RESEARCH ARTICLE

# SOURCE OF INFORMATION AND DEVELOPMENT OF TRAINING PACKAGE REGARDING RAIN WATER HARVESTING

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**Abstract:** Rain water is the ultimate source of fresh water. The availability of collecting rain water is directly or recharging into the ground to improve ground water storage in the aquifer is called Rain Water Harvesting. In north western Rajasthan particularly In Bikaner district the quantity of available water from various sources such as surface water and ground water are not sufficient even for drinking purpose. People have been depending on Rain Water harvesting Structures in the form of small ponds (*Nadis*) reservoirs underground tank (TANKA), Kund etc. All the traditional rain water harvesting system was adopted by the people according to the specific needs and environment.Training is the best way of communicating information as all the senses are used which makes learning more effective. The present study was conducted in randomly selected two villages (Naal and Navrangdesar) of purposively selected Bikaner panchayat samities 60 rural people constitute the sample size. The study was conducted in two phases. In first phase, training package consisting of variety of audio-visual aids like video programme (CD), *phad*, flipbook, flash cards, charts, posters, folders, booklet were developed along with literature the guidance of subject matter specialist. In second phase developed training package on Rain Water Harvesting was implemented. Developed training package along with literature was evaluated by experts and pre-tested with fifteen non-sample rural people. Data were collected through interview method. The schedule used for investigation was divided into three sections. Data collection to find out the sources of information utilized regarding rain water harvesting, to assess the knowledge of respondents related to rain water harvesting was followed in three steps; pre-test, exposure and post- test and to assess the constraints perceived by respondents in using rain water harvesting structure. Major findings of the study among sources of information, in formal sources majority of respondents used assistant agriculture officer, informal sources were used neighbours and in mass media sources newspaper and T.V. As their sources utilized regarding rain water harvesting. Training package is a set of nationally endorsed standards and qualification used to recognized and assess to skill and knowledge people need to perform effectively in the work place.

**Keyword:** Source of information, Training package, Rainwater harvesting

## INTRODUCTION

Water is essential natural resources for sustaining life and environment. It serves in many ways to maintain life, health, vigor and social stability. The most part of the earth surface i.e. about 71per cent is covered by water. Out of total volume of water available on the surface of the earth 97 per cent is saline water, 2 per cent water in the form of ice and glaciers and only 1 per cent is fresh and potable water. India is well endowed nations in the world in terms of average annual rainfall. Though India's average rainfall is 1170 mm. in the desert of western India, It is as low as100 mm. hence it is necessary to opt for rain water harvesting measures for fulfillment of water requirement (*www.poljo.com /index.php?module=index...rain_water_harvest*).
Rajasthan is the largest state in India having about 11 per cent area of the country, whereas, water availability is only 1 per cent of the country. The formidable *Thar*Desert spread over 61 per cent area of state and covering 2 lakh square kilometers presently. It is externally difficult condition for its population to survive especially due to non-availability of drinking water (Pannu, 2008). Major part of our country has been facing continuous failure of monsoon and consequent deficit of rainfall over the last few years. Also due to ever increasing population of India, the use of groundwater has increased drastically leading to constant depletion of groundwater level causing the wells and tube wells to up (*www.rainwater harvesting.org*).
Training is a planned communication process, which result in change of attitude, skill and knowledge in accordance with specialized objectives relating to desire pattern of behavior. The best of all training word is the one-on–one approach, which combines skill building with encouragement of the conceptual thinking needed for success. It refers to the accession of knowledge, skills and competencies as a result of the teaching of vocational or practical skills (Devi, 2008). It aims at bringing desirable change in behavior of the trainee or the learner, training as a mean to bring about continuous improvement in the quality of work performed by an individual. It should equip the individual with necessary knowledge,

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skills, abilities and attitudes to perform his job efficiently. It is a professional discipline in its all and occupies a pivot role not only in agriculture, health, animal husbandry, livelihood, economic issues, and nutrition etc. But, in all development programmes and process.Training also enables people to perform their jobs with confidence, utilize their resources properly and develops desired values and attributes required for carrying out the work.

Training package is a set of nationally endorsed standards and qualification used to recognized and assess to skill and knowledge people need to perform effectively in the work place. Training also enables people to perform their jobs with confidence, utilize their resources properly and develops desired values and attributes required for carrying out the work.

## RESEARCH METHODOLOGY

The present study was conducted in purposely selected Bikaner Panchayat Samiti, because no such study has been conducted in the area earlier, the area was well known to the researcher and was easily accessible and the rain water harvesting practices taken under the investigation are generally used in the area.

Due to convenience of approach, Bikaner district was selected purposely. There are six Panchayat Samiti in Bikaner district. These are namely; Bikaner, Kolayat, Lunkaransar, Nokha, Sri Dungargarh and Khajuwala.

Selection of villages.There is 240 villages in Bikaner Panchayat Samiti. Out of them two villages *NalBadi* and *Naurangdesar* were selected randomly.

Selection of sample. A sample of sixty rural people (Thirty from each village) who were ready to participate and cooperate for conducting present investigation were included in the sample. Selection Research Design, pre and post test experimental research design was adopted for the actively experiment was conducted at the field level. As per the objectives, a training package was developed on "Rain Water Harvesting" for the rural people. Different training methods for training of rural people regarding Rain Water Harvesting were selected.

To measure sources of information of respondents the scale developed by Ramchandra (1990) was modified and used. The formal interpersonal, Informal interpersonal and mass media sources of information were measured on four points continuum namely most often, often, sometimes, never or (regularly, occasionally, some times and never) and a score of 3, 2, 1,0 were awarded to each category respectively. The response score was multiplied by the weight of each source and multiple was used as the score for formal sources of information. Weightage was given to the sources according to their technical competencies.

The study was conducted in two phases:Phase I - Development of training package regarding "Rain Water Harvesting"

A. Preparing module of training package, a. Prepare literature for training package, b. deciding training methods, c. preparing teaching aids, d. Evaluation of training package by experts

B. Pre- testing of teaching aids

Phase II - Implementation of developed training package

A. Selection and development of research tool, a. General information of the respondents, b. Sources of information regarding rain water harvesting, c. Knowledge test on rain water harvesting, d. Constraints perceived by the respondents in using rain water harvesting structures

B. Collection of data, a. Pre – test, b. Exposure of training package

C. Post - test (After exposure)

Interview method was used to collect data from respondents to find out the knowledge of rural people about Rain Water Harvesting. The following procedure was followed:

Pre- test-Before exposure of training package, knowledge of the trainees was tested. Total selected people were interviewed individually to find out the existing knowledge on different aspects of Rain Water Harvesting with the help of interview schedule.

Exposure of training package-Five days training was given to sixty rural people of selected village. Training was given to them on the broad aspects of Rain Water Harvesting with the help of developed training package.

Post- test (After exposure)-After 10 days of exposure of training package post-test was conducted to find out the gain in knowledge on various aspects of Rain Water Harvesting with the help of same knowledge test used for pre-test.

C. Analysis of data-After data collection, coding was done and then data were compiled and tabulated for analysis and interpretation in light of the objectives of study.

## RESULTS AND DISCUSSION

The results obtained are presented under the following major sections:

1. Evaluation of self developed training package by experts
2. General information of the respondents.
3. To study the sources of information regarding rain water harvesting.

**Evaluation of the self developed training package by experts**

To assess the effectiveness and appropriateness of developed training package it was given to panel of experts for evaluation. The experts comprised of specialist in the field of Home Science, field professionals, and person of agriculture fields like

Associate Professors, Subject Matter Specialist, KVK Scientist, etc. were having vast experience in their respective fields.

Self-developed training package of different aids alongwith literature was evaluated by experts on different rating scales. Teaching aids like charts, video programme, *phad*, flipbook, posters, flash cards, folders and booklet, on the basis of 5 points rating scale. This rating scale was judged between very poor to very good on the basis of clarity of visuals, subject matter coverage, organization, continuity and presentation etc.

**Evaluation of booklet** - A booklet is a small book.

Perusal of data presented in Table 2 (I) reveals that an overall mean score of booklet was 4.65 out of maximum rating of 5.0 which implies that the booklet was judged between good to very good in all the criteria.

The findings are in accordance with the findings of Yadav (2008).

Generally the experts appreciated the efforts made by investigator in the development of booklet. The comments of good ratings for booklet by the experts are given under.

Experts checked content and modifications were incorporated right from the initial stage in designing the booklet.

1. Adequate and accurate coverage of the subject matter
2. Relevant to the subject matter of the topic
3. Appropriateness of the sub-titles
4. Content maintaining continuity and sequence
5. Organization of lay out was impressive and systematic
6. Appropriateness of letter size
7. Clarity of language
8. Overall good presentations

All the reasons the booklet was judged between good to very good. **Evaluation of Charts**

Chart are the main source for the speaker to present information step by step in holding attention and building interest.

Table 2.1 (I) depicts overall evaluation of different charts on rain water harvesting technology. It was observed that out of three charts the chart on the "Recharge of roof rain water through hand pump" ranked first with overall mean score of 4.71 followed by "Advantage of rain water harvesting" ranked second with overall mean score 4.62. The last chart on "Traditional sources of rain water" had third ranked with overall mean score 4.60 out of maximum rating 5.0. Thus, it indicates that these charts were judged between very well to excellent.

The similar findings were found of Singh and Gupta (1986),Verma (2007), and Yadav (2008) also supported present findings.

**Evaluation of posters**

Poster is a placard displayed in a public place with the purpose of creating awareness amongst the people.

"Poster is not a teaching aid, it is only an awareness aids to aware to the people about the current issues".

Table 2.2 (I) shows that out of three posters on "Utilization of rain water by well" were first ranked with (overall mean score 4.66) followed by "Save drops of water, whole world is in your hands" second ranked with (overall mean score 4.64) and last ranked to "*TANKA* method" (overall mean score 4.46) out of the maximum rating 5.0 results which shows that the posters were judged between very good to excellent.

**General information of the respondents**

The preliminary standards of understanding about the respondents play a key role in the gain in knowledge by them. This section deals with the background information of the respondents such as age, occupation, caste, family type, education level, social participation, land holding, annual income, training attended.

**Age**

Perusal of data presented in the Table 3 (I). I indicate the distribution of the respondents in different age groups. Majority of the respondents were in the middle age group (50%), followed by lower age group (35%).

Only 15 per cent respondents belonged to upper age group.

**Occupation**

Table 3 (II). II reveals that 65 per cent respondents were involved in agriculture as their main occupation followed by caste occupation (20%) and 10 per cent respondents were involved in service.

Only 5 per cent respondents were fallen in the category of labour.

**Caste**

Table 3(III). III shows that majority of the respondents (50%) belonged to general caste followed by other backward caste (OBC) (35%) and schedule caste (10%).

Only 5 per cent respondents were in schedule tribe category.

**Type of family**

The type of family profile presented in Table 3 (IV). IV reveals that majority of the respondent (60%) were belonged to joint family whereas (40%) respondents were belonged to nuclear family category.

**Education**

Data in the Table 3V. V reveals that majority of the respondents (40%) were literate followed by educated (up to sr. secondary level) 30 per cent and Higher educated respondents were 20 per cent.

Only 10 per respondents were illiterate.

**Social participation**

Data in the Table 3 (VI). VI reveals that majority of the respondents have membership of only one organization (45%) followed by no membership in any organization (35%), and membership of more than one organization were (15%).

Only 5 per cent respondents were as a public leader or position holder in different organizations.

**Land holding**

Data in the Table 3(VII). VII reveals that majority of the respondents belonged to medium category (50%), followed by large category (20%). 15 per cent respondents were belonged to semi medium and 10 per cent respondents were belonged to small category.

Only 5 per cent respondents were belonged to very small category. Whereas none of the respondent was landless.

**Family income**

Table 3(VIII). VIII depicts that majority of the respondents belonged to medium income group with (70%), followed by low income group with (16.67%).

Only 13.33 %respondents belonged to high income group.

**Training attended**

The training attended profile presents in the Table 3 (IX). IX shows that majority of the respondents (70%) attended in different training programmes whereas 30 %respondents have not attended in any training programmes.

**Sources of information utilized**

To measure sources of information of respondents the scale developed by Ramchandra (1990) was modified and used.

It was observed from Table 3 (I) that among Formal interpersonal sources of information, majority of the respondents (21.61%) contacted 'Village Extension Worker' most often. 55 %respondents contacted 'Subject Matter Specialist' often as sources of information. whereas 66.67 %respondents contacted 'ZillaParishad officials' some times.

88.33 per cent respondents never contacted block development officer as their source of information.

Table 3 (II) reveals that majority of the respondents (65.00%) contacted the 'Neighbors' most often. 40 %respondents contacted progressive farmers often as their source of information. 55 %respondents contacted relatives and friends some times. All the respondents contacted the progressive farmers as their source of information. The findings of Bouma*et al.* (2011), Patra and Gautam (2011) , Singh *et al.* (2011) and Alam*et al.* (2012) also supported present findings.

**Table 1.** (I) Overall evaluation of booklet N=15

| Title of booklet | Subject matter coverage | Organizational / Layout | Continuity & Sequence | Language | | | Size of print | Relevance to topic | Sub title | Overall Presentation | Overall mean Score |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | | | | | |
| Proper storage and conservation of rain water | 4.7 | 4.5 | 4.5 | 4.6 | 4.7 | 4.7 | 4.8 | 4.7 | 4.5 | 4.7 | 4.65 |

A=Clarity of message B= Framing of sentence C= selection of words

**Criteria for scoring**

Very Good - 5, Good-4, Fair - 3, poor - 2, Very poor-1

**Table 2.** (I) Overall evaluation of charts N=15

| S.No. | Name of charts | Clarity of visuals | Subject Matter | Organization & continuity | Colour combination | Appropriate size | Overall presentation | Overall mean Score | Rank |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Traditional sources of rain water | 4.7 | 4.5 | 4.5 | 4.5 | 4.7 | 4.7 | 4.60 | III |
| 2. | Advantage of rain water harvesting | 4.5 | 4.7 | 4.7 | 4.5 | 4.4 | 4.8 | 4.62 | II |
| 3. | Recharge of roof top rain water through hand pump | 4.7 | 4.7 | 4.6 | 4.7 | 4.7 | 4.9 | 4.71 | I |

**Continuum of scale**: Excellent - 5, Very good - 4, Good - 3, Fair - 2, Poor - 1

**Table 3.** (I) Overall evaluation of posters on Rain water harvesting N=15

| S.No. | Name of Posters | Clarity of visuals | Subject Matter | Organization & Continuity | Color Combination | Appropriate Size | Overall presentation | Overall mean Score | Rank |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Save drops of water, whole world is in your hands. | 4.5 | 4.5 | 4.7 | 4.7 | 4.6 | 4.9 | 4.64 | II |
| 2. | Utilization of rain water by well | 4.7 | 4.8 | 4.3 | 4.7 | 4.7 | 4.7 | 4.66 | I |
| 3. | *TANKA* method | 4.5 | 4.4 | 4.5 | 4.5 | 4.3 | 4.5 | 4.46 | III |

**Continuum of scale:** Excellent - 5, Very good - 4, Good -3, Fair -2, Poor - 1

**Table 4.** (I) Distribution of the respondents according to age N=60

| Category | Frequency | Percentage |
|---|---|---|
| Lower age group | 21 | 35 |
| Middle age group | 30 | 50 |
| Upper age group | 9 | 15 |

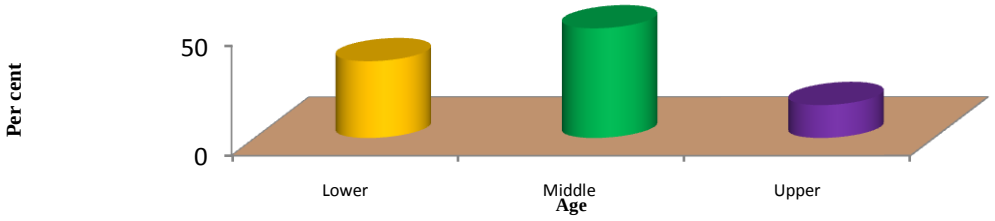


**Fig I.** Distribution of the respondents according to the age.

**Table 5.** (II) Distribution of the respondents according to the occupation N=60

| Category | Frequency | Percentage |
|---|---|---|
| Labour | 3 | 5 |
| Caste occupation | 12 | 20 |
| Service | 6 | 10 |
| Agriculture | 39 | 65 |

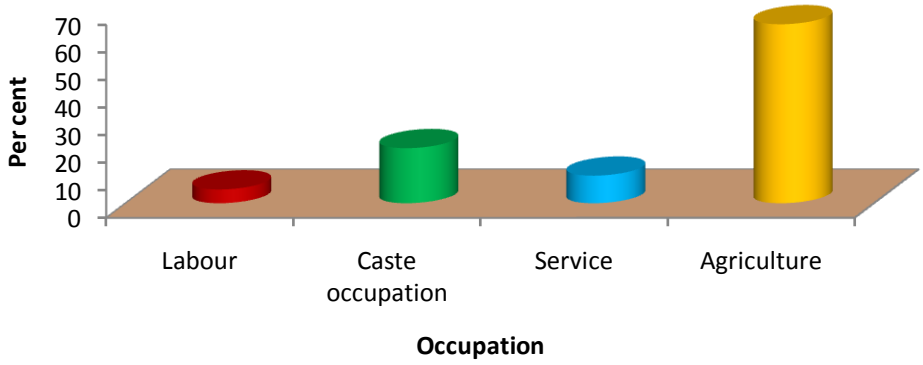


**Fig II.** Distribution of the respondents according to the occupation

**Table 6.** (III) Distribution of the respondents according to the caste N=60

| Category | Frequency | Percentage |
|---|---|---|
| Schedule tribe (ST) | 3 | 5 |
| Schedule caste (SC) | 6 | 10 |
| Other backward caste (OBC) | 21 | 35 |
| General caste | 30 | 50 |

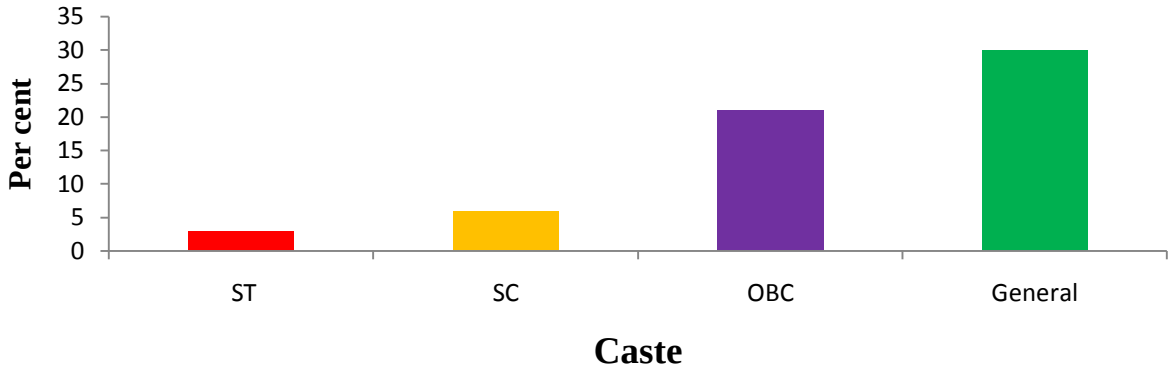


**Fig III.** Distribution of the respondents according to the caste

**Table 7.** (IV) Distribution of the respondents according to the type of family N=60

| Category | Frequency | Percentage |
|---|---|---|
| Nuclear | 24 | 40 |
| Joint | 36 | 60 |

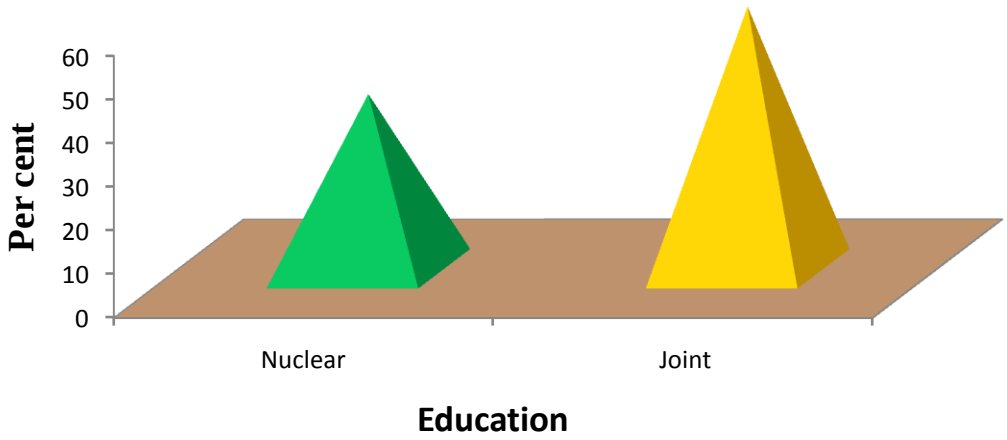


**Fig IV.** Distribution of the respondents according to the type of family.

**Table 8.** (V) Distribution of the respondents according to education N=60

| Category | Frequency | Percentage |
|---|---|---|
| Illiterate | 6 | 10 |
| Literate (can read and write only) | 24 | 40 |
| Educated (up to Sr. Secondary level) | 18 | 30 |
| Higher educated (above Sr. Secondary level) | 12 | 20 |

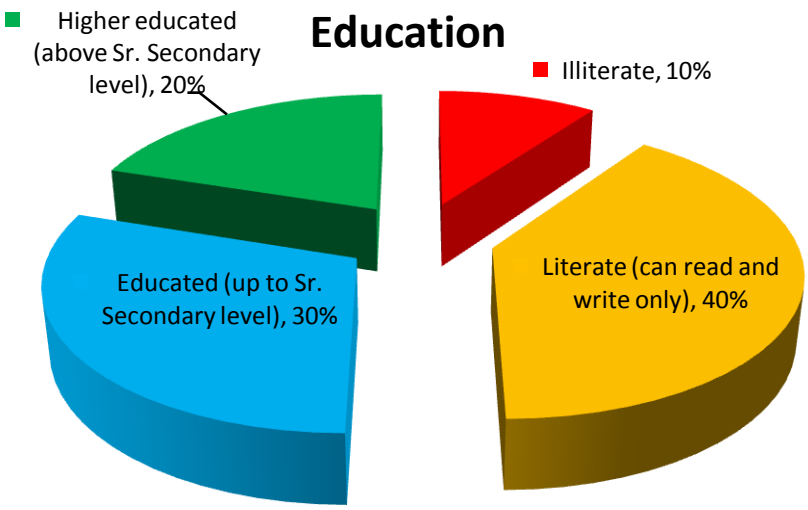


**Fig V.** Distribution of the respondents according to the Education

**Table 9.** (VI) Distribution of respondents according to their social participation N=60

| Category | Frequency | Percentage |
|---|---|---|
| No membership in any organization | 21 | 35 |
| Member of only one organization | 27 | 45 |
| Member of more than one organization | 9 | 15 |
| Public leader | 3 | 5 |

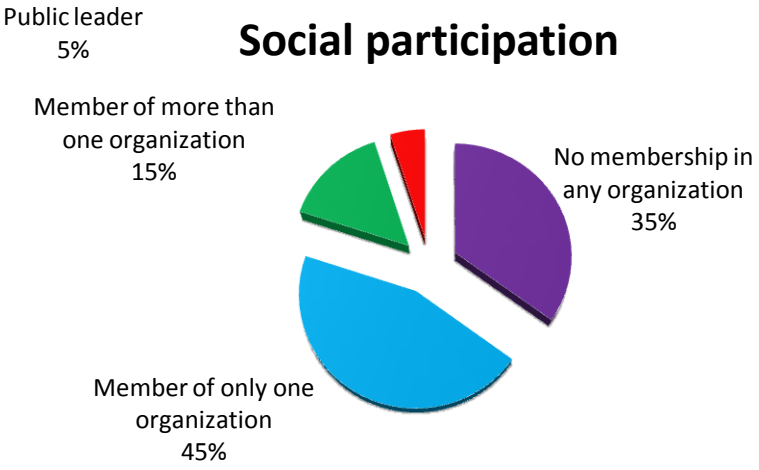


**Fig VI.** Distribution of the respondents according to their social participation

**Table 10.** (VII) Distribution of respondents according to the land holding N=60

| Category | Frequency | Percentage |
|---|---|---|
| Landless | 0 | Nil |
| Very small | 3 | 5 |
| Small | 6 | 10 |
| Semi medium | 9 | 15 |
| Medium | 30 | 50 |
| Large | 12 | 20 |

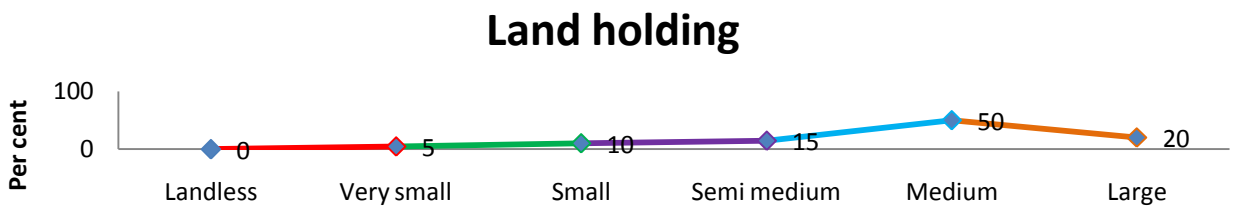


**Fig VII.** Distribution of respondents according to the land holding

**Table 11.** (VIII) Distribution of respondents according to the family income N=60

| Category | Frequency | Percentage |
|---|---|---|
| Low income group | 10 | 16.67 |
| Medium income group | 42 | 70.00 |
| High income group | 8 | 13.33 |

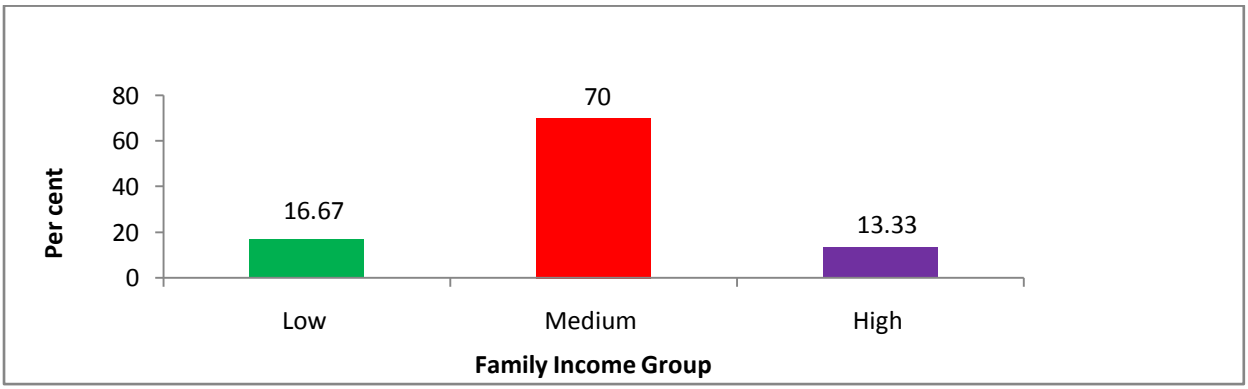


**Fig (VIII).** Distribution of respondents according to the family income

**Table 12.** (IX) Distribution of respondents according to training attended N=60

| Category | Frequency | Percentage |
|---|---|---|
| No | 18 | 30 |
| Yes | 42 | 70 |

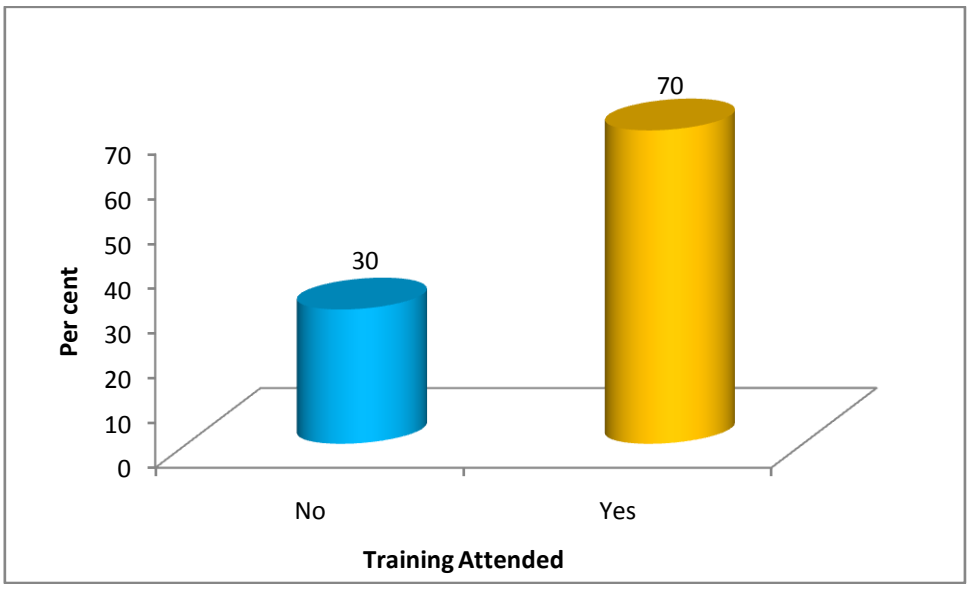


**Fig (IX).** Distribution of respondents according to training attended

**Table 13.** (I) Formal interpersonal sources of information utilized by the respondents N=60

| Sources of information | Weightage | Most often | | Often | | Some times | | Never | |
|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % |
| **Formal interpersonal sources** | | | | | | | | | |
| Village Extension Worker | 3 | 13 | 21.61 | 18 | 30.00 | 25 | 41.67 | 4 | 6.67 |
| Assistant Agriculture Officer | 4 | 2 | 3.33 | 8 | 13.33 | 35 | 58.33 | 15 | 25.00 |
| Block Development Officer | 3 | 1 | 1.67 | 2 | 3.33 | 4 | 6.67 | 53 | 88.33 |
| Agricultural Scientist | 5 | 1 | 1.67 | 2 | 3.33 | 14 | 23.33 | 43 | 71.67 |
| Subject Matter Specialist | 5 | 2 | 3.33 | 33 | 55.00 | 20 | 33.33 | 5 | 8.33 |
| Panchayat Samiti Officials | 1 | 2 | 3.33 | 3 | 5.00 | 30 | 50.00 | 25 | 41.67 |
| Co-operative Society Officials | 1 | 2 | 3.33 | 2 | 3.33 | 17 | 28.33 | 39 | 65.00 |
| Zillaparishad officials | 2 | 1 | 1.67 | 3 | 5.00 | 40 | 66.67 | 16 | 26.67 |

**Table 14.** (II) Informal interpersonal sources of information utilized by the respondents N=60

| Category | Weightage | Most often | | Often | | Sometimes | | Never | |
|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % |
| **Informal interpersonal sources** | | | | | | | | | |
| Progressive farmers | 2 | 35 | 58.33 | 24 | 40.00 | 1 | 1.67 | 0 | 0.00 |
| Relatives and friends | 1 | 4 | 6.67 | 14 | 23.33 | 33 | 55.00 | 9 | 15.00 |
| Neighbors | 1 | 39 | 65.00 | 13 | 21.67 | 5 | 8.33 | 3 | 5.00 |

## CONCLUSION

The literature suggests that using audio-visual elements in teaching and learning yields positive results. The message can be conveyed through audio-visuals to literate, illiterate and unaware people easily and effectively. It is necessary to develop the training package regarding rain water harvesting because there is a need to enrich the rural people about the rain water harvesting for increasing their knowledge level.

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