdi				
Total - 3	3	5	27	5(20%)

Table no.2 stratified random samples (surendranagar)

4.4Design and the Evaluation Approach

The process of evaluation requires adequate and valid data to be interpreted with technical, social, economical and environmental background. Most importantly it should be unbiased, in the sense that the evaluators as well as the receivers of the evaluation report clearly understand and perceive it as such. However, this depends upon the nature of the activity to be evaluated and the feasible methods of data collection subject to the constraints of time, effort and cost involved. Thus an evaluation process is quite complicated that it cannot meet the full demand of justification, and it has to be accepted only at a certain level of aggregation. Hence, evaluation report irrespective of its methodology is beyond criticism. As such, it becomes necessary to have some discussions about the justification for selecting a particular methodology. With this approach, the impact assessment of capacity building program is attempted here, within a short span of thirty days. Evaluation is

based on the results from a number of measurement techniques. The most frequently used of these techniques which are mostly qualitative as well as quantitative processes.

CHAPTER 5
DATA ANALYSIS AND OBSERVATIONS

DATA ANALYSIS AND OBSERVATIONS MADE:

5.1 a) TRAINEE'S

Based on the perceptions and the feel factor of trained WDT members (sample) and its usefulness in watershed development are analysed with respect to the important aspects of capacity building program are detailed below:

1. ***Overall Rating of effectiveness/usefulness regarding methodology as perceived by the respondents.(total respondents = 10)***

PARAMETERS ⇨ RATING ⇩	Training Demonstration	Practical exercise	Resource handouts
Good	8	10	6
Adequate	2	0	4
Poor	0	0	0

Table no.3

As, the rating on practical exercise is high compared to others, this concludes the effectiveness/ usefulness of practical exercise is better than any other. Hence every methodology should promote more emphasis on practical activity. Other than this, demonstration is also effective in learning process, because here participants are learning by doing.

2. **Course material feedback:**

Table no.1 :

Parameters	**No. of respondents** **1 2 3 4 5 6 (Rating)**
Clarified the objectives of the course	3.83
Course length was adequate and easy to follow	3.91
The material was clearly written	3.91
The material was helpful for learning	3.75
The language was comfortable	4.16
The course material was easy to understand	4.25

Table no.4

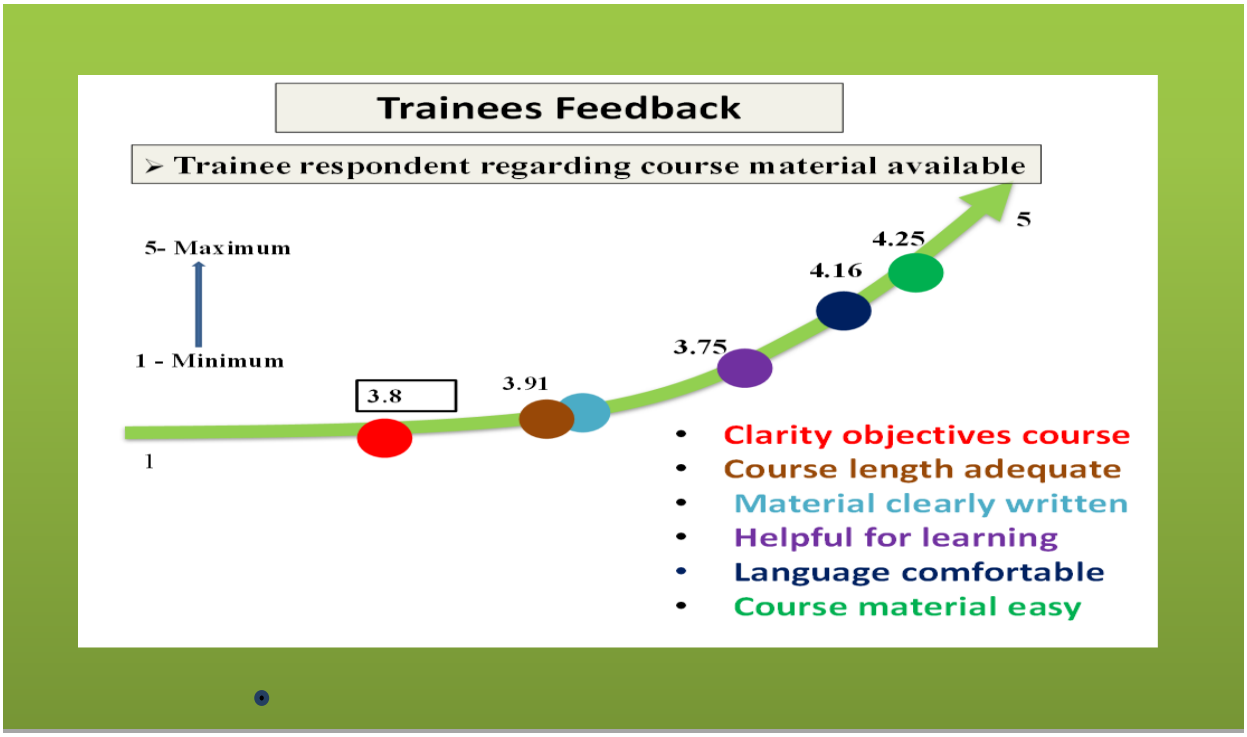


Figure no.3

From the table no.1 we conclude that average grading is:

- 3.80regarding clarity of the objectives of the course.
- 3.91 regarding the length of course was adequate and the material was clearly written.
- 3.75 regarding the material was helpful in learning.
- 4.16 regarding the language was comfortable.
- 4.25 regarding the material was easy to understand.

We can conclude thaton a scale of 1 to 5 the overall rating towards the course material is 3.97, which could be consider good.

- **Utility of Training Material provided:**

Normally the longevity of the training materials in many of the training programmes will be up to the training duration only. Most of such training programmes were mainly to sensitize the participant awareness on the subjects trained. But, the training material both as print materials and as CD/Video to the WDT participants did not follow the trend mentioned above.

- **Duration of providing reading material:**

About 50% of the respondents (6 out of 12) suggest that the training materials were provided before the session and 33% of the respondents (4 out of 12) recommend that if the training materials were given during the session it will useful for them and also 16% of the respondents said it is better to provide reading materials at the end of the session.

- **Use of reading material after the training:**

42% of respondent (5 out of 12) replied they referred the reading materials only once after the completion of training because of lack of time, high volume they are not easy to carry everywhere so that in free time they can refer while Maximum respondents (50%) said, they referred the materials more than twice during the practical implementation which has benefited them a lot, and around 8.33% percent (1 out of 12) of the respondents referred the materials more than once.

3. TRAINER FEEDBACK

As per the perceived feedback of trainers

Table no.5

Parameters	**No. of respondents** **1 2 3 4 5 (rating)**
The instructor was knowledgeable on the subject	4.33
The presentations were well organized	4
The instructor made the course interesting	4.41
The explanations were clear	3.66
The instructor has covered the course´s objectives	3.83

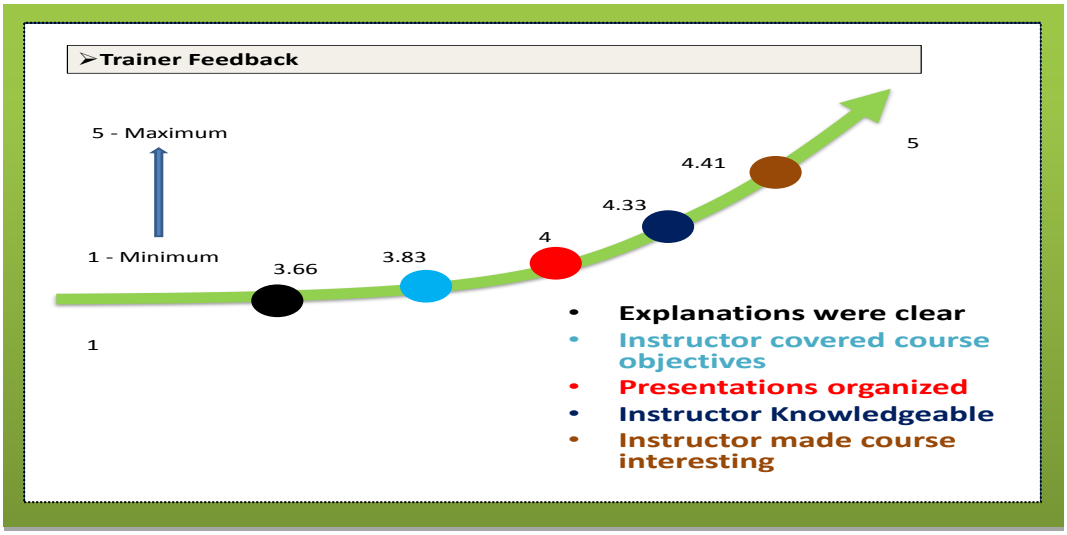


Figure no.4

From the above table no.5 that average grading is:

- 3.80 regarding instructor had covered the course objectives.
- 4.00 regarding for the presentations were well organized.
- 4.41regarding the instructor made the course interesting
- 3.66 regarding the explanations were clear.
- 4..41trainees regarding the instructor had covered the course objectives.

We can conclude thaton a scale of 1 to 5 the overall rating towards the course material is 3.97, which could be consider good.

5.1b) TECHNICAL EXPERT (TE) AND MULTI DISCIPLINARY TEAM (MDT):

Based on the perceptions and observation of TE and MDT members, the data's are analysed with respect to the important aspects of capacity building program are detailed below:

Based on the knowledge skill and attitude model, the need of training was analysed at each level of stakeholders. The table showed the following details

KSA MODEL for Technical Expert Respondents: 5

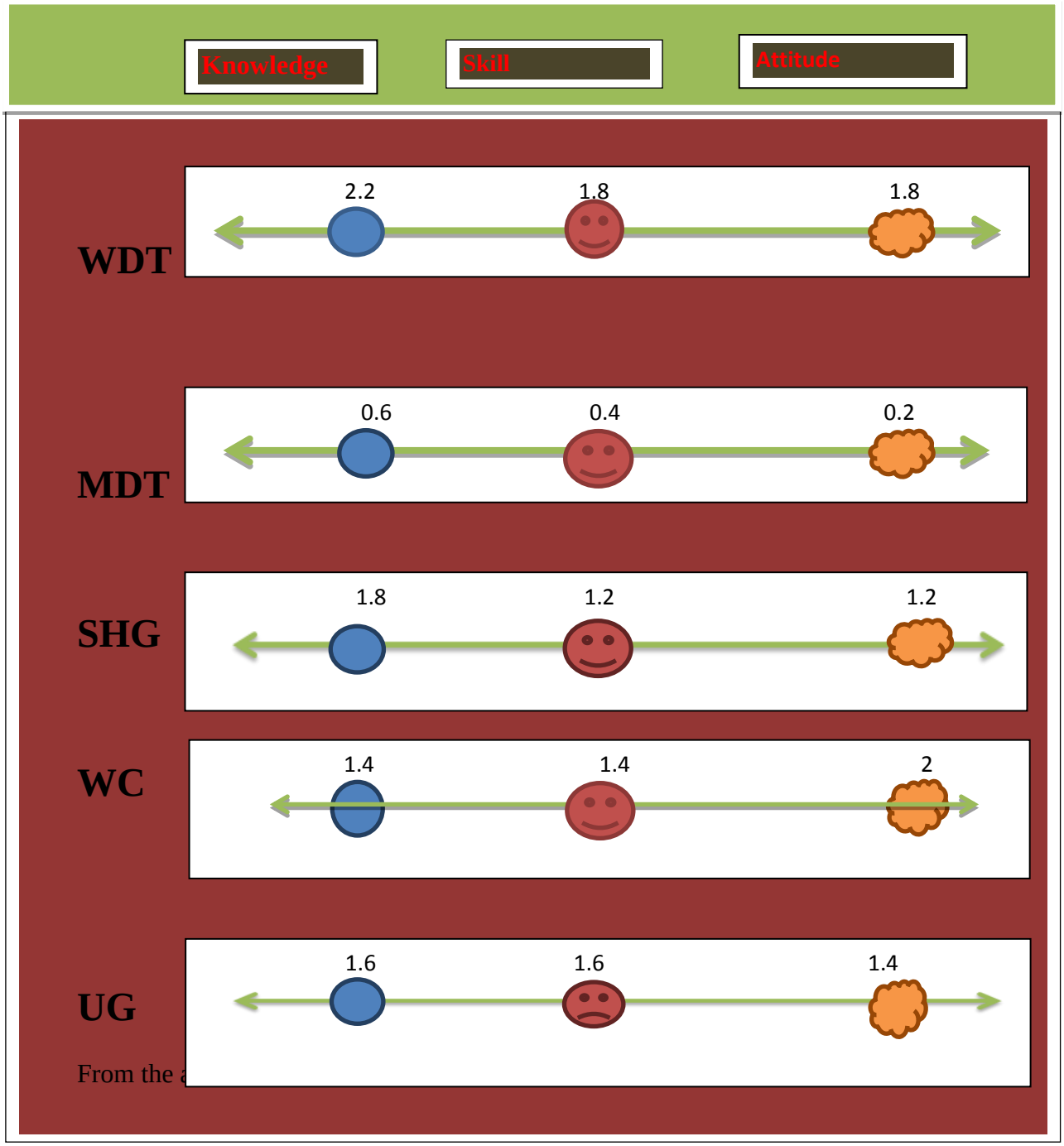
Table no.6:

Stakeholders ⇨ / Parameters ⇩	**Multi disciplinary team (MDT)**	**Watershed development team (WDT)**	**Self help group (SHG)**	**Watershed committee (WC)**	**User group (UG)**
Knowledge	2.2	0.6	1.8	1.4	1.6
Skill	1.8	0.4	1.2	1.4	1.6
Attitude	1.8	0.2	1.2	2	1.4

Rating Scale:

Low	1
Medium	2
High	3

figure no. 7



From the a

- Regarding WDT and WC, MDT respondent signified that WDT members should have equal share of knowledge, skills and attitude.
- For Self help group (SHG), The highest rating is given to knowledge i.e. 1.8 hence there would be an important need of skill and attitude- behavioural based training for SHG.
- For User Group (UG), the lowest rating is given to Attitude i.e. 1.42, which throws light on the need of having effective training to enhance knowledge and skill based aspect of UG.

KSA MODEL for MDT **Respondent :14**

Table no.4:

Stakeholders ⇨ / Parameters ⇩	**Watershed Development Team (WDT)**	**Self Help group (SHG)**	**Watershed committee (WC)**	**User group (UG)**
Knowledge	1.92	2.42	2.07	2.35
Skill	2.00	1.71	1.35	1.85
attitude	1.8	1.35	1.71	1.42

Rating Scale:

Low	1
Medium	2
High	3

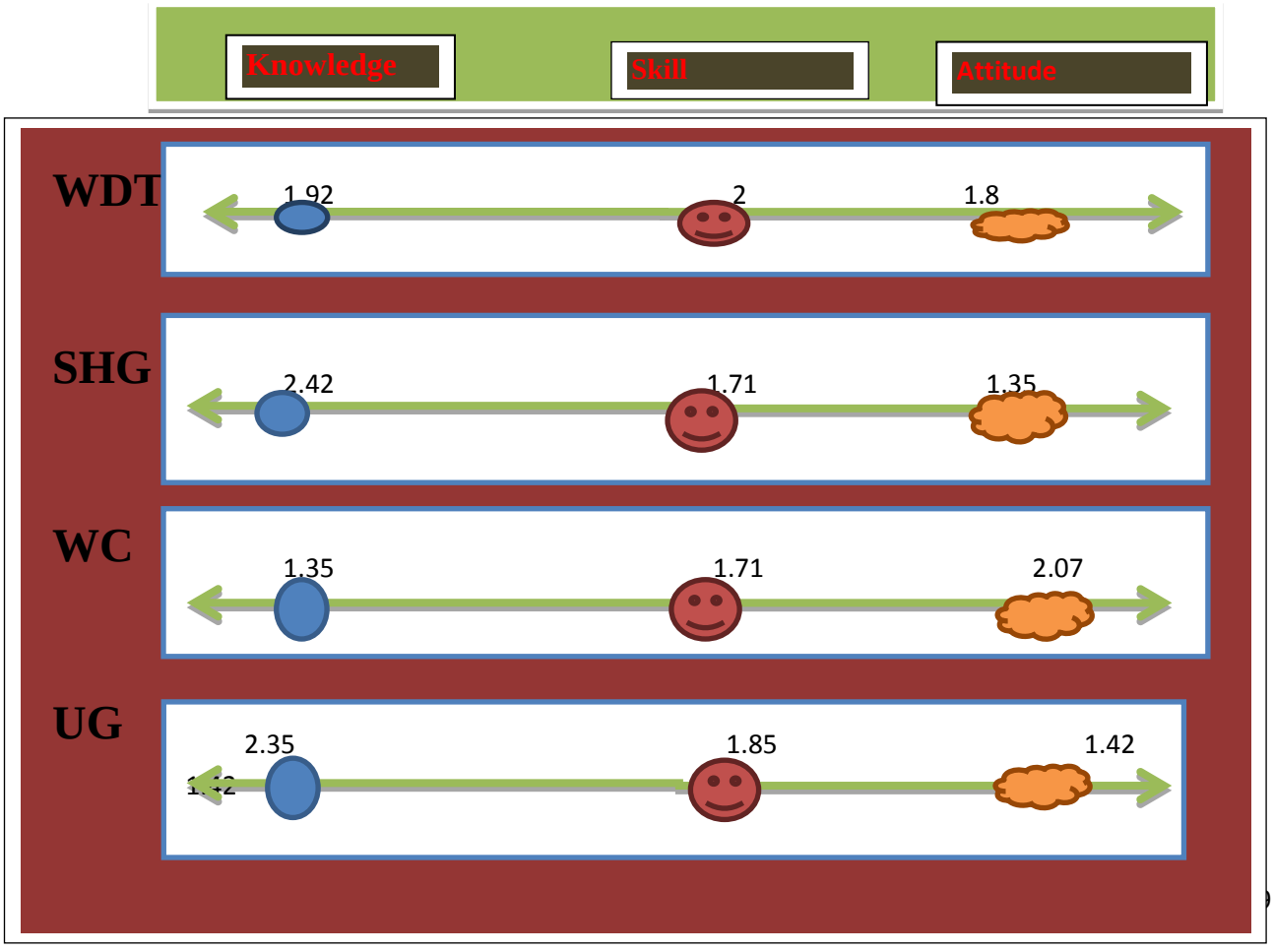


Figure no. 7

From the above table we conclude that:

- Regarding WDT and WC, MDT respondent signified that WDT members should have equal share of knowledge, skills and attitude.
- For Self help group (SHG), the highest rating is given to knowledge i.e. 2.42 hence there would be an important need of attitude- behavioural based training for SHG.
- For User Group (UG), the lowest rating is given to Attitude i.e. 1.42,which throws light on the need of having effective training to enhance Attitude based aspect of UG.

FOLLOW UP ANALYSIS:

For sustainable training program, there must be follow up procedure in operation, which did not existing in practical situation. The type of follow up process rated maximum was on-field follow up. And the favourable duration for this is after one month of training. For successful implementation of project, for identification of new ideas regarding training needs follow procedure is must. Every institute, which are giving trainings, should adopt the follow up procedure.

SATISFACTION LEVEL:

As per the feel factor and experience in practical implementation, out of 16 respondents 11 has given rating in yes, they are satisfied. And remaining 5 has given rating in No, they are not satisfied regarding some parameters.

Reason for those **who are** satisfied-

- ✓ Quality training provided.
- ✓ Institutions staff is supportive.
- ✓ Innovative approaches followed in methodology.
- ✓ Proper food and accommodation facility.
- ✓ Expert resource person
- ✓ Interactive sessions
- ✓ Reading material is helpful in learning.

Reason for those **who are not** satisfied-

- ✓ More emphasis should be given on practical (on field) sessions instead of classroom training.
- ✓ Sometimes training content doesn't match with the training topics.
- ✓ New updated regarding IWMP, should also include in the training content.
- ✓ Resource persons are always same.
- ✓ Sometimes training schedule becomes hurdle in work; it should be designed in such a way, which will not hamper our daily work on field.

How to enrich the training program?

The suggestions and recommendations from respondents had shown very nice inference for effective training in future:

- ✓ One of the most important parameter which needs to be focused is time to time assessment/ monitoring process.
- ✓ Resource person should be invited from government officials of watershed project because they have more in-depth practical experience and knowledge about the topic, (for example Project directors and other officials)
- ✓ In training methodology more emphasis should be given to practical sessions and demonstrations (learning by doing)
- ✓ Training duration has to be increased for example; training of trainers should be increased from 4 days to 10 days.
- ✓ Training content, topics and schedule need to be revised from time to time as per the need and observation at ground level performance.
- ✓ More training has to be organised for village level staff's like watershed committee and user group, because they are directly doing the work, they are the primary respondents for successful implementation of project.

6.1 c) PROJECT DIRECTOR FEEDACK:

- Not satisfied with the training content: Syllabus of BTC training was poor and the sequence of the reading material was not properly organised , irregular page no,no index ,fonts size are different.
- Stakeholders were doing PRA well and actively participated.
- Stakeholders were not able to handle the conflict.
- The reading material should be given at the starting session.
- Training should schedule initially so that they could not interfere our working days.

- Resource person has to be invite from government officials, as they have in-depth understanding of each and every topic in watershed concept.

Chapter 6
FINDINGS AND DISCUSSION

6.FINDINGS:

The findings include measurements onmethodology process, ,infrastructure facility, resource person, follow –up and feedback of various capacity building institutions viz. DSC ,AKRSP, KVK. A questionnaire was designed and administerd to trainees, Project Director, MDT, TE, for the assessment of capacity building institutions,(Annexure)

Training institutions:

6.1 AKRSP *Sayla*

6.1 a) Infrastructure Facility:

In AKRSP SAYLA, There was an excellent facility for fooding and accommodation and the charges are the according to the norms and procedures, A well equipped training hall, audio visual room and well maintained guest house with dining facilities ensure that trainings can be conducted with ease and comfort. The guest house has 12 twin sharing rooms, which can accommodate 24 participants and two dormitories, which can house 20 participants, therefore arranging for big group is possible.(For details see annexure)

6.1 b) Resource person:

and sometimes they invite expert from outside as per the requirement.AKRSP (I) has developed a team of trainers, who conduct regular trainings on their area of expertise at this centre. Their expertise in field combined with their skill to train makes these trainings lucid and interesting. They have mainly internal resource person

6.1 c) Reading material:

The training material was provided to the participants after the training i.e. at the end of the session in the form of module,booklet,CD/DVD and pamphlets.The quality of training material was good. The theories are linked with practical examples with the help of case studies etc.

6.1 Training Need Assessment (TNA):

Training need assessment is a critical activity before designing a training program. A kind of test (pre test and post test) has been conducted with the proposed stakeholders and the results can be used to modify the training module.

6.1 d) Methodology adopted

AKRSP conduct:

A) Class room training in which they consider Lecture method, presentation method,Audio –visual method, Brain storming method,Group discussion,games and simulation,case study and role play.

B) On field training type: They consider exposure visit and demonstrations like sprinkler, drip irrigation, farm bund, landlevelling and roof water harvesting.

C) Workshop and seminar: Under this yet they have conducted four workshops upon the topics new and common guidelines of watershed ,IWMP project vision building and on current issue based.

6.1 e) Feedback:

The parameters considered for feedback from the respondents are:

1. Structure of course. 2. Course material 3. Teaching Faculty. 4. Practical Session 5. Food Quality Logging Facilities 6.Interaction with Faculty 7. Usefulness of course 8. Overall Impression. Based on these parameters they do the overall analysis and if required they change their policies and decisions. After the analysis they send the report to prospective DWDU. (For details see Annexure)

6.1 f) Follow up:

Follow up process needs to conduct within a week after the training completed, and sometimes due to limitation of time it can be done after a month also to understand the new training needs. At present AKRSP is not doing any follow up activities. This need to be focus for better future prospective.

6.2 Krishi Vigyan Kendra (KVK), *kodinar*:

6.2 a) Infrastructure Facility:

There was a facility for fooding and accomodation and the charges are the according to the norms and procedures.

6.2 b) Methodology:

KVK conduct:

A) Class room training: They consider Lecture method, presentation method, Audio –visual method, Brain storming method, Group discussion, games and simulation, case study and role play.

B) On field training type: They consider exposure visit and demonstrations like vermin composting , different varieties of crop so that the farmer choose the best varieties of crop.

C) Workshop and seminar: Under this yet they have conducted four workshops upon the topics new and common guideline, IWMP project vision building and on current issue based.

`6.2 c) Feedback:

The parameters considered for feedback from the respondents are:

1. Structure of course. 2. Course material 3. Teaching Faculty. 4. Practical Session 5. Food Quality / Logging Facilities 6.Interaction with Faculty 7. Usefulness of course 8. Overall Impression. Based on these parameters they do the overall analysis and if required they change their policies and decisions. After the analysis they send the report to prospective DWDU. (For details see Annexure)

6.2 d) Follow up:

Follow up process needs to conduct within a week after the training completed, and sometimes due to limitation of time it can be done after a month also to understand the new training needs. At present AKRSP is not doing any follow up activities. This need to be focussed for better future perspective.

Chapter-7

Conclusion

CONCLUSION

Main objectives of capacity building strategy is to enhance the levels of participation & transparency in the watershed program, to mainstream the concern of equity and gender in watershed program and also to increase the effectiveness of key stakeholders in facilitating participatory process in the watershed program.

Aga khan rural support program (AKRSP), has been conducting custom-based capacity building support to NGO's, government and donors agencies. AKRSP has developed a team of trainers, who conduct regular trainings on their area of expertise at this centre. Their experience in the field combined with their skill to train makes these trainings lucid and interesting and they sometimes conducts trainings on gender sensitization, participatory approaches, community-based institutions, water management and watershed

As per the findings of the study, WDTs have gained adequate relevant knowledge on the subject and skill as well as attitude and behaviour required for successful implementation of watershed development programme. The state government has to bring out required policy changes and enforce monitoring and periodical reviews of the quality and progress of watershed programme, in order to create a significant impact.

A well designed participatory Capacity Building programme can go a long way in improving the efficiency and effectiveness of the Integrated Watershed Management Programme. It is evident from the difference between pre-IWMP and IWMP project implementation. The functionaries at the grass-root level are well aware about the programme objectives and future plans. Proper monitoring and evaluation system should be incorporated by State Level Nodal Agency (SLNA), to ensure more effective results in this regard Regular review meeting has to be done with all the training institutions, resource persons should invited from the same District watershed management unit (DWDU), government official as they have in depth practical knowledge regarding watershed concepts. The modules and methods can be redesigned by involving all stakeholders in light of the above findings. Training need analysis should be done before one week of training period, so that the module design, selection of resource person was modified as per the need of trainees.

However, the Capacity Building Programme needs to be strengthened by making it more participatory at management level.

Chapter 8
RECOMMENDATIONS

RECOMMENDATIONS:

Based on the findings in the various institutions of Gujarat state, it was identified that some issues which need attention of the stakeholders as well as the training institutes under Integrated Watershed Management Programme (IWMP) The emerging issues and the recommendations are as follows:

- Course material should be give before the session not during or at the end of the session.
- Training need assessment should be done before 15 days so that training module can be design as per the result of TNA.
- The course material should be collaborated with self help exercises because self help exercises help in motivating trainee learning and has to be restructured as per the follow up process.
- Monthly Review meeting should be done between GWSMA and Capacity Building Institutions to reduce the communication gap.
- Training programs should schedule in such a way, which will not hamper the daily office and field work of stakeholders.
- More emphasis should be given to practical exercise and demonstration because in that, participants will learn the concepts by doing.
- One of the most important parameter which needs to be focused is time to time assessment/ monitoring process.
- Resource person should be invited from government officials of watershed project because they have more in-depth practical experience and knowledge about the topic, (for example Project directors and other officials)
- Training content, topics and schedule need to be revised from time to time as per the need and observation at ground level performance.
- More training has to be organised for village level staff's like watershed committee and user group, because they are directly doing the work, they are the primary respondents for successful implementation of project.

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ANNEXURE

Annexure 1: **QUESTIONNAIRE**

❖ FOR PROJECT DIRECTOR

Name of the project: _____

District: _____

Q1. What you think the need of capacity building program and its importance?

a) For successful implementation of the project.
b) For sustainability
c) For enhancement of knowledge and skills
d) Effectiveness in performance
e) All of the above

If any other, please explain _____

Q2. Please rate the following as high, medium, low.

The need of training at each level as per the KSA model

stakeholders ⇨ / Parameters ⇩	Technical expert(TE)	Multi disciplinary team (MDT)	Watershed development team (WDT)	Self help group (SHG)	Watershed committee (WC)
Knowledge					
Skill					
attitude					

Q3. Have you ever feel the importance of follow up procedure after the trainings?

_____

Q4. Are you satisfied with the trainings given or the overall training content and procedure?

If yes, please explain

_____

If no, please add your suggestion

_____

Q5. Can you please suggest us some more things, which will definitely enrich the training program?

_____

❖ FOR TECHNICAL EXPERT/ MULTI DISCIPLINARY TEAM:

PERSONAL DETAILS

Name: _____

Age:

a) below 25
b) 25-35
c) 35-45
d) Above 45

Gender:

a) Male b) Female

Educational qualification:

Diploma

Degree

Post graduate qualification

Other, specify

WORK PROFILE

Name of the project: _____

Designation: _____

Experience : _____

District: _____

Work: _____

Q1. What you think the need of capacity building program and its importance?

f) For successful implementation of the project.
g) For sustainability
h) For enhancement of knowledge and skills
i) Effectiveness in performance
j) All of the above

If any other, please explain _____

Q2. Please rate the following as high, medium, low.

The need of training at each level as per the KSA model.

stakeholders ⇨ / Parameters ⇩	Multi disciplinary team (MDT)	Watershed development team (WDT)	Self help group (SHG)	Watershed committee (WC)	User group (UG)
Knowledge					
Skill					
attitude					

Q3. Have you ever feel the importance of follow up procedure after the trainings?

_____

_____

Q4. Are you satisfied with the trainings given or the overall training content and procedure?

If yes, please explain

_____

_____

If no, please add your suggestion

_____

_____

Q5. Can you please suggest us some more things, which will definitely enrich the training program?

_____

_____

❖ FOR TRAINEES

PERSONAL DETAILS

Name: _____

Age:

a) below 25
b) 25-35
c) 35-45
d) Above 45

Gender:

a) Male b) Female

Educational qualification:

Primary	
Secondary	
Higher secondary	
Diploma	
Degree	
Post graduate qualification	
Other, specify	

WORK PROFILE

Name of the project: _____

Designation: _____

Experience _____

Village: _____

Block: _____

Work _____

Name of the training institute: _____.

Name of the last training course undergone: _____.

Q1. What you think the need of capacity building program and its importance?

- For successful implementation of the project.
- For sustainability
- For enhancement of knowledge and skills
- Effectiveness in performance
- All of the above

If any other, please explain_____

Q2. How many trainings you have attended yet?

Upon which topic, please specify

_____

Q3. The training exercises given were:

☐ Fair enough ☐ Too tough ☐ Too easy

Q4. The amount of training exercises was:

☐ Sufficient ☐ Inadequate ☐ Too many

Q5. Training session was interactive:

☐ Strongly agree ☐ Agree ☐ Moderate

☐ Disagree ☐ Strongly disagree

Q6. Are you able to make practical implementation of what you learned during the training period?

☐ Yes ☐ Not satisfactory ☐ Need guidance

COURSE MATERIAL

OVERALL COURSE GRADE

1 2 3 4 5

MINIMUM MAXIMUM

Q7.

Clarity of the objectives course	☆☆☆☆☆
The course length is adequate and the pace easy to follow	☆☆☆☆☆
The material was clearly written	☆☆☆☆☆
The material was helpful for learning	☆☆☆☆☆
The language is comfortable	☆☆☆☆☆
The course material that was provided is easy to understand	☆☆☆☆☆

Q8. What you think suitable time for providing course material?

☐ Before the session ☐ During the session ☐ End of the session

Q9. How many times after the training you preferred the reading materials:

a) Only once b)Two times c) Many times

TRAINER FEEDBACK

OVERALL GRADE

1 2 3 4 5

MINIMUM → MAXIMUM

Q10.

The instructor was knowledgeable on the subject	☆☆☆☆☆
The presentations were well organized	☆☆☆☆☆

The instructor made the course interesting	☆ ☆ ☆ ☆ ☆
The explanations were clear	☆ ☆ ☆ ☆ ☆
The instructor has covered the course´s objectives	☆ ☆ ☆ ☆ ☆

Q11. Was the trainer punctual and regular?

☐ Yes, always ☐ Sometimes ☐ Always late

Q12. How did the trainers cover the content of the course?

☐ Too quickly ☐ Adequately ☐ Too slowly

Q13. Was the trainer supportive and helpful in fulfilling the specific learning needs of a trainee?

☐ Strongly agree ☐ Agree ☐ Moderate ☐ Disagree

☐ Strongly disagree

Q14. What you think the course trainers were good communicators?

A)Very effective b)Effective c) Less effective d)None of these

Q15. In your estimation, how long should the training exercise take? _____.

Q16. Which training activity marked the highlight of the training program for you?

Please explain_____

Q17. Please rate the following exercise as *good*, *adequate* or *poor*

Training demonstrations_____

Training practical exercises_____

Training resources handouts _____

Q18. You were undergone any demonstration process?

a) Yes b) No

If yes, then specify _____

Q19. Were the demonstrations or instructions given by the trainer easy to follow

a) Yes, pretty easy to understand

b) No, the language seemed to be a problem

c) No, both his language and way of speaking was very discouraging

Q20. Did you feel the training has benefited you?

a) Very useful

b) Useful

c) Not useful

Q21. Your suggestions / comments for further improvements.

_____

❖ **FOR TRAINING INSTITUTE**

COMMON DETAILS

1) Name of the training institute: _____ .

2) Name of the training coordinator: _____ .

3) District: _____.

A) INFRASTRUCTURE:

Q1. Is there any facility for fooding and accommodation?

a) Yes
b) No

Q2.Classroom quality

Projector

Board

Seating arrangement

Audio/visual aids

Stationary equipments

B) HUMAN RESOURCE:

C1) Director-

Q1. What you think the need of capacity building program and its importance?

- For successful implementation of the project.
- For sustainability
- For enhancement of knowledge and skills
- Effectiveness in performance
- All of the above

If any other, please explain: _____

_____

1) On what duration you generate summary reports of training programs?
a) After the training
b) Monthly basis
c) Quarterly basis
d) None of these.

2) Have you changed your policies after the analysis of feedback reports?
a) Yes
b) No
If yes, please explain _____

_____

3) During the meetings, have you ever involved the trainer in decision process?
a) Yes
b) No

C2) Training coordinator:

1) What are the arrangements you have to do before any training course?

_____

2) Process followed for training need assessment:

Duration: _____
Method:

Self report questionnaire	Focused group discussion (FGD)
Individual interview	checklist
Observation	Group activity
Group discussion	Meeting with Technical expert

If any other:

Please specify _____

C) METHODOLOGY

Q1. Which of the following classroom training methodology is being used while giving trainings?

Class room training

On field training

Workshops

Seminars

IEC techniques

Q2. Classroom training type:

Lecture method	
Presentation method	
Audio-visual method	
Brain storming method	
Group discussion	
Games and simulation	
Case study	
Role play	

If any other:
Please specify _____

Q3.On-field training types:
Exposure visit

Demonstrations

If any other:
Please specify _____

Q4. Workshops/ seminar:
How many workshops and seminars conducted yet?

_____

Q5.IEC ACTIVITIES:

Electronic media	
Print media	
Community news paper/ news letter	
Video shows	
Folk media	
Outdoor/reminder medias	

D) READING MATERIAL:

Q1. At what time the training material has been provided?

a) Before the session
b) During the session
c) At the end of session

Q2. What all different types of material given to the trainees?

a) Module
b) Pamphlets
c) CD/DVD
d) Booklet
e) Other, Specify: _____.

E) FEEDBACK:

What are the parameters you consider under feedback form?

_____

Do you take feedback from the trainers?

a) Yes
b) No

If yes, specify the parameters considered

_____
_____

F) FOLLOW UP:

Is there any follow up process conducted?

a) Yes
b) No

If yes,

What is the duration of follow up process?

a) Within a week
b) After a week
c) After one month
d) After six month
e) Other

Method adopted:

Post training evaluation	
Visiting field areas to observe participants at work	
Modifying training programmes	
On-field guidance	
Identifying new training needs	

❖ Feedback Form:

SAMPLE FEEDBACK QUESTIONNAIRE

Program Title:_____Venue:_____

Starting Date:_____Duration :_____

I. Ratings by participants on the scale of 10.

10	9	8	7	6	5	4	3	2	1	0

←----------Tick mark in relevant boxes----------→

1. Structure of course	Very well Planned	Well Planned	Less Planned	No Planning
2. Course Material	Very Relevant	Relevant	Less Relevant	Not Relevant
3.Teaching Faculty	Very Effective	Effective	Less Effective	Not Effective
4. Practical session	Very Useful	Useful	Useful	Not Useful
5. Food Quality/Logging Facilities (if applicable)	Excellent	Very Good	Just OK	Poor
6. Interaction with Faculty	Excellent	Very Good	Just OK	Poor
7. Usefulness of Course	Very Useful	Useful	Useful	Not Useful
8. Overall impression	Very beneficial	Beneficial	Less Beneficial	No Beneficial

II Which topic of the Course You found :

Most Useful	Least Useful
_____	_____
_____	_____

Annexure 2: Photographs

Figure 1.Practical demonstration of Rain Water Harvesting (RWH) in AKRSP

Figure 2.Practical demonstration of vermin composting

Figure no 3.Class room training (methodology) in AKRSP

Figure no.4 Collection of primary data.

SECTION-2

"Study on Detailed Project Report (DPR), in Integrated Watershed Management Program (IWMP), Gujarat"

Abbreviations

BPL- Below Poverty Line

APL- Above poverty line

DPR- Detailed Project Report

DRDA- District Rural Development Agency

DWDU- District Watershed Development Unit

EPA- Entry Point Activity

FGD- Focused Group Discussion

GIS- Geographic Information System

GPS- Global Positioning System

GSWMA- Gujarat State Watershed Management Agency

IWMP- Integrated Watershed Management Programme

NRAA- National Rain fed Area Authority

NREGA- National Rural Employment Guarantee Act

PIA- Project Implementation Agency

PRA- Participatory Rural Appraisal

RFO- Range Forest Officer

SHG- Self Help Groups

SLNA- State Level Nodal Agency

WC- Watershed Committee

WDT- Watershed Development Team

UG- User Groups

EXECUTIVE SUMMARY

Since the beginning of watershed programs, the approach is constantly evolving in India. Today watershed projects do not focus on water conservation solely; integrated watershed management (IWMP) plays an important role in ensuring food security, reducing poverty, protecting the environment and addressing issues such as equity and improved livelihoods. In this regard, Watershed Development Programme is prioritised on the basis of thirteen parameters namely Poverty Index, Percentage of SC/ST, Actual wages, Percentage of small and marginal farmers, Ground water status, Moisture Index, Area under Rainfed agriculture, Drinking water situation in the area, Percentage of the degraded land, Productivity potential of the land, Continuity of another watershed that has already developed/treated, Cluster approach for plain or for hilly terrain. Based on these thirteen parameters a composite ranking was given to Watershed project and further the preparation of Detailed Project Report starts after this step.

Detailed Project Report (DPR) was prepared by doing baseline survey, which involved mainly two types of survey, firstly the door to door survey and secondly the field to field survey in the project area (Nanikhodiyar), which includes details related to village demography, geography, vegetation, husbandry etc. and is a very important step to understand the village and the villagers.

During door to door survey, the primary data was generated through questionnaire surveys in all the villages. The questionnaire was structured so as to derive the information needed, Mostly talked to Head of the families, Mostly females, younger adults, Sarpanch and Gram Panchayats, Farmers, Agricultural labours, Landless labour.The questionnaire was divided into different sections through which information is extracted pertaining to Village details, Population details, Water supply details, Water source details within and outside the village, Questions about Livelihood, Awareness about Specific programme: Watershed, Desire to do more activities related to occupation, Productivity of farms, Education details. The secondary data was obtained through Census reports (2001). Secondary data related to different kinds of capital assets were collected from different departments of Government agencies Village Panchayat.

Field to field Survey was also carried out in the farms, community land, pasture land and land under Gram Panchayat. It also includes the soil profiles, no of wells in the area, crop

taken in the field, cropping pattern, fertilizer used and various sources of irrigation in the field. The details of agriculture as well as pasture land of the village, where the existing structures and structures to be proposed were note down. The purpose of the survey was also to understand water availability, patterns of water use and peoples' understanding & perceptions about both surface and groundwater resources in this area. Village agreements will be done on the basis of such detailed work. This survey also looked at the pattern of surface and groundwater use and the basic understanding of farmers regarding groundwater recharge. This understanding was expected to help in improved planning for any watershed programme.

Brief summary of baseline survey was: The total number of families under BPL is 27, which is 17 per cent of the total households of the village (160). As per the details of caste distribution, OBC was the major caste identified. Agriculture forms the primary occupation of the village followed by wage labour. Major crops cultivated were groundnut and wheat. Colour of soil was red and black, depth of soil was 15 cm, Drinking water facility was well available in the village by virtue of supply from pipeline, bore, and well, and migration level was negligible.

In order to understand the social, economical and political aspect of village, after baseline survey, we conducted Participatory Rural Appraisal (PRA) exercise with the help of the villagers. Different types of maps were prepared which clearly states the needs and the problems of the village and the community. It was really a useful tool to appreciate the village in its totality. We had the opportunity to interact with more than 50 people in Nanikhodiyar village of Junagadh. To reach a concrete conclusion we requested to few villager for focussed group discussion and it was really useful for the identification of major problems. In majority of the discussion, we listened to them carefully and tried to appreciate the discussion.

Output generated through these exercise was placed below. Their participatory nature makes them an extremely useful tool in understanding the situation that exists in a village. After analysis the information collected during PRA exercise, the main problems identified are as under:

During **transect walk**, we identified the various resources like rivers, canals, various watershed structures etc. *Madhuvanti* River came from west side, there are at least 33 farms situated besides this river and Farmers have to struggle a lot in crossing the river

mainly during the monsoon season, hence there was a need of construction of cause way.

In many sites there is high rate of soil erosion due to absence of protection wall. West side of the village is having ample quantity of water resource hence there is a need of some recharge structure for ground water recharge and conservation of water.

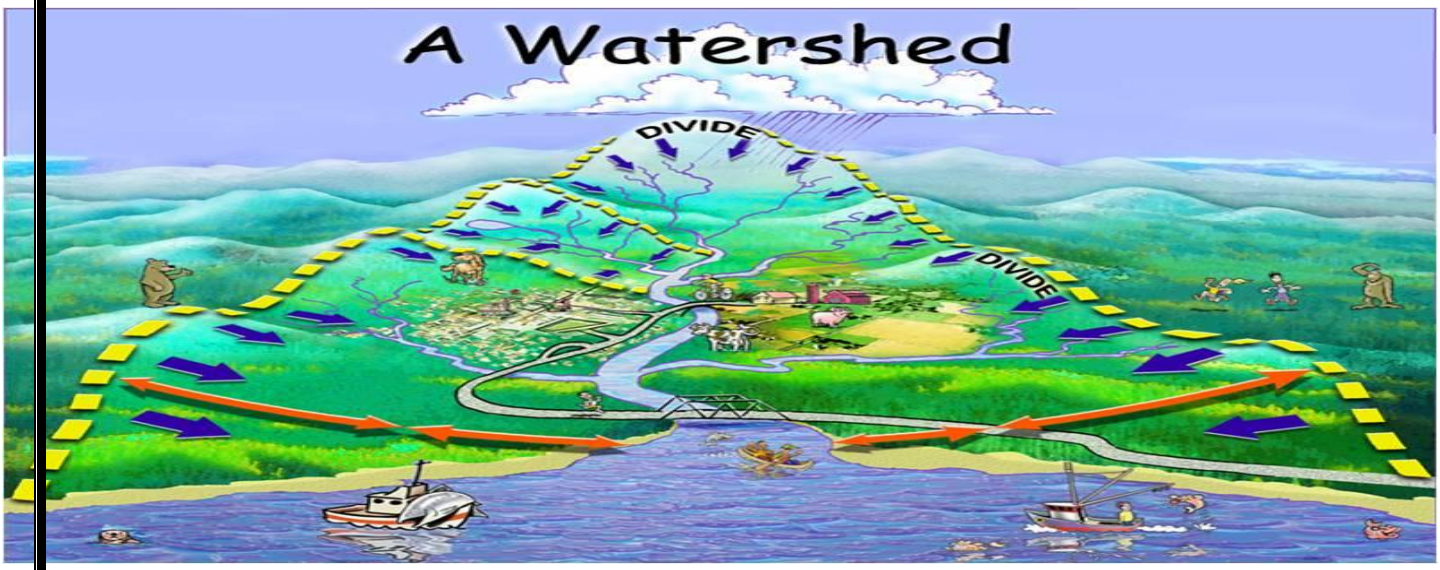
Problem of high labour rate and all those are not having required skills to perform the task effectively; hence there is Need of capacity building programs. One major problem identified through FGD, is there are 7 people in that village suffering from Cancer because of tobacco addiction. Even women of the village are having these bad habits to a large extent.

We did matrix ranking for crops, varieties of fruit trees, agriculture equipments etc., and the major findings were, groundnut and wheat are the major crops, ranking for mango trees are highest but there is no proper marketing of fruits.

The availability of food is quite good in that village, but there is no food security system existing, this need to be focused. Regarding health of animals, there was no health facility available, the health of animals is too poor.

After the completion of PRA, Compilation of Base Line Survey Report was done then the next step is **net planning**, to decide what all watershed activity, entry point activity was and livelihood work should be covered under the project. Preparation of **draft model of DPR** was done followed by **finalized model of Detailed Project Report (DPR)**

CHAPTER -1
INTRODUCTION



INTRODUCTION

1.1 Watershed development is more than a just soil and water management. It is an integrated approach, which aims to improve rural livelihoods including human resource

development, pasture development, agriculture development, livestock management and rural energy management. It aims at the development of all resources –human and natural– in one ecosystem.

Watershed development generally follows the **Ridge to Valley** approach. This means that the upper parts of a watershed are treated first and gradually lower parts are taken up. This assures a maximum of water conservation and groundwater recharge. Soil erosion is reduced and structures in the lower parts are protected.

1.2 Types of watershed:

Basin: - a topographic region in which all water drains to a common area through a common outlet.

Catchment: - A catching or collecting of water, especially rainwater. It is a structure such as a basin or reservoir used for collecting or draining water.

Sub-catchment: -the separate area for collecting the water within the catchment area.

Watershed: - The entire geographical area drained by a river and its tributaries; an area characterized by all runoff being conveyed to the same outlet.

Sub-watershed: - Topographic perimeter of the catchment area of a stream tributary.

Mini-watershed-small water collecting phenomenon within the watershed & sub-watershed

Micro-watershed: -small or micro-watershed or micro-basin formed within the large or macro-basin or watershed for different purposes like irrigation, soil conservation etc.

The watershed management implies, the judicious use of all the resources i.e. land, water, vegetation in an area for providing an answer to alleviate drought, moderate floods, prevent soil erosion, improve water availability and increase food, fodder, fuel and fibre on sustained basis. Watershed is used to achieve maximum production with minimum hazard to the natural resources and for the well being of people. The management should be carried out on the watershed basis. The task of watershed management includes the treatment of land by using most suitable biological and engineering measures in such a manner that, the management work must be economic and socially acceptable.

The watershed management implies, the judicious use of all the resources i.e. land, water, vegetation in an area for providing an answer to alleviate drought, moderate floods, prevent soil erosion, improve water availability and increase food, fodder, fuel and fibre on sustained basis. Watershed is used to achieve maximum production with minimum hazard to the natural resources and for the well being of people

1.3 Integrated Watershed Management Programme (IWMP) works as area development programmes of the Ministry of Rural Development (MoRD) like the Drought Prone Area Programme (DPAP), Desert Development Programme (DDP) and Integrated Wasteland Development Programme (IWDP) has been following the watershed development approach since 1995-96 with the first watershed development guidelines coming into force.

1.4 The Detailed Project Report (DPR) is the **proposal** for the **capital cost as well as the various facilities**. It includes examination of technological parameters, description of the technology to be used, broad technical specification, evaluation of the existing resources, and schedule plan for various activities to be taken under watershed programme, general layout of the action plans for livelihood improvement, water conservation activities and volume of work to be converged under different schemes.

1.5 DPR is done **for making a comprehensive report for the holistic and sustainable development of the watershed.** The preparation of a Detailed Project Report involves a detailed methodology and procedure. The first and the primary task is to collect the baseline data which involves both primary and secondary data collection of both natural and socio-economic status of the people in the watershed. Secondly these data has to be tabulated and analyses.

1.6 OBJECTIVE OF THE STUDY

To Study the overall process of Detailed Project Report (DPR) in Integrated Watershed Management Program (IWMP) in Junagadh District of Gujarat.

1.7 REVIEW OF LITERATURE

1. **Kulhi Detailed project report (DPR), PIA, KGVK, Ranchi, Jharkhand 2009-10**, methodology adopted for DPR preparation started with PRA, followed by FGD, household survey, technical survey, Participatory Area Group Planning, Data Collection from different Resource Organization.

2. **Detailed project report (DPR), Gurdaspur-I, IWMP, Divisional soil conservation officer, GURDASPUR** Some of the major problems being faced in the area are – continuing soil erosion, deep ground water and lack of irrigation facilities, low water & nutrients holding capacity of the soil, the sloping nature of terrains, poor socio economic conditions of local residents. The watersheds have to be treated by bunds, terraces, structures, check dams, and other measures of soil conservation along with improved agriculture, horticulture, forestry and animal husbandry.

3. **Detailed Project Report (DPR) for IWMP- I- NYAPIN CD BLOCK under KURUNG KUMEY district**, **ARUNACHAL PRADESH,** Participatory net planning is prepared on the basis of information generated from the baseline survey of the watershed areas and detailed PRA exercise. Assessment of needs of the watershed areas and the wishes and aspirations of the farmers/ village communities are taken into account

4. **Detailed Project Report, IWMP – 2 (Sorna), Project Implementing Agency, Social Forestry Division, Nadiad, Kheda,** scientific planning of watershed activities is based upon baseline survey, biophysical survey followed by PRA, use of GIS and remote sensing for planning.

5. **Dr. Tushar Shah, IWMI**, Water conservation in rain-fed areas has contributed significantly to the high growth rate of agriculture in Gujarat in the last decade.

6. **ICRISAT**, "Application of new science tools in rain-fed agriculture opens up new vistas for development through Watershed Management"

7. **Mr. NV Kanitkar (1926),** he continued his work on watershed. Later, the Imperial Council of Agricultural Research provided financial support for a comprehensive project on dry land farming at five centres in the country. Recommendations from these experiments included mainly soil and moisture conservation measures.

8. **Government of India (1987),** after the severe drought experienced in 1987, they had initiated the National Watershed Development Project for Rain-fed Areas (NWDPRA) in 1990-91 during the 8th Five Year Plan. The programmes evolved and the projects designed for using the watershed development approach were the Drought Prone Area

Programme (DPAP), the Desert Development Programme (DDP),and the Integrated Wasteland Development Programme (IWDP

1.8 BACKGROUND OF THE STUDY

- Name of the State : **Gujarat**
- Name of the District : **junagdh**
- Names of the Blocks : **Mendarada**
- Name of the project : **IWMP -16, Nanikhodiyar**
- Financial Year of sanction : **2011-2012**

1.8 1 STUDY AREA:

The study was done in **Junagadh** district is located in western Gujarat. The district is divided into 14 talukas of which major ones include Mendarada, Veraval, Junagadh, Kodinar, Manavadar, and Mangrol. The total area of the district is 8,846 sq. km. As per 2001 census, the population of Junagadh district is 24, 48,173 with population density of 277 persons per sq. km. The Junagadh is famous for the Gir National Park, the only abode to Asiatic lions and mountain range Girnar is a major pilgrimage destination.There are six main rivers which flow through the district, which are Ojhat, Uben, Hiran, Raval, Madhuvanti and Machhundri. The average rainfall of this district is 787mm.

IWMP-16 Project is located in Mendarada block of Junagdh district of Gujarat state. The total geographic area of the project is 170.40 hectare. The name of the village taken under study was **Nanikhodiyar** of Mendarada block.

Demographic condition of the village under study: Total population of the village under study is 806. (Male-416, female-390).

Socio-economic condition of the village under study: The livelihood of the village under study was mainly depends upon agriculture, animal husbandry and wage labour. It was found there was no major or small enterprise in that area.The major caste present in the village is '*khodi' which* comes under Other Backward Class (OBC) .

Agriculture Pattern of the village under study: Major crops cultivated in the village were groundnut, wheat and til. Soil depth is 15cm (baseline survey summary), soil erosion is medium, and colour of land is mainly black and red.

1.8.2 GEOGRAPHICAL LOCATION OF EVAL WATERSHED:

Following maps depicts the detailed geographical location of studied project area.

Figure no.1: map of Gujarat

Figure no.2 map of the district

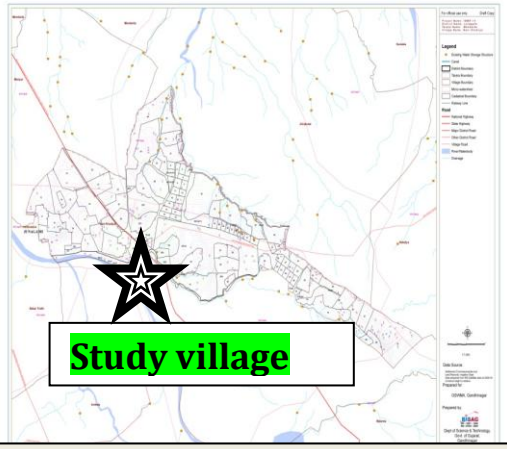


Fig no.4 map of the village: Nanikhodiyar

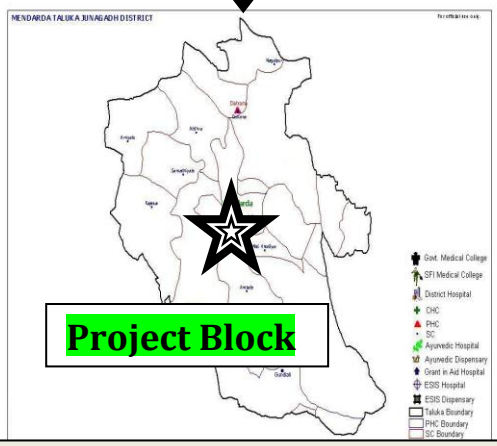


Fig no.3- map of the Block: Mendarada

- ***About 81% of total geographic area of Gujarat is rain-fed comprising Agriculture, Forest & Wasteland***
- ***Irrigation potential is limited to South and Central Gujarat.***

CHAPTER-2
Methodology and data

2.1 Methodology

2.1.1 Research design: The research is **Descriptive & Exploratory** in nature. DPR was made by adopting the following steps:

2.1.2 Sampling method

The sampling procedure adopted is **Multi stage sampling**, the four levels or stages are:

1st- Junagadh district

2nd – Mendarada block

3rd – Nanikhodiyar village

4th – household survey

5th- field to field survey

2.1.3 Sample size

Total sample selected were 160 households.

2.1.4. Data collection

2.1.4. A) Approach: Qualitative as well as quantitative

2.1.4. B) Data collection tools

Collection of village level data (primary data) with the help of structured questionnaire and secondary data from panchayat and government office.

2.1.4. C) Technique:

- Survey
- Participatory Resource Appraisal (PRA)
- Focused Group Discussion (FDG)

2.1.4. D) Duration: 25 days (14th May 2012 – 7th June 2012)

2.1.5 Overall procedure of Detailed Project Report (DPR) preparation.

- **Preliminary village meeting**
- **Baseline survey**
  - Socio economic survey

Figure no.5

2.1.5. A) Preliminary village meeting:

This was the first and foremost step in any DPR preparation. In this step brief Introduction about the project has been given, description about the watershed activity which will undertaken after the DPR, Formation of watershed committee members has been undertaken , Explanation of the activity plan and finally formation of rapport and understanding with the community.

2.1.5. B) Baseline Survey:

The baseline survey is first and starting point of DPR. It involved collecting information and data on natural resources, human resources, agro-socio-economic details, infrastructure at the village level through different

methodology. Primary information at household level were collected adopting interview method with the help of a detailed pretested questionnaire by employing door to door census survey.

The entire household in the villages were covered under detailed household census survey. The details of the Natural resource were collected by undergoing a detailed bio-physical survey. This involved collection of geo-referenced soil sample from the representative area, collection of co-ordinates of all the natural and manmade sources of water, past soil and water conservation structures like the checkdam etc. The secondary data related to the village was collected from the discussions with the Sarpanch.

2.1.5. C) Participatory Rural Appraisal

The next step was PRA involved different techniques like Social mapping, Natural resource mapping, Focused group discussion, Transect walk, Seasonal calendar, Timeline, Daily activity.

- ✓ **Village social mapping:**

Village social map shows houses and village infrastructure in village and it gives detail

information about caste distribution system, population (no. of adults and children male and female, different age groups etc), indicating distribution of landless or homeless families, small and marginal farmers, other occupations (rural artisans), local resource people, widows, etc. Wealth ranking of the village community can also be done this way. Social mapping is very important in watershed programme because it is very helpful for making watershed committee (WC) and homogeneous group of SHG.

Social mapping was adopted in the village before baseline survey, it helped has a rapport building exercise and it also helped in planning the socio-economic household survey as it gives the details of the social distribution in the village viz., social stratification, demographics, settlement, patterns, social infrastructure, etc.

- ✓ **Resource map:**

  Resource map represents the visible and invisible physical feature of the village/watershed. Its include natural resources like vegetation (forests, trees), land use (cultivated, uncultivated Waste, grazing land, forest land, irrigated land), land ownership patterns, land productivity, Cropping patterns etc. We got other information like topography, terrain and slopes, drainage etc.

  All information's were very important for site selection for the watershed structure like check dam, earthen bund etc. It also acted in understanding various perceptions of the villagers about the Watershed intervention to be taken.

- ✓ **Transect walk:**

  Transect walk involves Systematic walking with informants through an area, observing , asking, listening, discussing, identifying different zones, local resources, introduced technologies, seeking problems, solution and opportunities and mapping and diagramming resources and finding.

- ✓ **Focus Group Discussion:**

  FGD has been done to know about the major challenges they are facing and what all recommendation they gave to overcome the problems.

- ✓ **Seasonal diagram:**

  Seasonality is an important and useful exercise to determine seasonal patterns in rural areas as related to rainfall, farming practices, employment etc. In seasonality an attempt is made to determine the seasonal calendar as understood and practiced by the villagers.

  To get an insight into the seasonal variations in a number of parameters relevant in farmers lives e.g. work, employment, income, availability of food, fuel, fodders, health, migration and transport facilities etc.

- ✓ **Matrix ranking (scoring method):**

  Villager's preferences and attitude towards a particular topic of interest is revealed to us by this technique. It helps us to understand farmer's priorities in crop varieties, vegetables, tree species, livestock categories, soil and water

conservation techniques, irrigation methods etc. The reasons for their liking and disliking and the subtle differences in choice and priority among the villagers of different areas can also be understood which help us to prioritize and determine the strategy. Their criteria provide us an opportunity to think and look at things from a new angle and perspective

- ✓ **Activity plan:**

  From timeline, we can understand the daily activity of villagers and in free time we can incorporate some livelihood activities, IEC activities and many other plan.

Information collected through PRA

S. No.	Information	PRA Technique
1	Livelihood pattern	FGD / Timeline
2	Geography and Geohydrology	Transect Walk
3	Infrastructure	FGD / Village Mapping
4	Resources	Resource mapping
5	Power Dynamics	Chapati Diagram
6	Habitation and Dwellings	Village mapping
7	Social Dynamics	Wealth Ranking
8	Migration and Employment	Seasonal Diagram
9	Daily Activity Schedule	Activity Schedule
10	Prioritization of Resources	Matrix Ranking

Table no.1

CHAPTER-3

Findings and Discussion

3.1FINDINGS FROM BASELINE SURVEY:

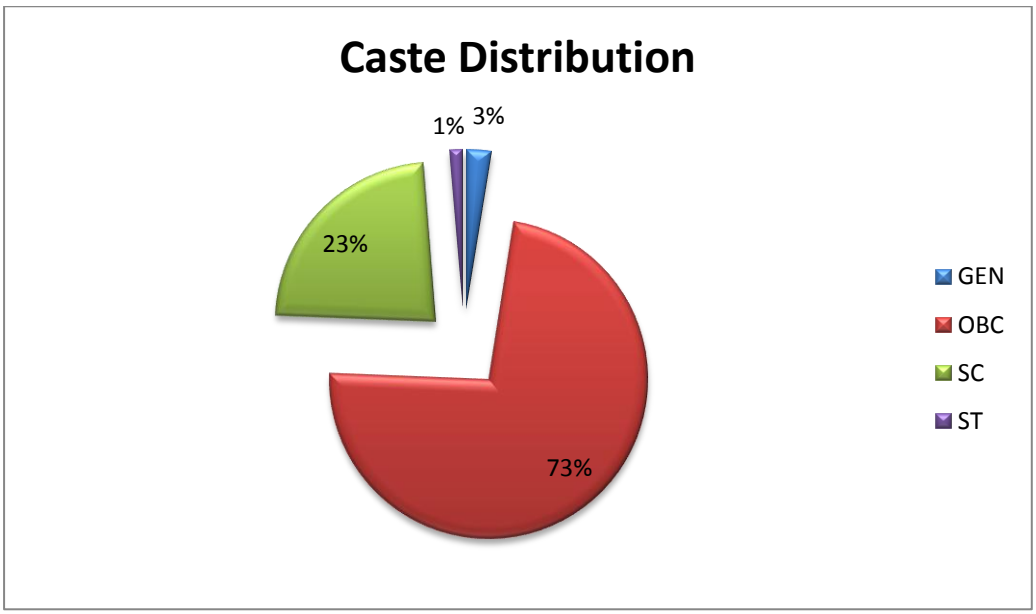


Fig.6 Caste Distribution

Figure 1 depicts the caste distribution from the data collected from 160 households of Nanikhodiyar. Nearly 3-4th (73%) were found from OBC category, 23% from SC category, whereas the remaining 4% were from General and ST category.

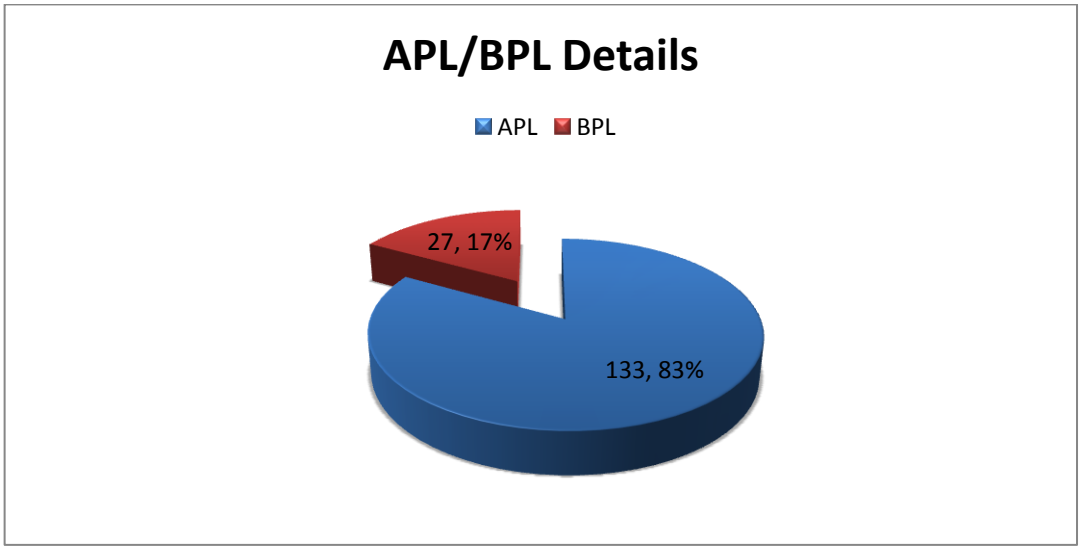


Fig no.7 APL/BPL DETAILS

Fig no.2 Depicts, economic status of households in the study village a majority (83%) of the households were from APL category.

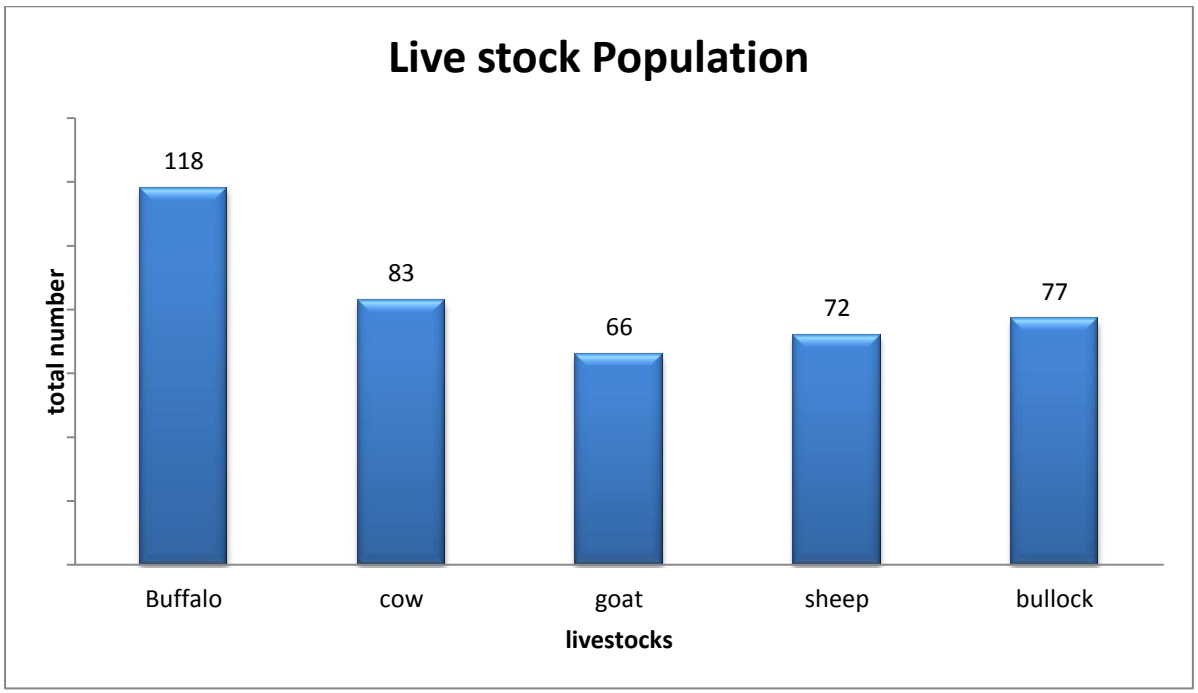


Fig no.8 LIVESTOCK POPULATION

Fig no.4 suggests, among the livestock population, number of buffalos was highest i.e. 118 followed by cow (83) and bullock (77) in Nanikhodiyar village. The main reason for highest availability of buffalos was higher price of milk (40 rupees per litre) whether for cows the price for milk was (30 rupees per litre).

Farmers in these villages have already been keeping the milch animals; mostly buffalos. There is a need for the improvement of the local breed through artificial insemination. Introduction of good quality cows with better milk production will popularize dairy farming in the area. Also, the farmyard manure procured from these animals will help improve the soil health.

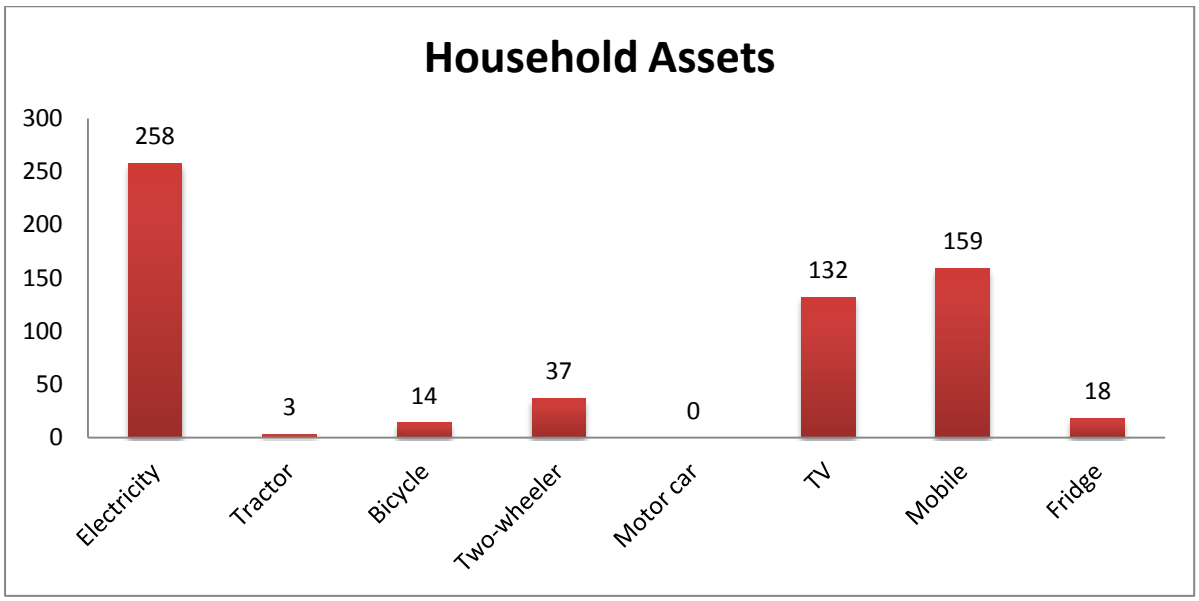


Fig no.9 Household Asset

Data was also analysed, to obtain an idea about the household assets and amenities and the results of the same is presented in figure no.4 it was emerged out from the analysis almost all the households reported having electricity contrary to that, very less percentage of household found fridge, bicycle and tractor.

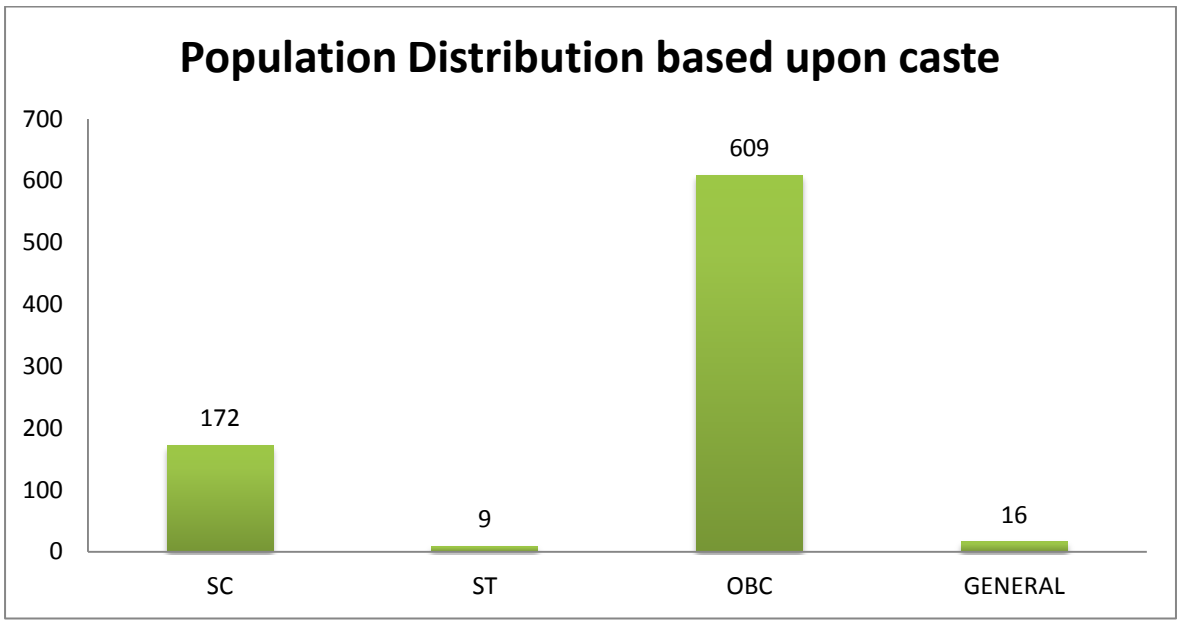


Fig no.10 Population distribution based upon caste

From figure no. It can be easily depicted that, the majority of population belongs to OBC caste, they are named as "*Khodi*", and very less number of population belongs to ST and general category.

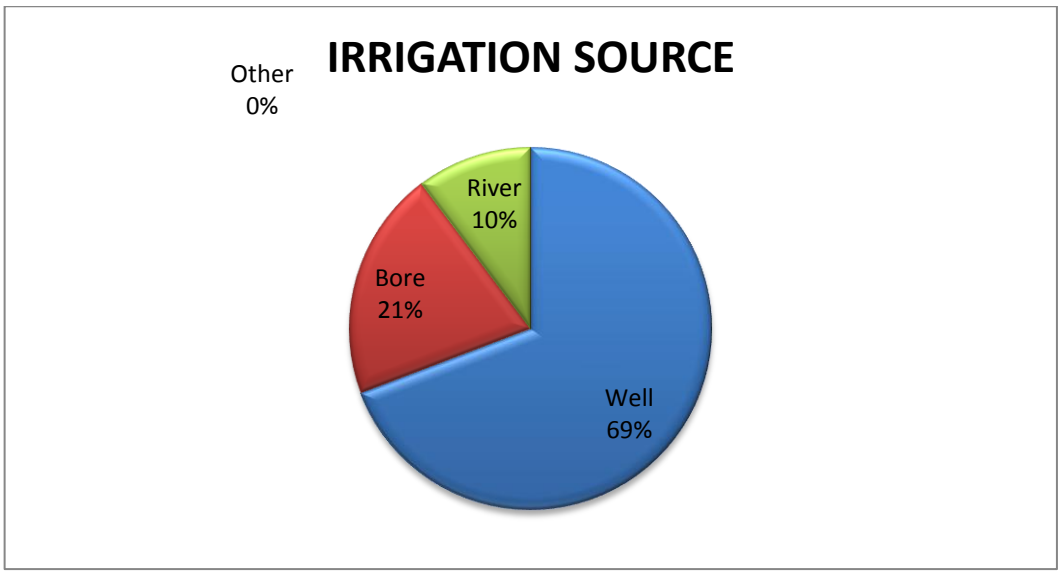


Fig no. 11 Irrigation source

From figure no.6, We can see majority of population depends upon well for their irrigation purpose, as the number of well is showing maximum that is 81 (69 percent), followed by bore that is 24 (21 percent), and less number of population depends upon river (Madhuvanti) which 10 percent

3.2 Crop details:

Mainly 3 major crops namely Wheat, groundnut and til are sown in Watershed village. Though main crops grown in the area are wheat and groundnut. Padddy is also cultivated in some of the lands

KHARIF

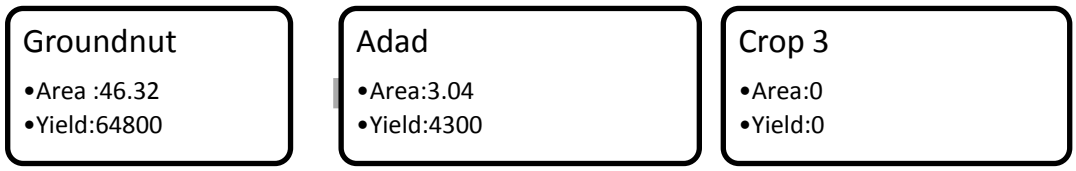


Figure no.12

TOTAL	
Area	**49.36**
Yield	**69100**

Table no.2

RABI

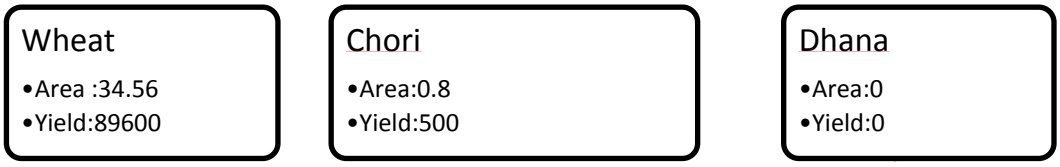


Figure no.13

TOTAL	
Area	**35.36**
Yield	**90100**

Table no.3

3.2 BIOPHYSICAL SURVEY FINDINGS:

Components	**Details**
Area (Ha.)	**170.4**
Irrigated Area (Ha.)	**136.5848**
Soil Depth(cm)	**15**
Soil Erosion	**Medium**
Colour of land	**Black or Red**
Type of land use	**Agriculture**

Table no.4

3.3 PARTICIPATORY RURAL APPRAISAL (PRA) FINDINGS:

Participatory Rural Appraisal (PRA) exercise was done the help of the villagers. Different types of maps were prepared which clearly states the needs and the problems of the village and the community. It was really a useful tool to appreciate the village in its totality. We had the opportunity to interact with more than 50 people in Nanikhodiyar village of Junagadh. To reach a concrete conclusion we requested to few villager for focussed group discussion and it was really useful for the identification of major problems in Nanikhodiyar village, the outcomes of PRA are shown in Fig.

Figure no.14

The results of different PRA techniques are as follows:

- During **transect walk**, various resources like rivers, canals, various watershed structures were observed.
    - It was observed that there was a **need of construction of cause way** across *Madhuvanti* River as the farmers faced difficulty in crossing the river, particularly during monsoon season.
    - In many sites there is high rate of soil erosion due to absence of protection wall.
    - As *Madhuvanti* River comes from west side of the village, resulting in ample quantity of water resource, ground water recharge systems and water conservation structures could be built.

- During FGD, there are many problems identified women of the village had discussed there is a major problem like
    - High labour rate and all those are not having required skills to perform the task effectively; hence there is Need of capacity building programs.
    - There were 7 people in that village suffering from Cancer because of tobacco addiction. Even women of the village are having these bad habits to a large extent.

- We did matrix ranking for crops, varieties of fruit trees, agriculture equipments etc.,and the major findings were:
    - Groundnut and wheat were the major crops cultivated.
    - Apart from agriculture mango trees are highest but there was no proper marketing of fruits. They supply the fruits in nearby town Mendarada and city Junagadh.

- There was no food security system existing in the village.
- Regarding health of animals, there was no health facility available, the health of animals is too poor.

CHAPTER -4

Conclusion

4.1 Conclusion:

By the above discussion we can understand that how watershed is a very beneficial thing for people specially those living in the remote areas of Gujarat. Except the south, Gujarat is suffering from water scarcity specially the drinking water. The concept of watershed is very important because it meets not only the drinking water needs but also covers the aspects related to irrigation, vegetation, soil erosion etc., which makes watershed a multi functional structure.

Gujarat State Watershed Management Agency (GSWMA) is working very well in Gujarat and is doing the watershed works under Integrated Watershed Management Programme (IWMP), as per the plan and it also have dedicated staff at each level and due to that their rapport is increasing in the eyes of villagers.

Thus in short and precise we can say that the As per the Common Guidelines, 2008 for the IWMP program have envisaged a new and holistic approach to Natural Resource Management. Detailed project report (DPR) plays a great role in this regard. This has resulted in imparting transparency and efficiency in implementing these projects. Use of GIS for planning that integrates convergence with NREGS and other government schemes strengthens coordination among departments. This helps in reducing duplication of watershed development activities. Blending of traditional knowledge with scientific process helps in planning & development of the Integrated Watershed Management Programme in a sustainable manner.

In Junagadh, the IWMP is running in six *taluka's,* the formation of different teams at different levels has been completed according to the guidelines and project is in implementation phase, staff is very dedicated and has great coordination. Watershed Development Team (WDT) in Junagadh has faced some problems initially but now villagers have respect for them. We observed during our village visits that villagers were really participatory and have eager to get involved in the development process. It was really astonishing for us to find their decision making ability about various interventions to be made.

The dynamic concept of SHG and the participatory method of involving women showed that the rural women too have "voice" but needs to be strengthened. The concept of microenterprise development as a community intervention will lead to strengthen the saving and productive borrowing of these SHGs. This will help to develop the skill and business potential of these women to empower them with economical power and decision making ability.

Convergence of various programmes with watershed with in a coordinated effort will enrich the program reach both financially and physically giving a wider scope of intervention. It can help to use watershed area as a unit of holistic and sustainable development by unifying the works of whole department toward this common goal. The concept of formation of various community Institutes like that of watershed committee, user group and maintains of a separate user fund and guiding rules about benefit sharing will provide financial support to the development works even after the work project is over and leads to sustainable development.

The participatory nature of Detailed Project Report (DPR) has made the developmental procedure more effective and sustainable. Through highly flexible procedure of Participatory Rural Appraisal (PRA), community felt themselves more accountable towards the project.

Chapter-5
Recommendation

5.1 RECOMMENDATION

From the above findings, regarding study of detailed project report in Nanikhodiyar village of Junagadh district. We identified some suggestions in the light of PRA findings, our self observation, which needs to be focused for future effectiveness of the project.

Followings are the recommendation:

1. Monthly health camp should be organized for livestock's present in the village, as the health of animals was very poor.
2. There is a need of small microenterprise for oil production within the village, because major crops cultivated by the farmers were groundnut and til, and villagers were purchasing oil from nearby town which enhances the transportation cost unbearable by the community.
3. Effective IEC activity needs to be organizing for awareness regarding the harmful effects of tobacco, as eight to ten persons in that village suffering from cancer.
4. There is a need of construction of percolation recharge bore structures, because there were number of existing check dams, and other structure, but at the time of monsoon, due to high rainfall water overflowed from there, and if some recharge structure has been constructed there, it will help significantly in ground water recharge.
5. Awareness regarding use or adoption of organic farming instead of high use of pesticides.
6. Need of skill based capacity building program for women labor's in the village.
7. Repairing work for existing watershed structures, like check dams.
8. Majority of land require proper fencing, leveling and bunding process.
9. Requirement of proper Food Security System.
10. Proper monitoring system should incorporate for effective and accurate primary data collection through baseline survey.

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ANNEXURE

1) Summary report of field to field survey, Nanikhodiyar

Sr.No.	Survey No.	Area (Ha.)	Type of Owenership	Head of the Family	Type of Land/Slope
-	-	170.40	-	-	Medium

Soil Depth (In Fit)	Soil Iroison	Colour of Land	Classification of Land	Classification of Land according to the farmer
15	Medium	Black Red	-	-

No. of days	Existing Treatment	Environmental Problem	Need of analysis	Type of land use	Crop De
2 to 3 Days	-	-	-	Agriculture	2 to 3 Cro

Yield (Ha.)	Irrigation Source				No. of So
	WELL	BORE	RIVER	OTHER	
-	81	24	12	0	117

Irrigated Area (Ha.)
136.5848

2) Summary report of baseline survey, Nanikhodiyar

Livestock							
Buffalo		Cow		Total Milk	Goat	Sheep	Bullock
No	Milk	No	Milk				
118	65326	83	45950	111276	66	72	77

Population							
SC		ST		OBC		OTHER	
M	F	M	F	M	F	M	F
86	86	4	5	317	292	9	7

Literacy Rank							
Year	SC		ST		OBC		OTHE
	M	F	M	F	M	F	M
1 to 14	20	25	1	1	86	78	1
> 14	66	61	3	4	231	214	8
	86	86	4	5	317	292	9

Migration Details		
M	F	Total
0	0	0

APL/BPL Details		
APL	BPL	Total
133	27	160

HouseHold Assets							
Eletricity	Tractor	Bicycle	Two-wheeler	Motor Car	TV	Mobile	Fridge
258	3	14	37	0	132	159	18

INCOME (Yearly)							
Agri	Agri. Labor	Live stock	Service	Business	Pensioner Dep.	From Migration	Others
1161000	1361600	66000	210000	251000	0.00	0.00	759000.00

Family dependant							
Agri	Agri. Labor	Live stock	Service	Business	Pensioner Dep.	From Migration	Others
41	50	0	3	8	4	0	54

Questionnaire

1. Format for Biophysical Baseline and Watershed Treatment (Resource Maps and Dataset)

Table 1 : Landform/ land capability

1.	Survey No./ Gat No.					1) As shown on map. 2) Area in ha

2.	Area (ha and areas)					and areas 3) A- Revenue Land, B- Forest Land, C- Other Govt. Land D- Panchayat land, E- Private Land, F- Other 4) Name of Head of family 5) A- Plain land on the banks of a stream B- Terraced slope, C- Gentie slope (<3%, D- Medium slope (3 to 8%), E- High slope (>8%) F- Other plain land, G- Plain hilltop, H- pointed hilltop 6) t1- Heavy rexture, t2 - Medium texture, t3- Light texture 7)d1- Up to 15cm. d2- 15 to 30cm.d3- 30 to 100 cm. d4- more than 8)e1- Moderate, e2- Rills formed. e3- Gullies formed,e4- Gullies collapsing 9) A- Black, B- Grey, C- Yellow, D- Red, E- Whitish F- Brown 10) land class in the range of A (LC1 to 3), B(LC 4 to 6) and C (LC 7 & 8) 11) Give local name in local language 12) Note how many days it takes for it to come to field capacity after heavy rains 13)t1- Soil bunds, T2- Soil and rubble bund. T3- Vegetative bund, T4- Masonry bund T5- Any other (Specify) 14) A- Crystallisation, B- Salinity C- Water logging, D- Chemical Accumlation, E- Barrenness, F- lime
3.	Type of ownership					
4.	Tiller of the land (HoF)					
5.	Landform/ slope of land					
6.	Soil texture					
7.	Soil Depth					
8.	Erosion status					
9.	Color of soil					
10	Approximate class of land					
11.	Class of land as classified by farmers					
12.	Drainage quality of soil					
13.	Existing treatments / conservation measures					
14.	Environmental problem					
15.	Note any special info or Framers, problems regarding landform and soil Use companion notebook for detailed comments and notes.					

Table - 2 : Current (Pre project) Land Use

1.	Survey No. / Get No.					1) As shown on map and as in form. 1. in case if the info on one plot is collected at one go no need to repeat the questions. 2) Area in ha and ares 3) AL- Agriculture, HL- Horticulture, CF - Current Fallow, T- trees, S- Shrubs, GL/PL - Grassland or Pasture, BL- Barren Land, O- Other Use 4) Note Crops for a single definite year .Use Crop code given in the legend for the Land Use Map, Denote seasons by a suffix (1 for Kharif, 2 For Rabi, 3- for summer 4- For annual, 5- for perennials like fruit trees) .Denote mixed crops by a plus sign. + joining the two crop legends. denote crops succession by commas. Annual rotation, succession should be noted separately in companion notebook 5a) Denote production in quintals in brackets after crop code and follow sequence in 4) above 5b) like fodder, waste used as fuel etc. 6) NI- No irrigation, WI- Well irrigation , CI- Canal irrigation LI- Lift irrigation 7) Sources should be noted as indicated in Table. 3 8) Area in ha and ares. 9) A- Grazing , B- Fodder for stall feeding, C- Firewood, D- Fruits, E- Other use (give details) Note details in
2.	Area (Ha and areas)					
3.	Type of Land Use					
4.	Crops taken					
5.a)	Production (Main)					
5.b)	Production (Secondary)					
6.	Irrigation sources and status.					
7.	Irri. sources name/ no.					
8.	Area irrigated					
9.	Non. agricultural use if any					
10.	Inputs					
11.	Trees in the plot					
12.	Note : any Special info or farmers problem about land use and crops. Use companion notebook for detailed comments and notes.					

						companion notebook. 10) CF- Chemical fertilisers, OF- Organic fertilisers CM- Green manures, ,CP- Chemical pesticides, OP- Organic pesticides, HS- Hybrid seed. O- Other 11) Evolve code for trees and note the no. of trees for the main species in the plot.

1. Schedule for Baseline Information of Households

I.General Information:

1.1 Village : _____ 1.2 Falia : _____1.3 Taluka : _____1.4 District : _____

1.5 Total No. Of Family Members: _____ 1.6 Caste : _____ (SC/ST/OBC/Other)

1.7 Name of the Head of the HHs : _____

II. Individual Information

II.1. Education and Employment and Migration :

Sr.No.	Name	Age	Sex M/F	Edu.	Main Occupation (in terms of Income)	Subsidiary Occupation	Migrated during Last Year ? Yes/ No	Plan Migrate in 2007-08 Yes /No	If Yes.		Did you Migrate in Last Drought ? Yes / No
									Where (Places of Destination)	Total Earnings Rs. In a Year	

II.2 Is any member of the Households suffers from mental/ physical impairment ?

Yes / No _____

If Yes, Give Details (Refer to the Sr.No. above) :

_____**III.**

Land Irrigation : (Land in Area)

3.1 Owned Land : _____ 3.2 Leased - in Land _____:

3.3 Leased- Out Land : _____ 3.4 Total Cultivated Land : _____

3.5 Permanent Fallow Land : _____ 3.6Waste Land (Owned) : _____

3.7 Irrigated Land : _____ 3.8 Un- irrigated Land : _____

3.9 Irrigated Area and Sources :

Seasons	**Area**	**Sources**
Kharif		
Rabi		
Summer		

3.10 Information of Irrigation Sources :

Sources of Irrigation		**No.**	**Water Table in End of.**		
			Sept.	**Feb.**	**May.**
Wells	Dry				
	Live				
Tube wells	Dry				

	Live				

3.11 Crops and Yield : (Yield Kg./ Ha.)

Seasons	Crops	Area (Ha)	Yieid (Kg./Ha)
Kharif			
Rabi			
Summer			

IV. Ownership of Livestock : (No)

Cows : _____Buffaloes : _____Bullock : _____ Calf : _____

Sheep : _____Goat : _____Others : _____Total Livestock : _____

Total Milk Production : (Litre per Month) _____

Kharif :_____ Rabi :_____ Summer : _____

V. Asset Ownership : (Yes / No)

House : Pucca _____Kachcha_____ BullockCart : _____Electricity :_____

Toilet :_____Tractor :_____ Bicycle :_____ Two- wheeler : __

Motor Car : _____ T.V. : _____ Radio : _____

Mobile / Phone : _____

Fridge : _____ Other : _____

VI. Information Regarding Drinking Water :

Season	Sources of Water	Distance from Residence	Time Spent in Getting Water
Winter			
Monsoon			
Summer			

VII. Food Consumption :

7.1 Whether the HHs Possesses Ration Card ? Yes / No _____

7.2 What Type ? (Color) _____

7.3 Consumption per Month (Kg.) :

	Last Year	Agricultural Good Year	Requirement for Adequate food Consumption
Cereals			
Pulses			

7.4 Availability of food from Own Sources (in Month) : _____

7.5 Total Borrowing :

Money Landers : _____ Relatives / Friends : _____

SHGs/ Others : _____ Bank etc. : _____

VIII. Main Source of Income : (Rs. / Year)

8.1 Agriculture : _____ 8.2 Agri. Labour :_____ 8.3 Other Labour : _____

8.4 Livestock : _____ 8.5 Service : _____ 8.6 Businesses: _____

8.7 Pensioner / Depended : _____ 8.8 From Migration :_____ 8.9 Other:(Specify) :_____

PHOTOGRAPHS

Picture 1: Resource Mapping

Picture 2: Existing watershed structure (Check dam cum cause way)

Picture 3: social mapping

Picture 4: Focused group discussion

Picture 5: daily activities of women

Picture 6: Historical timeline

SECTION-3

"Study

On

The supply-chain of wheat (in agricultural) crop of rural areas of Gujarat"

Abbreviations

APMC- Agriculture Produce Marketing Committee

CACP- Commission on Agricultural Costs and Prices

FCI- Food Corporation of India

FPS- Fair Price Shops

Ha- Hectare

MSP- Minimum Support Price

MT- Metric Tonnes

OMSS- Open Market Sale Scheme

Qn- Quintal

PDS- Public Distribution System

TPDS- Targeted Public Distribution

WR- Warehouse Receipt

SHG Shelf help group

EXECUTIVE SUMMARY

The world wheat production in the years, 2011 was between 560- 580 million tons. Around 16- 19% of the world wheat production is traded annually between countries. The annual world trade in wheat is to the extent of 102- 106 million tons. World wheat consumption is consistently growing with growth in population, as it is one of the major staple foods across the world. The latest estimate of wheat production in India, world's second largest producer, is around 72 million tonnes. In terms of production and a large demand, India's wheat economy is the second largest in the world. In Gujarat as well, wheat is one of the major Rabi crops. Gujarat accounts for almost 5 percent of the national wheat output.

It is estimated that 60- 70 percent of the wheat production comes to the market which Underlies the significance of improving supply- chain efficiency in relation to farmer incomes, consumer welfare, as well as government budgets and the economy. The rationale of study is to understand the supply chain of wheat in rural areas of Gujarat. In the study, all the market stakeholder associated with wheat market supply chain were included farmers, commission agents, wholesalers, processors (Large Roller Flour Mills and Small Flour Mills), government agents engaged in MSP procurement, Public Distribution System, retailers and consumers of various types of wheat based products. The market supply chain study of wheat, major mandis of Junagarh, Visnagar in mehasana of Gujarat. **The study of supply chain of wheat included farmers, commission agent, wholesalers, retailers, consumers**.

In APMC Junagadh, commission agents help the farmer in auction to sell his wheat to either wholesaler (80%) or retailer (20%). He charges commission from purchaser at 1.5% of sale. The wholesalers purchase wheat in the auction and then sell it to the retailers (80%) or to directly end consumers (20%). Wholesalers are also required to take license from APMC at the annual charge of Rs 90/year.

In APMC Visnagar, there are 370 licensed commission agents at APMC who participate on the behalf of wholesalers, mill owners, processors etc. Transportation, labor and packaging charges are paid by purchaser. They charge 1.25% as commission to the purchaser. Market tax is paid to APMC on monthly basis on total sales at 60 paise.

- **Establishment of farmer federation:** farmers groups, farmers enterprises, shelf help group
- **Linkage with Mega Retail Chains:** Pantaloon Food Product India Limited which is Major supplier of Wheat to Big Bazaar and Star Bazaar
- **Linkages with Marketing Companies:** Companies like Reliance Retail, ITC and Britannia

1. BACKGROUND & RATIONALE

International and National Scenario:

The world wheat production in the recent years has been observed to be hovering between 560- 580 million tons a year. The biggest cultivators of wheat are EU- 25, China, India, America, Russia, Australia, Canada, Pakistan, Turkey and Argentina. India, EU- 25, China, and US, the four largest producers account for around 58% of the total global production.

World wheat consumption is consistently growing with growth in population, as it is one of the major staple foods across the world. The major consuming countries of wheat are EU, China, India, Russia, USA and Pakistan. Around 16- 19% of the world wheat production is traded annually between countries. The annual world trade in wheat is to the extent of 102- 106 million tons. America, Australia, Canada, EU- 25 and Argentina are the five largest exporters of wheat in the world. Major importing countries that tops in the figures are European Union, China, Egypt, Japan, and Brazil. Other importing nations are Mexico, Indonesia, Algeria, Philippines, and Iraq. However the import amount varies year to year depending upon the domestic production.

Wheat has emerged as a major food staple in India, crucial to India's food economy and security. India has the largest area in the world under wheat. India produces about 65- 75 million tons of wheat a year, which is about 35% of India's total food grain production of 210- 212 million tons. India consumes around 70- 72 million tons of wheat a year. Thus in terms of production and a large demand, India's wheat economy is the second largest in the world.

Scenario of Wheat in Gujarat:

Wheat is one of the major Rabi crops in Gujarat. Gujarat accounts for almost 5 per cent of the national wheat output. The per hectare productivity of the crop has also increased by 300 kg over the last four years in Gujarat. While India's total wheat production is expected to stand at 7.67 crore tonne, Gujarat is expected to produce 37.64 lakh tonne of wheat in the current season. In 2004- 05 crop year, wheat sowing was across 7.27 lakh hectare in Gujarat. In 2007- 08 crop year, it went up by 90% and stood at 13.94 lakh hectare. Compared to 2006- 07, the jump was 40% when 10.07 lakh hectares was brought under wheat cultivation this year. In the last two years, area brought under wheat cultivation across the globe becomes less while Gujarat

managed to bring in more area under the crop. The productivity per hectare is also bound to go up this year by 10 per cent (3.5 tonnes per hectare) in the current Rabi season.

Rationale of the study:

Wheat is widely cultivated as a staple crop because it produces a good yield per acre, grows well in a temperate climate even with a moderately short growing season, and yields versatile, high- quality flour that is widely used in baking. Most bread are made with wheat flour, even many breads named for the other grains they contain, including most rye and breads. Many other popular foods are made from wheat flour as well, resulting in a large demand for the grain even in economies with a significant food surplus.

The efficiency of marketing is crucial to farmer incomes, consumer welfare, as well as government budgets and the economy. The marketed surplus from the production has also been rising and it is estimated that about 60- 70 percent of the production now comes to the market (India, Directorate of Economic and Statistics 2002). As a result, the marketing system and its efficiency are of serious concern and interest in India and particularly in Gujarat.

2. OBJECTIVES

- To study supply chain of wheat.
- To develop a model for value chain of wheat:-
  - Wheat collective marketing
  - Wheat seeds
  - Wheat mill flour advance processing and high value addition.

3. SCOPE

3.1 Scope of Work

I. Understanding the market

- Identify existing gaps and opportunities
- Identifying existing value proposition on offer with respect to different market
- Understanding the existing proposition for primary produce and main derivatives available in the market.
- Current demand & supply

II. Defining the market

- Markets - major export destinations and hubs for domestic consumption
- Buyer portfolio – individuals or institutional
- Transportation facilities and requirements for transportation
- Estimating the potential demand for primary product & derivatives
- Current supplier portfolio –
  - Large private stakeholders
  - Small stakeholders
  - Range of stakeholder involved in wheat market chain

III. Processing of wheat

- Processing outputs – main derivatives of primary produce
- Major processing centres
- Consumers for the derivatives
- Conditions required for processing

IV. Defining the different channel of the market

- Identifying the channel alternatives
- Identifying marketing linkages opportunities with suitable stakeholder
- Conducting the SWOT analysis of key channel alternatives

V. Business environment

- Every stage mapping
- Mapping of all stake holder
- Quantify value treated at each stage
- Identify value at each stage
- Identify stress point in value chain
- Scoping analysis
- Business analysis:
  1. Financial plan

2. Operational plan
3. Marketing plan

VI. Understanding Government support policies

- Studying the various government support programmes/projects

3.2 Geographical Scope

The areas covered in the study related to identifying marketing yard of wheat in Gujarat. For this purpose, the following mandis like visnagar in mehasana and junagadh in this state were covered as part of mandi study.

Expected Outcomes

- Facilitating a specific partnership between farmers and facilitator like government and other stakeholder
- Catalysing the direct marketing of wheat by farmers in Gujarat
- Systematic analysis of wheat marketing for effective understanding of wheat supply chain in Gujarat
- Creative thinking on marketing strategy for ensuring reasonable prices to the farmers

4. METHODOLOGY

Objective of my study was supply chain and develop supply chain model, wheat collective marketing of wheat in rural areas of Gujarat. Most importantly it should be unbiased in the sense that evaluators as well as receiver of the analysis report clearly and perceive it as such. Study of any crops is difficult task and how we can improve supply chain of wheat for that get benefit to farmers.

It is the analysis of various stages of various stakeholders; the first thing is to collect valid, authentic and reliable data.

The study has to be both qualitative as well as quantitative in nature.

Qualitative method will be use to get in depth understanding of farmer and other stakeholder, and how to develop supply chain of wheat, and quantitative study use to get basic information and understanding of stakeholder.

4.1 Secondary Data

- Web resources.
- Document, records or information available of different organisation like KVK, AKRSP, DSC consult with supply chain of wheat related experiences.
- Journal and articles published on market supply chain of wheat.
- ITC e- choupal and study of other wheat supply chain initiatives.
- Identify farmers club for agriculture marketing particularly wheat.

4.2 Primary Data

The Primary level data was collected from following sources of information:

- Interactions with experts have sound knowledge regarding supply chain of wheat.
- Interaction with agriculture based organization like KVK.

This Market stakeholder included, seeds broker, farmers, commission agents, traders, whole seller, flour mill, warehousing service providers, government agents engaged in MSP procurement, retailers and consumers of various types of wheat based products. Relevant information has to collected and analyzed through visit, meeting and interviews with stakeholder. The area covered included Mehesana, Junagadh, and wheat mandis.

Meeting organized for the farmers to understand the mode of cost of production of Wheat. It was also useful in assessing farmers perception about their understanding of the role played by channel stakeholder and possible solution to improve supply chain wheat, and structured questionnaire for other stakeholder.

4.3 Sampling Areas:

To Purpose of the study following two districts were selected in Gujarat:

- Junagadh
- Mahesana

Research Instrument: Primary data was collected through structured survey questionnaire from all such market intermediaries right from the producer to end consumer having a bearing on the marketing chain of wheat. There were only Junagadh in conducted structured survey and Mehasana in used secondary data of all wheat supply chain. Number of respondent among each group is mentioned in the following table:

Sample size:

Sr. No.	Market Intermediaries	Number of Respondent
1	Farmer	**20**
2	Commission Agent	**3**
3	Wholesalers	**1**
4	Atta Chakki	**2**
5	Processors	**1**
6	Fair Price Shops and Model Fair Price Shops	**1**
7	Retailers	**5**
8	Consumers	**15**
9	**TOTAL**	**48**

5. PUBLIC PROCUREMENT SYSTEM OF WHEAT

The government procures food grains at the MSP for the central pool from farmers during April- June every year and maintains a buffer stock to meet the requirements of targeted public distribution system (TPDS), various welfare schemes, open market sale scheme (OMSS) to control market prices as and when necessary, natural calamities, etc.

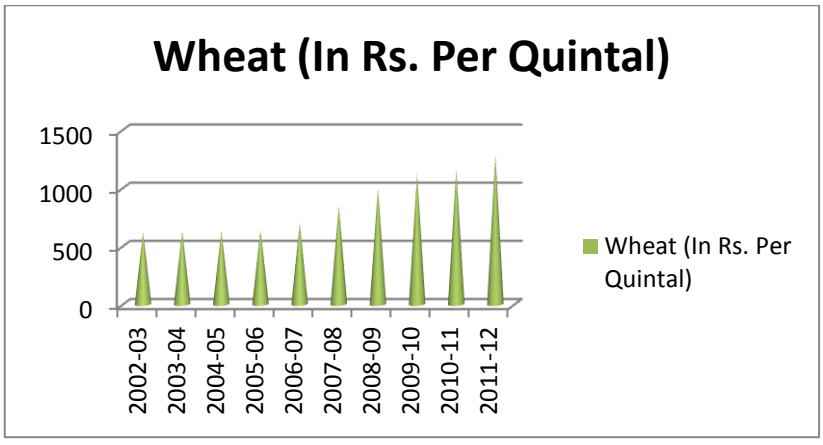
India has a three tier structure in the PDS. At the apex level, there are National Agencies like Food Corporation of India (FCI), State Trading Corporation and the public sector oil companies entrusted with the task of procuring, storing and attending to other logistical functions. The State agencies like Civil Supplies Corporation procure and supply key commodities for mass consumption constitutes the middle level. At the base level through a network of Fair price Shops (FPS), the State Governments ensure uninterrupted supply to essential items to consumers.

There is Commission on Agricultural Costs and Prices (CACP) that studies costs, prices and markets, and recommends prices to the national government. The national government's grain management including procurement, transport, storage and release of the grain is undertaken mainly by the FCI. Grain distribution is done through the public distribution system (PDS) via state governments (State Civil Supplies Corporations/Departments) and over 400,000 fair price shops (ration shops) spread throughout the country in both rural and urban areas.

Decentralized Procurement Scheme:

This scheme was introduced in 1997- 98 to encourage procurement in non- traditional States, thereby extending the benefits of MSP to local farmers. This system also enhances the efficiency of the Public Distribution System (PDS) and enables supply of food grains more suited to local taste for PDS. This also results in saving in transportation cost of the FCI. Under this scheme, the State Government itself undertakes procurement of wheat on behalf of Government of India, and also stores and distributes this type of food grains under PDS and other welfare schemes. The Central Government reimburses the entire expenditure incurred by the State Governments on the procurement operations.

Minimum support price of wheat for the last ten years (2002-03 to 2011-12)



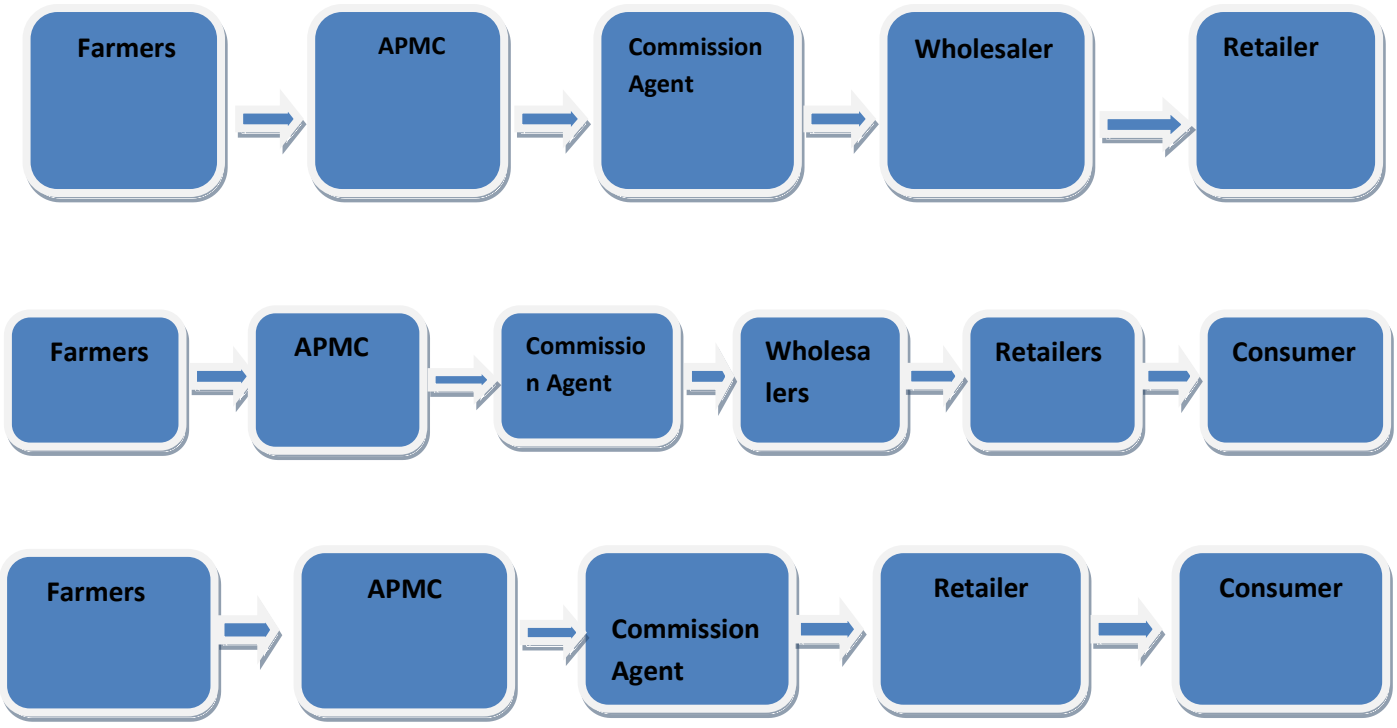
S. No.	Marketing Year	Wheat (In Rs. Per Quintals)
1	2002-03	620.00
2	2003-04	620.00 + 10.00*
3	2004-05	630.00

4	2005-06	640.00
5	2006-07	650.00 + 50.00(Bonus)
6	2007-08	850.00
7	2008-09	1000.00
8	2009-10	1120.00
9	2010-11	1160.00
10	2011-12	1285.00 (Sources: Adapted from web resources)

6. Supply Chain of Wheat Areas of Gujarat

APMC, Junagadh

Different type of marketing chain for wheat is mentioned below:



Different type of stakeholder present in the marketing chain and their respective role and functions

Farmers: The farmers bring their wheat to market yard either in 100 kg bags. Transportation charges are borne by farmers. In Junagadh APMC, about 80% of farmers come from Saurastra area while remaining come from outside of Saurastra. Those farmers

sell out wheat to the commission agent depending on their own personal relations, and after commission agent then sell their wheat to wholesalers in an auction

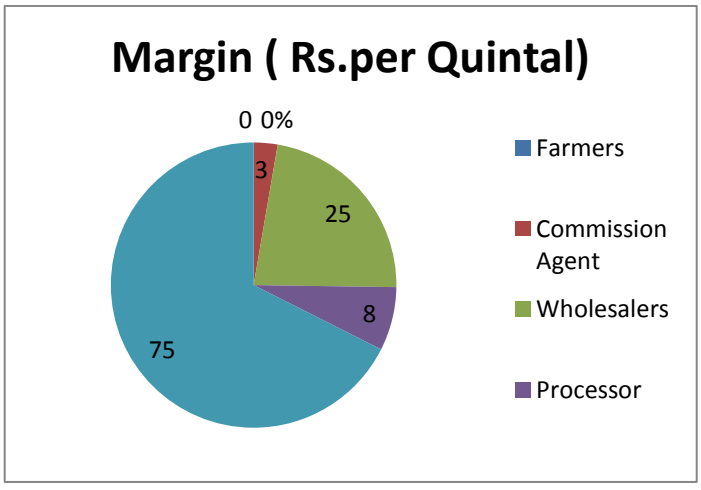
Organized by APMC official which start from the Minimum Support Price (MSP). A single farmer has three auctions to sell their wheat in three continuous days. If his wheat is not sold in three days then APMC charges penalty on him at Rs 4- 5 per Mann. The wheat generally gets sold on the same day it arrives.

Sr. No.	Activity in Land	Rs/ Bigha
1.	**Land preparation (plowing)**	500
2.	**Seeds**	520
3	**Labour for sowing**	150
4	**Fertilizer cost**	1080
5	**Fertilizer labour charges**	180
6	**Pesticide cost**	70
7	**Pesticide labour charges**	0
8	**Irrigation charges, (5 times)**	2300
9	**Irrigation labour charges**	300
10	**Weedicide cost**	150
11	**Weedicide labor charges**	50
12	**Harvesting labour charges**	500
13	**Threshing cost**	200
14	**Threshing labour charges**	350
15	**Transport marketing cost**	300
16	**Total cost of production**	**6650**

Yield/ bhigha	35
Rate	250
Income/ bhigha	8750
Cost/ bhigha	6650
Profit/ bhigha	2100

Commission agents: Commission agents help the farmer in auction to sell his wheat to either wholesaler (80%) or retailer (20%). He takes his commission from purchaser only i.e., 1.5% of the sale. Till about 5 years ago, commission was charged by the farmers. These commission agents are given a license by the APMC. License charges are Rs. 125/year.

Wholesalers: The wholesalers purchase wheat in the auction and then sell it to the retailers (80%) or to directly end consumers (20%). Wholesalers are also required to take license from APMC at the annual charge of Rs 90/year. Different charges on wholesaler in market yard are:



- 1.5% of sale is the commission given by the wholesaler to the commission agent
- 0.5% is given to the market yard
- 0.5% is approximately the labour charge.
- Some extra charges (like loss due to moisture content) - approximately Rs. 10/ Mann i.e. Rs 500 per MT.

So the earning of wholesaler is about Rs. 5/ Mann

Retailers: These are the small buyer of wheat who buys either through auction or through wholesaler. He has to bear Rs. 15/ Mann (Rs 75 per Quintal) on packaging and transportation.

Price determinants: There are several parameters which is uses for grading and pricing of wheat:

- Variety of wheat
- Shape of wheat: it is small and thick, should not be broken
- Colour: a light brown colour is always preferred
- Cleanliness: it should be clean
- Time of sale of wheat in mandi
- Supply of wheat in the mandi on a particular day and number of purchaser
- Quality of wheat

APMC, Visnagar

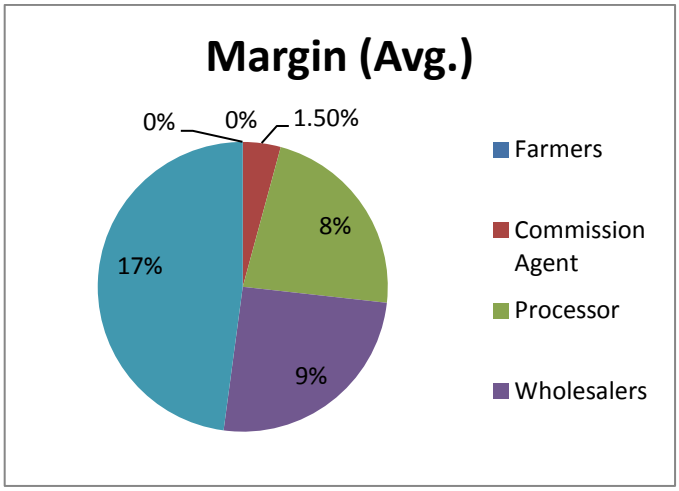
At APMC, VisNagar, Mahesana farmers within the proximity of 50 km bring their produce to APMC, where APMC staff member conducts the auction and commission agents participate in the auction. There are 370 licensed commission agents at APMC. No one from outside can participate in auction. These 370 agent participate on the behalf of whole sellers, mill owners, processors etc. Transportation, labor and packaging charges are paid by purchaser.

They charges 1.25% as commission to the purchaser. Market tax is paid to APMC on monthly basis on total sales at 60 praise/ Rs 100.

Flow of Margin of this Mandi:

Name of mandi	**Commission agent**	**Wholesaler**	**Processor/miller**	**Retailer**
Junagadh	1.5	Rs 25/ quintal	-	-

Flow of Stakeholder margin in Gujarat:



Stakeholder	MARGIN (AVG.)
Farmers	0%
Commission Agent	1.5%
Processor	8%
Wholesalers	8-10%
Retailers	15-18%
Consumer	0%

7. FAIR PRICE SHOPS

Particularly wheat, three Fair Price Shops (FPS) were visited in the village of in Himmatnagar Taluka, Kheecha and Fatehpur villages in Dhari Taluka and Besenwada village in Modasa Taluka. The details of fair price shops (FPS) are summarized below:

Sr. No.	Name of food item/ essential commodities	Average stock maintained / month	Purchase price (Rs./Qn)	Selling price (Rs/ Qn)
1	Wheat	10-12 Qn	161.25	200
2	Flour	6.68 Qn	28.57	40

These essential commodities are procured from FCI Godown from Himaatnagar on the monthly basis. The cost of transportation for procurement of food items is borne by the owner which comes to around Rs 500 per month.

The wheat, as is mentioned above table, is sold for Rs 2 per Kg, thereby, earning a Profit of Rs 0.39 per Kg. The highest profit margin of 40% per Kg accrues to FPS owners for Wheat Flour.

There is limit demand for food grain distribution for different set of customer:

- BPL = According to the number of members in the ration card. Maximum of 1.5 kg for one person but not more than 9 kg in one family for wheat.
- APL= Maximum of 20 kg on one ration card.
- Antodaya Ann Yojana= 1 bag of aata of 16 kg 700 gm on one ration card.

8. FARMERS

Seed varieties:

The predominant seed- variety used by the farmers for wheat across field locations. The seed- varieties of Lokvan and Tukda are widely used for wheat cultivation in these areas. The other seed- varieties used by the farmers include GW- 373, GW- 503 and GW- 322 etc.

Average Productivity: The average productivity of wheat in irrigated areas was estimated to be around 39 Mann per bigha (3370 Kg/ Ha), while the average productivity level for the rain- fed areas for the surveyed polutaion stood at around 34.5 Mann per bigha (2980 Kg/ Ha).

Average cost of production:

Sr. No.	Activity in Land	Rs/ Bigha
1.	**Land preparation (plowing)**	450
2.	**Seeds**	620
3	**Labour for sowing**	380
4	**Fertilizer cost**	1150
5	**Fertilizer labour charges**	130

6	**Pesticide cost**	70
7	**Pesticide labour charges**	0
8	**Irrigation charges, (5 times)**	2250
9	**Irrigation labour charges**	320
10	**Weedicide cost**	100
11	**Weedicide labor charges**	50
12	**Harvesting labour charges**	450
13	**Threshing cost**	380
14	**Threshing labour charges**	340
15	**Transport marketing cost**	250
16	**Total cost of production**	**6940**

	GW 496	**GW 322**	**GW366**
Yield/ bhigha	40	50	45
Rate	300	280	280
Income/ bhigha	12000	14000	12600
Cost/ bhigha	6940	6940	6940
Profit/ bhigha	5060	7060	5660

Economics of Wheat Commission Agent:

Expenses	**Rate**	**Total/ man**
Purchase price	200/ man	200
Commission of Agent	1.25%	2.5 Rs.
Mandi Tax (VAT)	4%	8
Additional Tax	1%	2
Labour (Offload – On Load	Rs. 4/ Man	4
Total Cost		**216.5**

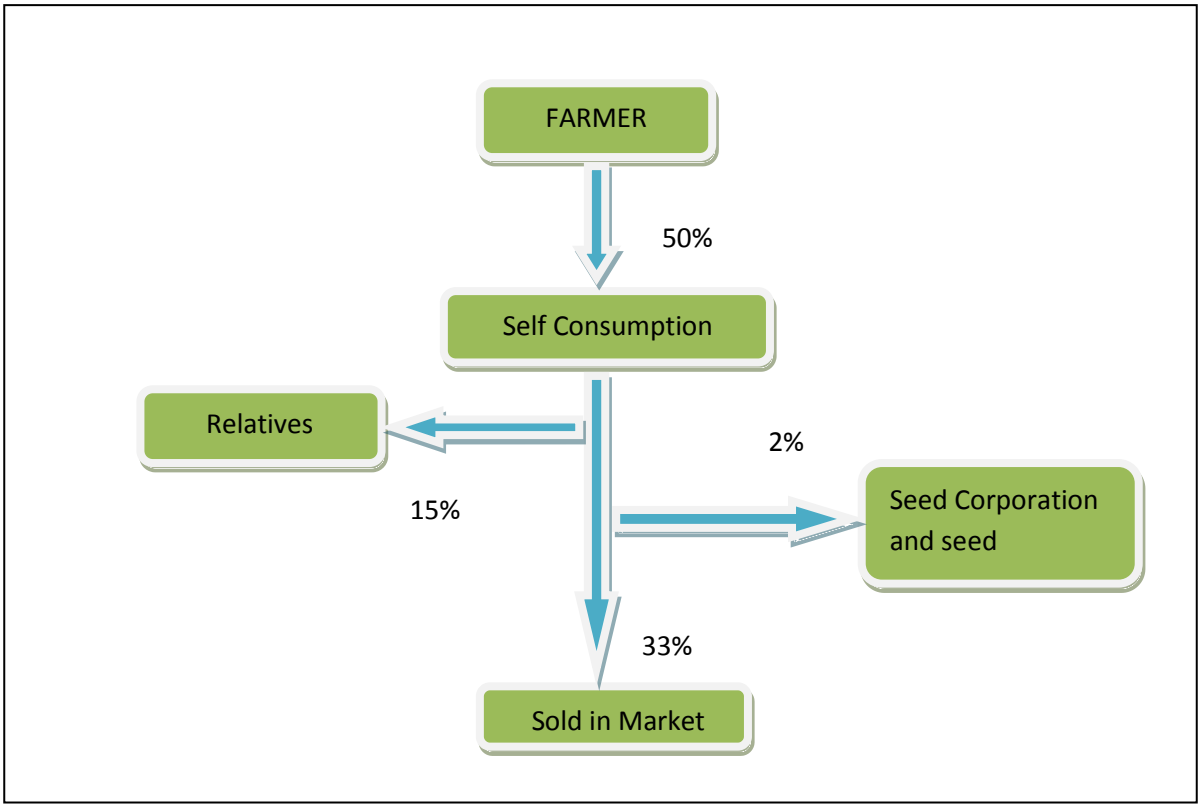
Similarly, the average cost of production in the irrigated areas was estimated to be around Rs 5500 per bigha, while for rain- fed area, the average estimated cost of production was on the higher side at Rs 6,000.

Marketing practices: The farmers prefer to take the produce to nearest market yards for the selling. The distance of market from the villages fell in the range of 3 Km to as far as 34 Km.

Transportation costs: The cost of transportation varies from Rs 2 per mann (Rs 10 per Qn) to Rs 7 per mann (Rs 35 per Qn) in Visnagar Taluka.

Estimated Production (in Tonne): As is evident from Visnagar taluka in total production around 26,800 MT of wheat.

Flow chart of Visnagar Taluka:



Holding back produce for future sale:

.

It has observed that on an average 5- 10% farmers retain their produce for 2- 3 months for better price; otherwise farmers prefer to sell their produce immediately. There are two main reasons behind this immediate sale of wheat:

- The harvesting of wheat is completed in the month of March and April which coincides with the end of financial year as well. At this time, farmers are under serious pressure to repay the crop loan to banks or co-operative societies.
- There is a very high possibility of spoilage of wheat, if stored for 3-4 months; also they have to incur the cost of insecticides for storage.

Price Information:

Main source of price information of wheat to farmers is Newspaper and Television. Some farmers get information through informal sources like agents. Currently Minimum support price of wheat is 1285 per Quintal and previous year in wheat price were 1160 per Quintal.

Risk Factors: There are several risk factors associated with wheat production at different stages. Major risk factors relate to shorter winter season, strong wind, and untimely rain especially at the time of harvesting that causes damage to the tune of 40%.

Farmers' Perception about marketing model: The interaction with the farmers clearly indicated their willingness of exploring institutional mechanism of wheat marketing with the outside players that earns them better prices. Also farmers were open to the idea of a marketing mechanism that ensures lifting of the produce right at the doorstep in their villages, that would help them cut down their transportation cost to mandis. Further, the farmers favoured the marketing model that ensures shortening of supply chain through linkages with some players operating higher on the chain and in the process, ensuring that some of the margins in shortened channel is passed on to the farmers.

9. MILLERS/ PROCESSORS

Mills in Visnagar Taluka: It has the requirement of procuring 1000 MT per month in peak season of April, May and June. The mill procures from Visnagar mandi and also directly from the farmers in the villages. It undertakes cleaning and grading at the rate of Rs 30-35 per Quintal of wheat. The agent charge Rs 2-3 per bag (each bag of 50 Kg) and

the mill further sells the cleaned, graded and packed wheat to the urban wholesalers in Ahemdabad at the commission of Rs 5/ Quintal.

10. WHOLESALERS:

Mainly they purchase in the month of April and may. Average daily consumption of wheat in April and May is aroud 200 bags of 50 Kg.

Purchase price of 50Kg bag is between Rs. 1200-1500 and Rs. 10 come as transportation and labour cost. They add Rs. 75-100 as profit margin.

11. RETAILERS

There are various key finding regarding wheat.

- **Source of purchase:**
  Nearly 75% of the retailers source their wheat from sanand. However 25% of the surveyed retailers avail their wheat from mills in Dholka region and few from Saurashtra mills.

- **Frequency of purchase of wheat:**
  The frequency of wheat purchase by retailers can be further divided into two period's seasonal and secondly off- season period.

  The demand during season is more and hence the wheat purchasing frequency ranges from weekly to bi- weekly depending upon the demand. Further during off- season, the frequency of wheat purchase completely depends upon the stock. However, a general trend of wheat purchase was observed to be generally more or less once in 2- 3 months

- **Month of purchase:**

  The month of purchase too can be further classified as per seasonal and off season time. During season, generally the retailers start purchasing wheat starting from the month of February till the end of the season. However during off season the month of purchase completely depends on the stock as the demand is neither constant nor fixed.

- **Variety of wheat purchased:**

All major varieties of wheat are purchased depending upon the locality of the kirana shop and the customers it has. These varieties include lokvan, Sharbati, Tukdi, Dawud Khani and others.

- **Storage capacity of the retailers:**

The storage capacity of the retailers depends upon the size of the kirana shop and the financial capacity of the retailer it can be concluded that storage capacity of retailers is mainly 1000 to 2000 kgs.

- **Risk associated with the storage of wheat and thereafter:**

Wheat starts getting spoiled soon after the augment of the rainy season. Due to extra moisture in the air, the stored wheat gets spoiled. This is the major risk faced by the retailers.
Thereafter the spoiled wheat is refined and the spoiled part thrown away and the refined one now of the lowest quality is either sold to poor customers at cheap rates or sold to flourmills where it is grinded and sold.

- **Sources to track purchase price of wheat:**

It has been observed nearly 75% of the retailers source the wheat price from the source of purchase or the agent through whom they purchase wheat. Only a few track wheat prices from wholesalers or newspapers.

Determination of selling price of wheat:

The selling price of wheat is generally market based. However some variation is seen in the selling price from retailers to retailers. These variations are mainly affected by the following four factors:

Type of customer, quantity of purchase, market price and the type of payment whether cash or credit. On the basis of these four factors, the retailer decides the selling price from customer to customer.

12. CONSUMERS

It has been observed from that on an average a consumer consumes approximately 40Kgs of wheat per year.

Some higher income class people purchased wheat to malls and middle class family purchased retailer, wholesaler and farmers.

Variety of wheat –

It has been observed that higher Income group and Upper Middle class strongly prefers only Dawood Khani type of wheat which is deemed to be the best grade wheat.

But middle class group has followed up all type of class group, Tukdi variety of wheat is still preferred whole class of people.

Purchasing Period

It is observed that most of people purchasing wheat in annually.

Access to Market Price

Almost population of people get access information through news paper, television and retailer or malls.

Month of Purchase of Wheat:

The almost all consumers purchase wheat in the first quarter of the calendar year and the procurement continues till the first two months of the second quarter.

Preferred Lot Size for Wheat:

Nearly half of the surveyed population prefers the lot size of 100kgs and around 40% prefer lot size of 50kgs. However a mere 7% of consumers prefer 20kgs Lot Size. And it's depend only mindset of the people.

Grinding of Wheat

As far as the Grinding of Wheat is concerned 40% of the consumers have a grinding machine at home. However the remaining 60% of the consumers go to a nearby flour mill centre or a grinding centre for grinding of wheat.

13. FINDINGS

I have observed many problems with farmers during before production and after production.

Before production in farmers has lack of knowledge about certified seeds, and not aware of how to managed water management during agriculture. They were not known about government subsidies regarding fertilizers, pesticides and seeds. Those people always used traditional practices in crop production.

After production they people faced lack of transportation facility, not proper availability of packaging material. When I surveyed in villages farmers did not aware of grading, cleaning process, and they did not aware of how to add value in particular crops. And they people least aware of price sensibility.

13. RECOMMENDATIONS

Linkage with millers

With prime objective of shortening the supply chain of wheat, the millers are the potential intervention points for procuring the wheat directly from the farmers. The Gujarat Roller Flour Mill Association has shown inclination to explore possibilities of linkages with irrigation cooperatives and farmers' organizations.

Linkage with Mega Retail chains

Pantloom Food Product India Limited and who is major supplier of wheat to Big Bazaar is positive about linking farmer's federation with the retail chain.

Linkage with marketing companies

The big companies like Reliance Retail, ITC and Britannia have been contracted and the scope for entering into marketing modal quality for wheat procurement with the farmers club.

Establishment of farmer federation

According to farmers need we will recommend different group:

1. Farmers cooperative
2. Farmers enterprises
3. Shelf help group

Spot Exchange

The concept of spot exchange is recently launched. It provides farmers the option to buy into wheat futures contracts traded on the former's exchange. The farmer, instead of selling a required quantity of wheat at the minimum support price in the spot market on a particular date, deposits the same quantity in a warehouse which will issues him a warehouse receipt (WR). The farmer will simultaneously sell into a futures contract for later month, which would be trading at a higher price. The WR can then be used as collateral by the farmer to obtain bank finance, covering about 70 per cent of the value of the futures contract.

The concept of spot exchange also addresses the shortcomings of futures trading on the exchange by taking care of margin money to be deposited right upfront at the time of entering into contract.

Annexure 1:

QUESTIONNAIRE FOR FARMERS

1) How much land (in acre/hectare) do you own? _____

4) Which varieties of wheat do you sow in your field?

A) _____ B) _____

C) _____ D) _____

COST

1) What are the cost heads and total cost (per acre/hectare) related to these cost heads to you in producing and selling wheat crop?

cost	RS/ Bigha
Land preparation (plowing)	
Seeds	
Labour for sowing	
Fertilizer cost	
Fertilizer labour charges	
Pesticide cost	
Pesticide labour charges	
Irrigation charges, (5 times)	
Irrigation labour charges	
Weedicide cost	
Weedicide labor charges	
Harvesting labour charges	
Threshing cost	
Threshing labour charges	
Transport marketing cost	
Total cost of production	
Yield/ bhigha	
Rate	
Income/ bhigha	
Cost/ bhigha	

STORAGE

1) Do you store your wheat crop? If yes, please tell us where do you store?

_____

_____

2) Please give us the following information

Duration of storage (in days)

Month of storage

Charges of storage (Rs./quintal or

Rs./bag)

1) Where do you sell your wheat crop?

Local market of village ☐ Farmgate ☐

Grain market in nearby town ☐ other (please specify)_____

2) Please tell us to whom you sell your wheat crop?

Commission agents ☐ Traders ☐

Consumer ☐ Others (please specify)_____

3) How far is the market site from your fields/storage location? _____

4) What are the market services offered by primary market commission agents and traders?

_____

_____

TRANSPORTATION

1) What are the charges of transporting the crop to the market site?

_____

2) Please tell us by whom the charges of transportation are given?

_____

Personal Information

Respondent name:_____ Gender: M ☐ F ☐

Village_____

Taluka_____

District:_____

Contact No: _____ Age: _____

1) How many members are there in your family?
_____

❖ **For Aata Mill:**

1) What are the sources from where you buy wheat?
a) Farmers
b) Urban market wholesalers
c) Government departments
d) Private traders
e) Others (please specify)

2) On what basis you choose your suppliers?
g) Lag time
h) Profit margin
i) Credit facility
j) Ordered quantity
k) Others (please specify)

3) What is your frequency of buying wheat (in a year)
a) 1 time
b) 2 times
c) 3 times
d) 4 times
e) More than 4 times

4) Tell us the following information about the wheat varieties you have.

Varieties of wheat	Stock level at present	Price per quintal	
		Off season	On season

5) What is the average monthly stock level of wheat maintained?

Season	Average stock
Off season	
On season	

6) What is the total amount of wheat bought in a year?

……

Derivatives

1) Who are the buyers of flour and other derivatives from Aata Chakki?

a) Retailers

b) Consumers

c) Others (please specify)

2) Tell us the following information about the different derivatives sold.

Derivatives	Shelf life (in days)	Stock level at present	Price in last one year (per kg)		Total quantity sold in a year	
			For Consumers	For Retailers	To Consumer	To Retailers
Wheat						
Aata						
Suji						
Maida						
Dalia						
others						

3) What is the monthly minimum stock level of derivatives maintained?

	Off season average stock	**On season average stock**
Aata		
Suji		
Maida		
Dalia		
Others		

5) Packaging details

Derivatives	**Packaged quantity available**
Wheat	
Aata	
Suji	
Maida	
Dalia	
Others	

6) What is the total cost in producing 1 kg of these derivatives?

Derivatives	**Total cost**

Aata	
Suji	
Maida	
Dalia	
others	

Fortification

5) What are the additives used by you in order to preserve the stored products?

……
…….

6) What are the additives used by you in the derivatives to fulfil the norms of food department like folic acid, iron etc.

……
……

Pricing

1) How do you decide the price of different derivatives? What are the factors on which price is determined?

.....
.....

2) How frequently the prices of these derivatives vary?

.....
.....

❖ QUESTIONNAIRE FOR WHEAT CONSUMERS

1) What is the annual consumption of wheat in your family?

_____

2) Please mention the source from where you purchase wheat;

_____

_____

3) Which is your preferred variety and grade of wheat?

_____

_____

4) How do you determine the quality of wheat?

_____

5) Which of the following best suits your purchasing pattern of wheat?

Annually ____ semi-annually _____

Quarterly____ Monthly _____

6) How do you access the existing market prices the wheat?

News paper____ Television_____

Informal sources _____ Retailers_____

Wholesalers ____ others _____

8) Which of the following is preferred lot size of wheat?
10kg ___ 20kg ____

50kg ___ 100kg ___

9) Which of the following is preferred form of wheat?

Loose wheat____ Packed wheat _____

10) Where do you take wheat for grinding?

_____

11) What is the cost of grinding per kilogram of wheat?

_____

13) Given an option which one is preferred to you?

Raw wheat _____ Finished product _____

Personal Information

1) Respondent name……

2) Contact No……
3) Address……
…….
…….
4) Gender …….
5) Age……
6) Currently you are living with:

Alone __ Family ___

Relatives __ Friends ___ other_____

7) How many members are there in your family?

…….....