UNIT 2 INDIAN FARMERS TRADITIONS, BELIEFS AND PRACTICES

Structure

2.0 Objectives
2.1 Introduction
2.2 Traditional Role of Farmers in Society
2.3 Farm Practices and the Zodiac: How are They Related?
2.4 Soil Treatment and Practices
2.5 Pre-sowing Cultivation Practices
2.6 Plant Protection Practices
2.7 Harvesting and Threshing
2.8 Farm Implements and Transportation
2.9 Farm Animals
2.10 Irrigation Practices
2.11 Let Us Sum Up
2.12 Key Words
2.13 Some Useful Books/References
2.14 Answers/Hints to Check Your Progress

2.0 OBJECTIVES

After going through this unit, you will be in a position to:

• discuss traditions and beliefs that guide farm practices and influence farmers
attitudes and behaviour;

• assess those beliefs and practices which are helping agricultural growth;

• identify agricultural programmes based on traditional systems and beliefs;

• analyse the impact of various agriculture development models and understand
farmers view point.

2.1 INTRODUCTION

Agriculture is the dominant economic activity in over 6,00,000 villages of India,
populated by 742 million people. In the last six decades, great strides have been
made in agriculture sciences. Locations specific technologies have been evolved
which can help us to reach the potential of both resource-rich and resource-poor
regions.
In many places, farm production has overtaken annual population growth resulting in a surplus and buffer stocks of foodgrains. A quantum jump in the number of cross-bred milch animals has led to a boom in dairying, often described as the White Revolution.

After Independence, the start of the planning era in 1951 brought dynamism into Indian agriculture through programs like Community Development, and three-tier Panchayati Raj system of local self-government.

Despite these achievements, many regions were by-passed by modernisation and growth. Seventy per cent of farmers and land-based workers continue to be deprived of basic needs like food, water and health care. Thousands leave their homes every day and migrate to nearby towns and cities seeking a livelihood. This great majority has lost its customary rights, status in society and their self-esteem and confidence.

In this Unit, we look into the traditional beliefs and practices of farmers. These are often ignored but have provided mental and spiritual strength to people. They helped the community to maintain its identity and social structure through battles, invasions and natural calamities. Faced with a crisis, they withdrew to another place. When the invasion was over, they returned and lived harmoniously in the same peaceful pattern as before.

The origin of Indian farmers traditions and practices is traced to the scholars and sages who lived in the early Aryan settlements. These practices were needed once the pastoral groups settled down to regular cultivation of crops. We find these mentioned in the Rig Veda, the Atharva Veda, in the treatise by sage Kasyapa on agriculture, in the observations of scientists and physicians Parasara, Susruta, and Charaka, astronomers like Varahamihira and others. Scholars of different regions added to the store of knowledge from time to time. Many practices have been noted by Kautilya in the Arthashastra, written in about 250 A.D. Observations of foreign travellers in ancient and medieval India, have given detailed descriptions of agriculture practices and administration.

2.2 TRADITIONAL ROLE OF FARMERS IN SOCIETY

Socio-economic status and role of farmers in ancient India is discussed as under:

- The Sacred Trust of the Farmer

The Sanskrit saying “Agriculture is a divine skill taught by sages to farmers for sustenance of life” shows the high regard for farmers in society. The farmer was the Annadata - the provider of food.

He raised fodder for animals. He planted and maintained the grove of sacred trees next to the village, maintained pasture land, grew herbs and medicinal plants for supply to the village physician, and fragrant flowers for worship at the temple. He nurtured cattle, which gave milk and carried burdens for the community. He was the source of raw materials for all artisans.
Indian Agriculture: An Overview

- **Land Ownership and Duties**

  The Laws of Manu state that “The sages have said that the land belongs to one who cleared and tilled it”. The farmer believed that the land was a sacred trust held by him. During cultivation, he had to avoid damaging the land, polluting the soil or letting the land go waste.

- **The Farmer in Village Administration**

  Up to the middle of the sixteenth century, farmers continued to have absolute rights over their lands. The rulers had claim to a portion of the grain produced, but had no title to the farmers land. The entire administration of the village community was in the hands of groups of farmers called ‘Kutumbin’ in Sanskrit, and by different names in different regions.

  Ancient texts describe the Gram Sabha in every village in which farmers elected office-bearers to look after the administration and welfare of the community. Thus farmers were responsible for their own administration. The Gram Sabha was noted for its prompt action to settle disputes and administer justice. Running poor houses, schools, rest-houses for travellers, maintaining wells and tanks, building bunds for protection from floods and even defence against enemy attack were part of its duties.

- **Declining Role of the Farmer**

  From other Units in this Block, you will understand how farmers rights were slowly whittled down at first by foreign invasions, later by changes in the land tenure system. Replacement of the old system by Zamindari, Rytwari, and other land tenures deprived the farmer of his customary rights including security of land rights, so that he became a hired hand on his own land.

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**Check Your Progress 1**

**Note:**

a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) From your own knowledge, can you identify two traditional beliefs related to land and environment?

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2) Can you give one example of customary practice related to health?

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Traditional farming community in India believed that the movement of planet and their position at particular point of time affect fate/performance of farming. The relationship between these believes and their decisions on farming practices are discussed as under.

- **The Indian Almanac — the Panchang**

Can stars and planets dictate our fate? Do movements of the sun, moon and constellations influence events in our lives? What is there in the universe beyond the earth and the sun? Questions like these have been asked from earliest times. Efforts are still being made to find the answers. Ancient astronomers had developed the science through observation, calculation and intense study of the heavens. Based on this, they developed prediction of physical phenomena, events and even the fate of human beings. As agriculture was the dominant economic activity, many guidelines for farmers were made based on the signs of the Zodiac and planetary movements.

- **How the Panchang is Calculated**

It is interesting to go through the Indian almanac compiled every year by scholars working in religious institutions (Mathas). It is prepared according to many texts, supplemented and made relevant to the region by scientist-scholars. At the start of the Indian new year, (which occurs at different times in each region), the almanac (Panchang) is eagerly awaited in village homes. It gives major predictions for the year, lists out auspicious periods for various activities, gives the dates of major festivals as well as the mode of celebration and provides a general over-view of life of the community and nation in the coming year.

- **Agricultural Predictions**

Farmers, eagerly await the predictions of rain, drought or wind direction which are worked out from the position of planets, constellations, the sun and the moon calculated for the year. A great deal of actual observation of climate or weather conditions goes into these predictions. For example the ascent of the star Ardra, which rises in the Gemini constellation in June-July is the time when the farmer is advised to start sowing crops, is also the rainy season. For vegetables and short duration crops, he is asked to commence sowing under the star Hasta (called Hathia in local dialect), which rises in the Virgo constellation in the period 15th August to 15th September. Again this is a time when there is plenty of soil moisture and little irrigation is required. The almanac gives a list of auspicious days for important practices like ploughing, sowing, irrigation, digging of wells, harvesting and other practices.

- **Some Proverbs and Sayings**

Of course a great many of these guidelines are already known to farmers from pithy sayings, proverbs and folk-songs. Ghagh, the folk poet says in one of his verses “Jo barkha Chitra men hoye, Sagri kheti jawe khoye.” When the star Chitra is in ascent (around mid-April), the crop is almost ready for harvest, hence
Indian Agriculture: An Overview

The farmer is warned that rain will ruin the crop. Another proverb says "Bajre ke khet men, kabhi na macca boye, Boye to na hoye, gharwali nit roye". The farmer is advised not to grow corn after a crop of bajra because the crop will fail and his wife will be in tears.

- **Some General Common Beliefs that Guide Farmers**

The days of the bright fortnight are auspicious for starting agriculture activities, while the days when the moon is waning and the new moon (amavasya) are to be avoided. Out of 27 constellations, fifteen were selected for giving best results to the farmer. Sage Kasyapa says that in general the best time to start cultivation was when Jupiter was in his lagna (mansion), when Venus was in ascent or the moon was in conjunction with Purvashada (this occurs around mid-January), which is a suitable time for sowing some crops.

Negative stars like Rahu were to be avoided for all operations. Specific times (related to the season) were suggested for each crop. For example, the period when the sun entered Aquarius was ideal for planting sugar-cane cuttings.

For the growing of fragrant and fruit trees in the sacred grove near the village, an elaborate astronomical chart was provided, because trees were believed to be the source of wisdom and spiritual strength.

The signs of the Zodiac and planetary positions which determine important events in life continue to be consulted by farmers, especially at critical times.

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Check Your Progress 2

**Note:**

- a) Use the spaces given below for your answer.
- b) Check your answer with those given at the end of the unit.

1) List out some common beliefs that guide farmers in his farm operations.

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2.4 **SOIL TREATMENT AND PRACTICES**

In this section, we will go through selection of crops according to different types of soil and soil preparation practices followed by the traditional farming communities.

Do you ever think about the soil under your feet? Probably not unless you walk into a rain - water puddle, or hurt your feet on a stone. For everyone who works on the land, the soil has always been a very important factor of life and livelihood.
Ways of Improving Soil

Soil preparation and manuring have always been considered important for soil fertility. Cattle were left overnight on the fields for a few days before start of the sowing season alternately cow dung was liberally spread over the field. In some cases, the mud from the bottom of water tanks was spread and mixed with the top-soil, thus adding nutrients. The Yajur Veda mentions that before taking a second crop, manuring of the field is essential.

Soil Type Suited to Different Crops

Although the actual chemicals in the soil were known only in general terms, the methods adopted to improve soil nutrition were based on scientific study, observations and knowledge of the properties of herbs and medicinal barks needed for soil treatment.

Soil was divided into Urvara (fertile) and Usara (sterile). By experiment soils suitable for different crops were identified. The nature of soil best suited for growing barley, rice, sesameum or green gram was described. River banks were best for growing pumpkin and flooded soils for sugarcane, pepper and grapes.

Soils in the vicinity of wells were suited to root vegetables. Marginal furrows between two rows of a crop were considered best for growing fragrant plants, herbs, Khus roots and Lac. Potato would thrive when grown beside a bamboo grove. Clay soils were ideal suited for jute and sandy soil for summer paddy. We can see farmers today following many of these ancient precepts.

Soils were also classified according to those which were totally dependant on rain and those were irrigated by rivers. Kautilya in the Arthashastra (around 250 BC) classified soil according to the economic importance of the crops grown and their productivity, as these parameters helped to determine the amount of taxation to be imposed.

2.5 PRE-SOWING CULTIVATION PRACTICES

This section explains the different pre-sowing activities undertaken by the traditional farming community.

Pre-sowing Treatments

Some of the pre-sowing practices followed by farmers were: Cut ends of sugarcane cuttings were covered with a mixture of honey, ghee, animal fat and cow dung; Bulbs of root vegetables were treated with cow dung mixture before placing in the soil; Cotton seeds were first mixed with cow dung which functions as an antiseptic, repels insects and adds minerals to the soil; Roots of trees were manured with the ashes of bones and cow dung burnt together; Seeds of cereals were exposed to heat and mist for seven days and nights, etc.

Seed and Root Treatment

The methods for treating seeds included rubbing with cow dung, soaking in milk, scrubbing with honey, soaking in jaggery water or keeping underground in a packing of leaves with a fire constantly burning overhead. In many of these practices we can find sound principles of plant nutrition and plant protection, for
example both cow dung and *Neem* leaves have antiseptic properties that can protect tender roots from insect infestation. Buttermilk poured on tender roots gives extra calcium and Vitamin C for protection against fungus or disease.

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**Check Your Progress 3**

**Note:**

a) Use the spaces given below for your answer.

b) Check your answer with the given at the end of the unit.

1) Suggest two traditional methods of soil improvement which can be applied by farmers today.

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**2.6 PLANT PROTECTION PRACTICES**

Plant protection is an important farm practice to protect the crop from the insect/pest, birds and animals. The various practices followed by the farmers are briefly discussed in the following section.

- **Protecting the Crops from Bird and Animals**

Go into the fields at harvest time and watch a small boy perched on a *machan* in the middle of a field of ripening grain. You will soon hear him shout and swing a stone tied to the end of a rope, swiftly and vigorously around his head. His duty is to guard the field from flocks of birds which attack the crop before it is harvested, using his sling and a few stones.

- **Practices for Protecting Plants at Different Stages**

There are many traditional practices for saving the crop at different stages. In the centuries before chemical methods were found, farmers protected their trees and crops by a variety of practices including fumigation with milk, ghee and jaggery, spraying a decoction of bitter herbs and barks and scattering of ashes and sesamum seed paste at the roots of trees. Some insects were controlled by smearing the plant with a paste of lotus and tubers.

In addition to chemical sprays which are harmful to health, there are now biological based sprays which adapt traditional knowledge to pest and disease control in plants.
Check Your Progress 4

Note: a) Use the spaces given below for your answers.
    b) Check your answer with those given at the end of the unit.

1) Can a farmer protect his crop by low-cost methods?

2.7 HARVESTING AND THRESHING

In the traditional society, like other crop production practices, the harvesting is also influenced by the movement of planet. The traditional methods of harvesting and threshing are discussed in this section.

When the months of toil are over and the farmer is rewarded with the sight of a golden crop standing on his field. Then it is time to find the auspicious day for preparing the threshing floor and harvesting the grain.

During the harvest season, you can go to a village and see traditional threshing methods, especially in poorer regions where fields are small and unsuited to the use of harvesting and threshing machines. Every member of the family assist in gathering the harvest, bringing it to the threshing yard, covering it with a layer of straw to prevent the grain from breaking, winnowing the grain, cleaning and storing.

The picture is not very different from the one described by Alberuni, the Persian traveller who came with Shah Mahmoud Ghasnavi to India, in 1074 A.D. Farmers prepare the threshing floors close to each other in an area which is against the direction of the wind. A strong wooden post is fixed at the centre. Oxen are tied to the post with strong ropes. Harvest is brought to the threshing floor, stamped by oxen and then gathered in baskets.

Winnowing grain is the task of women. The farmers wife stands on a high ground and scatters grain against the direction of the wind. The chaff is blown away and grain falling to the ground is gathered by children into small heaps. It is dried in the sun to remove any moisture and stored in baked clay turrets. Grain is also dehusked in wooden mortars. Straw and chaff are carefully removed and stored for fodder.

There is a great variety of storage methods including earthen pots, cane baskets, jute sacks and pits lined with straw and burnt cow dung. These old methods have now been supplemented but not entirely replaced by metal bins.
Check Your Progress 5

Note:  
a) Use the spaces given below for your answer.
b) Check your answer with those given at the end of the unit.

1) Name the storage methods used for storing grain, pulses, vegetables and fruits and straw in the villages.

2.8 FARM IMPLEMENTS AND TRANSPORTATION

Some time back, we were travelling in an interior district of Maharashtra, when the vehicle broke down. In the four hours it took for repairs, we sat in the makeshift shelter of a blacksmith on the road-side. He was busy making traditional farming tools. In one corner, there was a display of sickles, hoes, spades and trowels. As we watched, he did a denting and repairing job on several damaged ploughs, axes and sickles.

He waited tool in hand, while his wife blew vigorously into a pair of buffalo-skin bellows on a lighted wood-fire. When the flame was red-hot, he thrust the tool into it, expertly beating it to the desired shape. As if by magic, a gleaming new farm implement came out of the flames.

He told us that for generations his family had practised the craft. With machine-made implements coming into the market, all other blacksmiths had left the village to become labourers in nearby towns. But he decided to remain and continue to provide service to local farmers. “Sometimes when the bus stops here, farmers from other villages also flock to buy my work” he said with modest pride.

Farm implements are needed from the beginning because the first task of the farmer is to culture the land. He breaks up lumps of earth and levels the soil to enable irrigation and sowing of grain. One of the oldest of farm instruments is the iron plough.

- Importance of Plough and Bullock Cart

The plough is honoured as it is essential for cultivation. “Facing the east, the farmer should pray to mother earth, offer milk, place garlands around the necks of the oxen and worship both the plough and the oxen,” says sage Kasyapa.

An interesting comment is made by sage Parasara in his treatise ‘Krishi Parasara’ that the land ploughed ten times will yield greatest prosperity, that ploughed five times gives sufficient wealth, three times mere subsistence and once will only produce debt. Ploughing is one operation restricted to “men only” throughout the country.
The plough appears to have retained its form from the Vedic era where it is described in great detail. Ploughs were made for deep or shallow ploughing, for being drawn by a single bullock, pair of bullocks or by 6 to 8 oxen for clay soil. The number of ploughings depended on the soil moisture and crop. For wheat, 7-8 ploughings were recommended, for rice 1-2. Other common implements were the harrow, sickle, hoe, winnowing basket, winnowing fan and sieve.

Auspicious days of the week were fixed for ploughing. At cock-crow, the ploughmen left with their bullocks to start their work. When the last round of ploughing was over, the farmers wife would pour seed into wooden bowl attached to the plough. After the seed dropped, the iron plough-share would cover it with a thin layer of soil. Other implements continue to be made almost in the same time-honoured designs and sizes, as we saw in the workshop of our friend the blacksmith. A great many improved tools have been scientifically designed. These are efficient and reduce drudgery. If produced on a large-scale, they will be within the reach of poor farmers and improve productivity.

Historians believe that the invention of the bullock cart which combines the wheel with use of animal power was of great scientific significance. It enabled the spread of cultivation beyond the earlier limits. Along with it there was a development of culture and civilization. It is said that the wheel was invented in ancient Mesopotamia (corresponding to modern Iraq). When we see the great variety of carts in our country, it seems that the origin of the bullock-cart must have been in some part of our sub-continent.

A wooden toy cart found at the Harappan site of about 2300 B.C., has solid wooden wheels similar to carts still found in Gujarat.

The bullock-cart which carried the farmers family and his produce was decorated for bringing a bride or carried pilgrims from one part of the country to the other, has ceased to be an essential part of the farmers household. Maintaining bullocks has become difficult due to the disappearance of pasture land. Improved varieties of cattle are profitable, but the bullocks do not have the hump required for pulling a cart or shouldering a heavy plough-share. If you see a bullock-cart moving on a narrow village roads, stop to watch it for sometime, because it may not be around after two or three decades.

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**Check Your Progress 6**

**Note:**

a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) Give two reasons why the plough and the bullock-cart led to the spread of civilization.

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2.9 FARM ANIMALS

Animals have been the mainstay of traditional farming system. Even today it is most important complementary enterprise to agriculture. Let us discuss the status and importance of animals in Indian agriculture.

Many of you must have heard of Kamadhenu, the legendary cow of sage Vasishta which arose from the historic churning of the ocean which is described in the Puranas. The remarkable cow could mind-read the thoughts of the sage and instantly produce bountiful hospitality to any number of visitors to the ashram.

Perhaps the Aryan settlers had the legendary cow as a role model. They held the cow, bull and oxen in great reverence. “By means of cattle, soil is tilled and production of foodgrains becomes possible. Oxen draw water, carry heavy burdens and draw carriages. Even if they are weary, they carry home the entire harvest.

- Cow as a Symbol of Prosperity

In Vedas and Puranas, cattle especially milch animals are regarded as symbols of prosperity. The cow being the abode of several deities, its worship was sure to bring divine blessings to the household hence the householder had the duty to worship the cow every morning. In practice this duty was undertaken by women of the household who also tended to the animals.

- Rule for Treatment of Cattle

Feeding and proper care of the cow was believed to be a sure way to get liberation from the cycle of birth. Ill-treatment of cattle attracted the severest punishment, even death. During the ceremonies after death, the gift of a cow was believed to lead the departed soul to heaven. A Sanskrit verse says, “He who goes round the cow, keeping to her left, earns the same merit as if he had gone round the world seven times”.

- Cattle and the Status of Farmers

Naturally the spiritual, social and economic value of the cow was reflected in the social status of the cattle owner whose prestige rose in proportion to the number of cattle he owned. Cattle were owned by individual farmers who were responsible for its proper care. Every farmer had a few draught and milch animals for his farming and family needs.

- Expert Traditional Herdsmen

Cowherds and buffalo herdsmen had an important place in the social order. When crops were in the field, herdsmen were hired collectively by the village to take cattle daily to the pastures, protect them from wild beasts in the forests and bring them back safely in the evening. They also attended to ailments and injuries. Expert and experienced herdsmen must have created some of the finest cattle breeds still found in the country.

- Sanitation and Hygiene of Cattle

Cowsheds were to be cleaned and decorated with fresh flowers, perfumed with incense and fumigated from time to time by burning pine-cone, oris roots, resin
gum or asafoetida and mustard seed mixture. To improve sanitation, planting of an asafoetida tree in the cowshed was advised. Rations were prescribed for the good health of cows, bulls, buffaloes, horses, mules, camels. This included straw, fresh grass, oil-cake, oil, salt and in winter jaggery and ghee. Ailments and injuries were treated with herbs, rock-salt, oils and spices like turmeric and ginger.

Priority was given to treating and healing cows especially milch animals. In his book sage Parasara, gives tips for keeping cattle happy as well as healthy,

- **Cattle Breeding**

  In the Mauryan age (250 - 350 A.D.), great strides were made in the breeding and nurture of all animals including elephants, horses, camels, cows, buffaloes, sheep and goats.

- **Superintendent of Cattle**

  There was a Superintendent of cattle. His task was to brand cattle, supervise the work of herdsmen and supervise veterinary doctors who were posted throughout the kingdom and keep an account of the number of animals including horses, elephants and mules.

- **Cattle Hospital**

  There were separate herds of crippled cattle and dry cows. Buffaloes were also herded and nurtured. The Arthashastra prescribes four bulls for every ten cows or for ten she- buffaloes for breeding purposes. The gopa, was the village accountant responsible for setting apart pasture land. Veterinary doctors were given free land for farming. Farm land was also allotted to other important members of the community such as accountants, physicians and horse-trainers. Similar systems for administration of cattle existed in all kingdoms in the ancient and medieval period.

  Animals which assist the farmer include horses, camels and mules. Those which provide milk or meat include goats, sheep and pigs. The poor farmer gets economic returns from ducks and poultry rearing and fish breeding.

  An edict of Emperor Asoka states that two kinds of hospitals were established all over the kingdom, one for men, the other for beasts. Herb gardens were planted near hospitals for use as medicines.

### 2.10 IRRIGATION PRACTICES

Irrigation is the crucial inputs to get the good harvest of crop. This section discuss the traditional believes followed in searching water as well as irrigation techniques practiced by the farmers.

- **The Water Diviner**

  He has almost vanished from our midst. But you may possibly find him in a village in an unirrigated or remote corner of the country. You will see a lean figure running over fields, with groups of farmers in hot pursuit. His routine starts early in the morning. He bath, dress in a white or red dhoti and wears on his forehead the sacred red mark. After prayers, he picks up his divining rod and meets the waiting farmers. They escort him eagerly to fields where wells or small tanks are to be dug.
He is the water diviner. Go along with the group and watch him moving briskly across the land, stopping to tap the earth now and then with his stick, like a doctor tapping his stethoscope on a patient's chest. Suddenly he stops. It seems as though the stick is stuck on the ground. “Here”, he says. The farmer runs to mark the spot “There is water below the ground here, at 3 feet” says the diviner. Sometimes he draws a line and explains that it is the direction of the flow of underground water. He tells them whether the water is sweet or salty or bitter. If asked, he demarcates the land suited for agriculture, forestry, for excavating tanks or wells, as required by the village Panchayat. He gets a reward for his labour. Generally the farmer finds the water source as indicated by the diviner.

- Monsoon Driven Cultivation

In a monsoon dependant farming system, the farmer makes all efforts to find, collect and store water for cultivation.

The ancients have said that the key to a good harvest is in the hands of Indra, Lord of the Heaven. In his treatise on agriculture, sage Kasyapa says “Before starting cultivation, the farmer must have complete knowledge about rainfall, because rain is as essential to cultivation as cultivation is to life”

- Ancient Irrigation Systems

As cultivation spread to areas having low rainfall, an irrigation system became necessary for growing crops. Rigvedic farmers constructed channels from wells and rivers. Artificial lakes, dams and rainwater storage systems were common in the Deccan plateau and southern region. In the Visnu Purana there is a reference to Balarama diverting the Yamuna towards Vrindavan for cultivation.

- Water Administration at Farm and Kingdom Level

The role of a king in providing irrigation is illustrated in the question put by Rishi Narada to king Yudhishtira in the Mahabharat. “Have large and overflowing lakes been prepared all over the kingdom or is agriculture totally dependant on rain?” he asks, to which the king replies describing the help given to farmers through an irrigation system, regularly inspected by the king.

Farmers dug canals and tanks through cooperative effort. There are many references to dikes and bunds to prevent flood water. When there were signs of flood, village folk with baskets and shovels went to strengthen bunds. Chandragupta Maurya maintained a canal irrigation system in which water flow was regulated through sluices. Superintendents were appointed to monitor, regulate and maintain the irrigation system. In different parts of India, the water administrator was known by titles such as Kohli or Patkari in Maharashtra, Hawaldar in some parts of Northern India and Kambukatti or Nirkatti in southern regions.

Asoka in his edicts describes the pious act of constructing tanks, wells and maintaining places where the weary traveller could drink water and rest.

- Methods of Taking Water to the Fields

The tools and implements for lifting water can be seen even today. One traditional method of lifting water from rivers in which a drum shaped wheel turns on a vertical plane over the pond, a number of pots are tied around it, lift the water and
empty it on the downward turn of the wheel drawn by oxen. Known as the Persian wheel, it is sometimes turned by hand. Another method is the ‘Dhenkli’ in which water is scooped out by small cane which is emptied into the field.

The Kharavela kings of Kalinga and Chola kings of southern India were noted for magnificent irrigation enterprises, including dams, anicuts and chain wells, whose traces can be seen today. In chronically dry regions like Rajasthan and Gujarat, you will see huge, stone lined water tanks built in every kingdom. These were regularly cleaned and maintained by the administration.

The method of irrigating different crops was worked out in great detail according to soil and climate conditions.

Check Your Progress 7

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1) Give two traditional methods for collecting and storing water.

2.11 LET US SUM UP

What is the present relevance of traditional beliefs and practices? How they help in agriculture planning? Are they still relevant to resource poor farmers? Can old beliefs deal with the challenge of poverty, inequality and the impact of globalization on small producers and village artisans? How can they stop migration from rural areas to towns which tilt the socio-economic balance against the poor?

You can see some answers to these questions in action taken by our farmers and women-folk to deal with crises. Gaura devi, an illiterate widow in Renu, a tiny village in the Himalayan district of Chamoli, now in the state of Uttarakhand stopped destruction of the mighty pines and other trees near her home. She created environmental history in 1974. She and her friends clung to the trees (this gave rise to the name of the Chipko movement) and forced the timber contractors to withdraw. The struggle went on for about two decades and stopped tree felling by the powerful timber lobby.

Farmers in flood-prone areas have heroically faced the threat of floods, by strengthening river embankments facing the fury of rain and torrent.

In many regions of water scarcity, farmers have created watersheds, collected and stored rain water and reclaimed land for cultivation.

Tribal farmers have formed groups and regenerated dying forests in the Western Ghats.
Recently, a potato growing district in Maharashtra would have collapsed economically, because surplus production brought down prices. In this instance women rallied. They took bank loans, bought processing equipment, processed and marketed a huge variety of potato products which brought back the smile of prosperity on farmers faces.

In the PURA (Providing Urban Amenities to Rural Areas), a leading farmers NGO has given knowledge connectivity through electronic which has led to setting up an infrastructure by which hundreds of villages in scarcity areas in Gujarat and Tamil Nadu have sustainable agriculture, diversified farming and employment in managing water supply, power generation and running marketing centres.

The motivation behind these and numerous other efforts are traditional community bonding, the belief in giving and sharing and common action towards a common goal.

The experience of agriculture growth over five decades shows that the era of top-down planning, when a few officials implement ready made plans over a vast majority of poor farmers, is over. Planning for increasing an individual farmers profit is not effective, because the farmer is not isolated from his past generations, his society, values and beliefs.

A participatory approach based on the consensus of farmers can bring new life to farm practices and motivate the man behind the plough to venture into new area. Farmers acting together can find the ways and means to reach the common goal of reducing poverty, inequality, and deal with future challenges.

### 2.12 KEY WORDS

<table>
<thead>
<tr>
<th><strong>Dhenkli</strong></th>
<th>It is an ancient method of irrigation in which water is scooped out by small cane which is emptied in to field.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panchang</strong></td>
<td>It is compiled every year by scholars working in religious institutions (Mathas). It is prepared according to many texts, supplemented and made relevant to region by scientist-scholars.</td>
</tr>
<tr>
<td><strong>Persian Wheel</strong></td>
<td>It is one of the traditional methods of lifting water from rivers. In this case a drum shaped wheel turns on a vertical plane over the pond, a number of pots are tied around it lift the water emptied it on the down turn of the wheel drawn by oxen.</td>
</tr>
<tr>
<td><strong>Water Diviner</strong></td>
<td>He is a person having knowledge of presence of underground water in farmers fields. His knowledge is passed on own experience and advise received from parents. It is a family art.</td>
</tr>
</tbody>
</table>

### 2.13 SOME USEFUL BOOKS/REFERENCES

Agriculture in Ancient India (1964). ICAR, New Delhi.


### 2.14 ANSWERS/HINTS TO CHECK YOUR PROGRESS

**Check Your Progress 1**

1) Since most beliefs are based on the connection between man and nature, you can choose any two.

2) All home-made remedies are nature-based, for example, tulsi (basil) leaves tea relieves congestion and sore throat.

**Check Your Progress 2**

1) • Day of bright-fortnight are auspicious for starting agriculture activity.
   • Best time to start-cultivation was when Jupiter was in lagna (mansion) etc.

**Check Your Progress 3**

1) You can choose from organic matter like composted leaves, kitchen waste, or farmyard manure.

**Check Your Progress 4**

1) Neem (margosa) leaves boiled and sprayed on the plants.

**Check Your Progress 5**

1) Earthen pots, came baskets, jute sacks and pits lined with straw and burnt cow dung.

**Check Your Progress 6**

1) The bullock-cart gave mobility to people to move to new places, and the plough enabled the spread of cultivation.

**Check Your Progress 7**

1) Persian Wheel, Dhenkli.