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CONCEPTUAL FRAMEWORK

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CHAPTER- 1

CONCEPTUAL FRAMEWORK

1.1 Introduction

Resources are the backbone for any kind of development. It is impossible to develop any area without availability of various kinds of resources. In fact resource and development go hand in hand. Resources carry the burden of development and so prosperity on its soldiers. The development is a process of evolution which is taking its appropriate shape and place since pre historic times, from hunting and food gathering to modern equipped technological advancement. This development laid the foundation of resource utilization to resource extinction and consequently environmental mismanagement.

‘Resources include simply what is available and useful in a given location’ (McCarty, Harold & Lindberg, 1966). As a human being we need a platform to live, to develop. The platform is provided to us by nature in the form of land, water etc. which could be subdivided into various sub groups, and these all are technically defined as resources. ‘Natural resources are cultural, technical and economic appraisals of elements in nature that can be applied to fulfill social objectives and goals through specific natural processes.’ (Harvey, 1996). The prosperity of a nation is delimited by the rich availability of natural resources; their optimum utilization is always a key concern of the people and of governments. But the question is to what extent they are been utilized because the way of use and exploitation goes upon knife’s edge, a slight less is utilization and a slight excess is exploitation. There are considerable risks in resource-led growth, depending upon the availability of resources. These risks are amenable to mitigation because they are largely the result of poor management of resource development. (Gunton, 2003).
Anything present in the nature is only a ‘natural stuff’ until and unless man finds it useful. Man, according to his want and ability and culture not only create resource but also destroys it. Here the origin of culture acts both as a stimulus of cultural progress and as a cause of friction in resource utilization as shown in the figure 1.1.

**Man Culture and Nature**

![Diagram of Man Culture and Nature](image)

**Fig. 1.1, Source:** After. Zimmerman Erich W, sited in Peach W. N. and James A. in Zimmerman’s World resource and Industries, Harper and Raw, 1972, p.14

The flexibility is a key quality of resource and it makes resource dynamic as at different situation it is changed with the circumstances and with techniques. The same thing is different at different places. This quality makes the resource concept very broad. The glimpses of the value and tradition of the nation is often reflected in the usefulness of the resources satisfying human needs. The legacy left behind by the use of the available resource has also the cultural ethics in its root, thus, the importance of resources depends upon “cultural appraisals,” and the value of their distribution and changing pattern of their use. What we consider to be a "resource" today may not remain so in the future. Innovations in transportation, improved extractive technologies, as well as marketing play critical roles today in changing the nature of resource use.
The view of the sustainability embark the opinion of diminishing resources to be re-generated is the key motivation behind the brain community to use maximum resources to their desire satisfying habit and most of time people are involved in this process as how to use maximum but it raises a series of question as -what is the limitation of use of the renewable resource? Is it going to be renewable forever? Will the resource always be available to satisfy the want of rapidly increasing population? And so on, because a resource is a response to man’s appraisal and perception of his environment in a want satisfying capacity, satisfying individual group and social objective. It involves an appraisal as to whether the environment provides, supports or serves the supply of the desirable goods and services (food, shelter and comfort) as defined by Zimmerman (Thakur, 2003). Indeed all resources are capable to exhaustion and it is a misnomer to call any resource as inexhaustible (Darling, 1969)

The wastage, misuse and thus consequent exploitation of natural resources are the major threat to resource availability, which is at present, is the outcome of the money mindedness or the capitalist nature of human being. As generally planners and thinkers perception raises that unawareness and illiteracy are the two main factors for the resource extinction in Indian perspective but to be honest it is not the extreme threat today in comparison of the capitalist human being because they are educated and aware of the danger but they put everything below their profit. Consequently this leads resource extinction as shown in the figure 1.2. Enthusiastic characteristics of human nature play a vital role towards the development, use and exploitation of resources.

It is very hard to demarcate the boundary between utilization and the beginning of the exploitation, hence exploitation is visible only when a lot has been damaged or destroyed and the functionality of environment and nature is barred or adversely affected. When the outcome of the exploitation is visible only then it is supposed to be understood that something has happened wrong. This tendency is now presenting hazards and disasters in front of the human society everywhere.
Man in his restless progress throughout life use the resources according to his needs. Knowingly or unknowingly man transformed or modified everything according to his comfort and needs. These activities reflected into some pleasant as well as some bitter experiences in form of imbalances, extinction of resources and many environmental problems and so on. Man has changed his physical environment by intervening at different stages such as by deforestation, construction of roads, houses, building, cities, forms and factories and many more. This has resulted into different forms of pollution (Pollution is the introduction of contaminants into the natural environment that causes adverse effect) such as air, water, noise, pollution etc. The situation has reached to a miserable condition for
living being where the disaster due to flood, draught, climatic change, global warming, pollution etc. have become a cause of concern.

At present the problem has turned out to be more complex: sustained pollution and other environmental problems anywhere threaten the sustainability of life of human as well as all the living being everywhere on earth in the long run. Some areas may be more at risk than others at specific points of time but over the long-term all will suffer as the outcome of environmental mismanagement (Chary & Vyasulu, 2000). A healthy conjunction between man and nature is essential for success of development of planning. This demands prudent management of natural resources, specially conservation, management and development of land which includes soil, water, attached plant and animal in a complex and dynamic combination factors like geology, hydrology, topography, soil, micro climate and community of plants and animal which continuously interact under the influence of climate (M. Singh & Lal, 2001). These factors prompted environmental studies to frame immediate action plan for resource utilization and environmental management in this regard.

As stated earlier the term resource bears very broad sense. It has been observed that any object is simply an object until and unless it is not met with human mind i.e. comes in human use, significantly becomes very broad in itself. So major resources and its environmental concerns present in the region have been studied to sum up the work in the limited period and money. In this study an attempt has been made to assess the resource utilization pattern and environmental management conditions under the challenges of increasing demand as well as increasing population.

1.2 Meaning and Definition of Resource

Resource stands for all the means and tools that fulfill our needs. Concise Oxford Dictionary defines resource as “a stock of supply of materials or assets”. Generally people regard resource as a special thing which is basically find through excavation or some broad physical feature like sea, mountain river etc. but
geographically we render resource concept in a very broad sense, typically that is everything which is in use or in practice by human mind as human mind being the actual resource controls every aspect of the resource from finding to extinction. Nothing is a resource until and unless it is marked by human mind that is why it is said that human mind is the supreme resource. According to Rees (1990) ‘resources are defined by man, not by nature’. In a very refined way we can say resources are what we use. Dasman (1968) defines resource as ‘materials, areas or living things considered useful or of value to a particular culture’. The attribute of usefulness is the matter of concern of a resource. Zimmerman defined resource as “the word resource does not refer to a thing or substance but to a function which a thing or substance may perform an operation in which it may take part” namely, the function or operation of attaining a given end such as satisfying a want. In other words, the word "resource" is an abstraction reflecting human appraisal and relating to a function or operation. As such, it is akin to such words as food, property, or capital, but much wider in its sweep than any one of these” (Zimmerman, 1951). Zimmerman's functional approach holds that nature is meaningless – in his terms, it is merely "natural stuff" - until people identify particular aspects or elements of it that can be used. Neutral stuff becomes "resources" when cultural and technological circumstances permit it to be appraised as such. "In other words, the word ‘resource' is an expression of appraisal and, hence, a purely subjective concept" (Zimmerman, 1933). Thus a ‘recurring theme’ in Zimmerman, and one that has endured in the way many of us think and talk about resources: resources are not pre-given but are evaluated and constituted within specific historical, technological and cultural contexts. "For each civilization rests on a different basis of resources, taps a different combination of environmental aspects.” (Zimmerman, 1933) A resource to one group of people may be merely "natural stuff" to another group or to the same group in a different set of circumstances. Hence the often-cited statement by Zimmerman that "resources are not; they become." (Zimmerman, 1951). As for as resource utilization is concerned it means “to make practical and affective use of” in view of Concise Oxford Dictionary which explains the essence of the word.
1.3 Types of Resource

Generally resources are categorized into two commonly known groups that are natural and the resource made from human interventions i.e. human resource. But on the basis of various characteristics resources are categorized into various types.

Resources are classed into two major groups:

- Natural resource
- Human resource

Natural resources are the main material base of regional development. Each and everything which is beyond human intervention is a natural resource, the deficit of natural resource may not be compensated by any other resource. In most cases natural resources represent specialization of a region. Whereas, man intervened, man modified, man maintained, man generated and man controlled resources are called human resource. Man has developed skills, technology and ability to generate, develop and use the resource by his mental ability, so it is said that human mind is the supreme resource for himself. These two groups are further subdivided into different types according to different perspectives.

The technological advancement generated a new type of resource known as computer resource, very useful resource that redeemed the work load of man. For economist capital resource is another kind of resource which is a base for an economy to flourish.

Omen (1971), classified resource depending upon its quantity and variability:

I. Immutable: incapable of much adverse change
II. Mis-usable: little danger of complete exhaustion but when improperly used
III. Exhaustible: permanency is dependent upon the methods of use
Lassen (1972), classified resource into four groups-

I. Perennial or perceptual resource: earth properties like air, water, etc.
II. Renewable resource: such as plant animal and soil because they respond to man’s manipulation.
III. Non renewable or fund resource: minerals are included in this group.
IV. Amenity resource: The desirable attributes of our cultural environment.

Resources may be further classified into various groups depending upon attributes and bases.

**Resources are Categorized Based on Distribution**

**Ubiquitous Resources**- The resources found everywhere are known as ubiquitous resources (e.g., air, light, water).

1) **Localized Resources**- These resources are found only in certain parts of the world (e.g. coal, gold, copper etc.).

**Resources Can Be Categorized on the Basis of Renewability**

1) **Non-Renewable Resources**- The resources that cannot be regenerated comes under this category. Most of the minerals and fossils are included in this category. Since their rate of formation is extremely slow, they cannot be replaced, once they are depleted. Out of these, the metallic minerals can be re-used by recycling them, but coal and petroleum cannot be recycled.

2) **Renewable Resources**- these resources can be replenished or reproduced relatively. There is no need to worry about these resources regarding extinction.
Figure 1.3. Source: After Park C.C. (1997) The Environment Principles and Application

**Resources are Also Categorized Based on the Stage of Development**

1) **Potential Resources** - These types of resources are present in the nature but may be used in the future for example, petroleum may exist in many parts of India and Kuwait that have sedimentary rocks, but until the time it is actually drilled out and put into use, it remains a potential resource.

**Actual Resources** – Actual resources are those that have been surveyed, their quantity and quality determined, and are being used in present times. For example, petroleum and natural gas is actively being obtained from the Mumbai High Fields.
Resources can be Categorized on the Basis of Origin

Abiotic Resources- Non-living things are known as abiotic resources. (e.g. land, water, air and minerals such as gold, iron, copper, silver etc.).

1) Biotic Resources – All living being comes in this resource type. Forests and their products, animals, birds and their products, fish and other marine organisms are important examples. Interesting thing is that minerals such as coal and petroleum are sometimes included in this category because they were formed from fossilized organic matter, though over long periods of time

1.4 Concept of Sustainability

Sustainability of resources and development of a nation is interlinked with a fine thread of balance. Most of the time sustainability is threatened by the way of human action. The concept of sustainability requires generations at present to use variety of earth’s resource in such a way with appropriate, effective and non wasteful techniques and leaving these resources under such usable condition that our coming generation might use these resources effectively because “resources are limited but resource use is squeezable- well almost infinitely”(Payotou, 1991). Excellent and effective policy frames and their execution may make it possible for each national perspective. In fact conservation of resources is quite essential for our future generation but it depends upon the options and values of each generation. The sustainability, most of the time makes a resource dynamic, fulfilling the needs of each generation. This will fulfill the need of the present generation by efficient, optimum and sustainable use of resource to assure the gains of healthy environment of future generations and providing equally healthy environment for present generation.

1.5 Resource Potential Development

Future of resource availability, new resource and alternate resource depends upon resource potential development. In the early twentieth century the mileage of motorcycles were hardly 10-15 kilometer per liter whereas today it is 70-90 kilometer per liter. It has been possible by potential development. The potential of resource can be increased by using innovative thinking, recent and
advance technology and value strengthening. We know that technology plays very important role in resource potential development because it decreases the rate of resource dwindling and produces more output on one hand and opens the door of identification and use of new resources on the other hand. Innovative thinking prepares the roadmap of potential development as well as development of a region. Resource potential development results into maximum benefits and maximum resource utilization, In other words the resource potential provides the base for development. The demographic potential provides the most useful utilizers of the resource base and the infrastructural potential provides the most important linkage between the resource base and resource utilizers, which means long lasting resource availability.

1.6 Resource Conservation

Resource evaluation and management for sustainable development is centred in the role of ultimate conservation. Both Development and conservation processes need to run with sustainable balance. Conservation is a healthy human relationship with nature for sustainability of natural resource in the process of all round development. International union for conservation of nature and natural resources (IUCN, 1980) in its report world conservation strategy defined conservation as ‘the management of human use of the biosphere so that it may yield the greatest sustainable benefits to resent generations while maintaining its potential to meet the need and aspirations of future generations.’ Stock of resources are the essential support for human life as well as onwards progress hence it is quite possible that natural environment and its process cannot ever remain pristine or undisturbed in context with human action. The disturbance in natural environment requires an effective conservation mechanism to support the environment and strengthening man nature relationship. In fact the resource utilization, population and environmental conservation form a three legged stool which is practically very unstable but conservation strategy can be very useful in maintaining balance between them.
1.7 Resource Preservation

Resource preservation is comparatively stricter concept. It does not allow using resource whatsoever the need or situation arises in the development process. When we talk about development it is essentially the development of a resource by changing its shape quality and property for alternative use. The preservation typically allows neither the use of a resource in its original shape nor the modified or changed resource. Preservation simply blocks development because no harm or benefit does to a resource. For example excavated coal is used in different developmental works but when we let it be where it is inside Earth it turns to be preservation. Preservation stands for no loss no gain that’s why planners prefer resource conservation instead of resource preservation.

1.8 Environmental Management

Right from the beginning man’s relation to his environment was in the centre of geographical study. ‘Environment is viewed in different ways in different angles by different groups of people but it may be safely argued that environment is an inseparable whole and is constituted by the interacting system of physical, biological and cultural elements, which are interlinked individually as well as collectively in myriads ways. Physical elements (space, landforms, water bodies, climate, soil, rock and minerals) determine the variable character of human habitat, its opportunities as well as limitations. Biological elements (plants, animals, micro-organism and man) constitute the biosphere. Cultural elements (economic social and political) are essentially man-made features which go into the making the cultural milieu.’ (S. Singh & Dubey, 1983). As for as environment is concerned ‘it refers to the sum total of conditions which surround man at a given point’(Park, 1980) because ‘man cannot exist or be understood in isolation from the other forms of life and from plant life’(Strahler & Strahler, 1976).

Environmental management is an attempt to control human impact on and interaction with the environment in order to preserve natural resources. Environmental management focuses on the improvement of human welfare for
present and future generations. Administrative functions that develop, implement, and monitor the environmental policy of an organization. ‘Sustainable Development’ is a pattern of resource use, that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. ’ The development initiatives should be initiated in such a way that the future generations can enjoy the benefits of nature without any compromise.

In fact the resources are the fundamental base for the economic growth and development of human society but their withdrawal from the nature, mode of their uses by human being and their disposal has enormous adverse effect on environment. The strategic action plan to redeem the effect on environment is very important but the strategies of environmental management must be of special consideration i.e. the local level management. Another important aspect of the environmental management is that whatsoever at local, regional or global level, must always keep in mind that earthly resources are finite so the plans must be created keeping whole world in mind.

1.9 Statement of Problem

Resource plays a vital role in the development of the area. Sustainable development is always the ultimate goal of the planners but despite the certain resource availability the mismanagement and unplanned exploitation presents hazardous situation disturbing man-land ecosystem. Ambedkar Nagar district is basically an agricultural area where nearly 70 percent population is directly or indirectly engaged in agriculture or agriculture related work. Agriculture not only provides food for growing population but also raw material for agro based industries. The area under study is one of the fertile regions of Uttar Pradesh but comparatively the yields of crop are below than the districts of western Uttar Pradesh. The agriculture practice is more or less of subsistence nature. Progress in agriculture leads to the modernization and social development. Progress in agriculture releases resources, labour as well as capital for use in industry and services but the area is still underdeveloped.
Agriculture and related various aspect like land structure, fertility state of soil, irrigation sources and facilities, livestock composition etc. determines the circumstances of utilization. The feasibility and difficulty of resource utilization is related to technological advancement but underdeveloped area simply advocates that the utilization is not optimum. The ground water is extensively being used for irrigation purpose resulting the shortage of groundwater availability generating environmental problem. Lack of interest in animal husbandry leading the dependency of chemical fertilizers instead of organic. The area under forest and gardens have drastically reduced and the agricultural land has been increased resulting the absence of normal forest ratio in the area is also disturbing the environment.

The area is densely populated so the pressure on land specially on agriculture is very high. The excess of human resource on one hand presents great amount of work force and on the other hand faces many social, economical, political, structural and environmental problem. The population and its involvement in various sectors i.e. work participation, literacy, density, female percentage, age group distribution, employment etc. form a nexus of population development, which prepares a roadmap for resource utilization and consequently environmental management. Findings of this research may help to design plans and formulate policies for the development of the area.

1.10 Review of Literature

World Resource and Industries by Zimmerman (1933) was a milestone work in the history of resource. Further the reviews of the book World Resource and Industries (Baum, 1951, Brandt, 1935, Bussell, 1951, Chardonnet, 1952, Clark, 1934, Condliffe, 1934, Eklbaw, 1933, Handman, 1934, Hotchkiss, Wood &Rose, 1934, Langsam, 1934, Loomer, 1951, Mouzon, 1951, Pettengill, 1952, Skilbeck, 1953) etc. have put forward the view of point of Zimmerman very broadly in front of the world. The concept of resource development, problems and mitigation strategies were led by many foreign scholars and scientists. Stamp (1952) measured the agricultural efficiency in India using statistical method,

In India such work may also be mentioned. Pradyumna P. Karan (1957) focused on land utilization in special reference with agriculture in India, Shafi (1960) studied land utilization regions in eastern Uttar Pradesh which become a
significant base for other studies, Chaterjee (1962) discussed the need of planning in agriculture in India, V. L. S. P. Rao and Bhat (1962) advocated regional framework for resource development, Nath (1964) studied the resource regions of India for the prospect of resource development, Bhatia (1965) studied pattern of crop concentration and crop pattern in India using his own method of statistical analysis, Datt (1968) tried to prepare the roadmap of regional development by utilization of resources, P. Sengupta and Sadasyuk (1968) studied resource utilization and economic development and consequently economic regionalization in India. Various problems and approaches had also been discussed by them in economic regionalization of India, R. P. Mishra (1969) emerged as the milestone in planning in India. He gave new dimensions to regional planning, prepared policies for sustainable development, Kayastha (1970) studied Himalayan region and proclaimed a vital need for the conservation of resources available there, D. N. Prasad (1972) studied external and internal resource allocations and advocated external resource as the need for the economic development of India, Dasgupta (1973) emphasized the need of agriculture in the development of India, Chaturvedi (1977) advocated the need of the survey and conservation of natural resources for the development of the region, Baig (1977) studied human resource development specially children as the richest resource of the country and advocated proper care for the children resource, Dakshinmurti, Michel and S. Mohan (1978) studied water resources of India and find potential of agricultural development by utilization of water resource in agriculture, Shah (1979) studied various dimensions of agricultural development in India, Khoso (1988) studied environmental aspect in sustainable development and advocated the need of environmental concerns in development programmes, Ranganathan (1984) studied electricity requirement in rural India and forecasted the excess of the electricity demand in future, Jodha (1985) discussed the evidences of population growth in Rajasthan and its effect as the common property decline in the state, Jain (1985) studied various determinants of infant mortality in rural India, Khoso (1988) discussed environmental priorities for sustainable development in Indian context, C. H. H. Rao (1991) studies rural Indian prospect for industrialization for the development of agriculture and its products, B. N. Mishra (1992) emphasized the
need of agricultural planning and management in India, P. P. Karan (1994) discussed the environmental movements in India in contemporary situations as the vital need for the sustainability, Sharma (1995) emphasized the need of participatory forest management to make forests sustainable, A. S. Rao (1997) discussed the need of water resource management in India for sustainable development, Tiwari (2000) measured the agricultural land use of Jharkhand and proclaimed urgent management strategies for the development of the agriculture, K. D. Singh, Singh and Prasad (2000) emphasized the need of soil and water conservation for food security sustainability of agriculture, Siddique (2001) studied forest and tribes in West Bengal in light of man-land relation and environmental management, Bora and Sahariah (2001) studied soil and water quality in Borosola Beel, Guahati in light of urban wetland for the management of environmental and sustainability of these resources, R. P. Mishra (2002) studied population pressure of food resource in Madhya Pradesh as a major setback for the development of human resource and the region also, A. Sengupta (2002) studied the correlation between water resource availability and the agricultural productivity in Malda district, Bose (2003) studied roads as a major tool for the development. The intensity and the density of roads are presented as a vital resource for transportation and connectivity, V. K. Prasad and Badarinath (2004) discussed the relevance of the HANPP analysis results by focusing on land use/land cover change and exploring the inter-linkages between energy flows and environment.

More research work in different aspect of resource are being carried out by different universities in India using modern techniques like remote sensing and global positioning system etc.

1.11 Objectives

The objectives of research study are as under-

1. To assess the nature of resource availability and utilization pattern in the study area.
2. To examine the problems and prospects of resource utilization and environmental management.

3. To identify the resource potential areas of the study area.

4. To assess the problems and prospects of resource development and its utilization.

1.12 Research Hypotheses

Scientist begin with an informed guess called a working hypothesis, a speculation about the natural world that can be tested and verified or disproved by observations and experiments (Garrison, 1988). To start the study we need to have some hypothesis relating to the topic. The hypotheses relating to the topic of the study area are as under-

1. There is a strong association between occurrence and distribution of resource and intensity of resource utilization.

2. There is a positive relationship between the attitude of resource utilization and various kinds of environmental problems or degradation.

3. The possibilities of resource utilization and reducing the environmental defects are present in the study area.

1.13 Database

The present study is based on both primary and secondary data. The secondary data pertaining to land use, agriculture, cropping pattern, forest, water resource, livestock, agricultural productivity, irrigation, area, population distribution, sex ratio, work participation, etc. have been collected from various government, semi-government and non-government organizations, tahsil headquarter, published literature, government reports, district statistical bulletin, samajarthik samiksha, online government data, unpublished records of the public administration of government offices. Primary data have been collected from field surveys of the area and through interviews.
1.14 Research Methodology

The major work is based on observation in the fieldwork, interviews and statistical records of the study area. Descriptive approach has been adopted to depict the socio-economic account of the study area. Simple statistical methods have been used for the analysis of the data.

Table 1.1 Methodology of Calculating Crop Yield Index as Proposed by W.M. Yang

<table>
<thead>
<tr>
<th>Name of the crops</th>
<th>Yield (qt./ha.)</th>
<th>Area of crop in the block</th>
<th>Crop yield in the block as percentage of the district</th>
<th>Percentage multiplied by area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average yield in the district</td>
<td>Yield in the block</td>
<td>col.3/col.2x100</td>
<td>col.4 x col. 5</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Rice</td>
<td>26.96</td>
<td>26.91</td>
<td>14487</td>
<td>99.81454</td>
</tr>
<tr>
<td>Wheat</td>
<td>33.6</td>
<td>33.49</td>
<td>15880</td>
<td>99.67262</td>
</tr>
<tr>
<td>Barley</td>
<td>27.03</td>
<td>26.78</td>
<td>114</td>
<td>99.0751</td>
</tr>
<tr>
<td>Jwar</td>
<td>8.88</td>
<td>8.69</td>
<td>131</td>
<td>97.86036</td>
</tr>
<tr>
<td>Millet</td>
<td>16.76</td>
<td>16.75</td>
<td>5</td>
<td>99.94033</td>
</tr>
<tr>
<td>Maiz</td>
<td>12.58</td>
<td>2.38</td>
<td>10</td>
<td>18.91892</td>
</tr>
<tr>
<td>Urad</td>
<td>4.81</td>
<td>4.75</td>
<td>166</td>
<td>98.7526</td>
</tr>
<tr>
<td>Moong</td>
<td>5</td>
<td>4.95</td>
<td>29</td>
<td>99</td>
</tr>
<tr>
<td>Masur</td>
<td>8.44</td>
<td>8.42</td>
<td>8</td>
<td>99.76303</td>
</tr>
<tr>
<td>Gram</td>
<td>14.05</td>
<td>14.03</td>
<td>180</td>
<td>99.85765</td>
</tr>
<tr>
<td>Pea</td>
<td>10.95</td>
<td>10.92</td>
<td>502</td>
<td>99.72603</td>
</tr>
<tr>
<td>Arhar</td>
<td>11.34</td>
<td>11.31</td>
<td>429</td>
<td>99.73545</td>
</tr>
<tr>
<td>Lahi / Sarson</td>
<td>6.81</td>
<td>6.79</td>
<td>382</td>
<td>99.70631</td>
</tr>
<tr>
<td>Til</td>
<td>2.24</td>
<td>2.43</td>
<td>8</td>
<td>108.4821</td>
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<tr>
<td>Sunflower</td>
<td>17.1</td>
<td>16.98</td>
<td>1</td>
<td>99.29825</td>
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<tr>
<td>Sugarcane</td>
<td>584.13</td>
<td>584.09</td>
<td>1570</td>
<td>99.99315</td>
</tr>
<tr>
<td>Potato</td>
<td>238.61</td>
<td>238.59</td>
<td>591</td>
<td>99.99162</td>
</tr>
<tr>
<td>Tobacco</td>
<td>52.23</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Computation of crop yield index for block = 3439642/34493 = 99.72001

W. M. Yang’s method has been used for measuring agricultural productivity. It considers yield of different crops related in the block compared with the average crop yield index in the entire district. The methodology for calculating the crop yield index for the block Jalalpur has been explained here. In the beginning, the average yield of each crop grown in the entire district is determined. Later on the value is obtained by dividing the yields per hectare of the block by multiplying with 100 gives the index number as shown in column 5 in table 1.1. By considering the area devoted to each as a weight and multiplying it with the percentage index, the production is obtained as listed in column 6 of table 1.1, by adding products of different crops and dividing the sum of products by the total area in the block (the sum of column 4), the average index obtained is the desired crop yield index for a particular unit.

Weaver’s minimum deviation method has been used to find out different crop combination regions.

Simple statistical methods have been used for analysis of the data like arithmetic density, agricultural density, physiological density, cropping intensity, irrigation intensity etc. On the basis of the analysis of the data and observations in the study area the resource utilization and its environmental management has been discussed.

832 respondents have been surveyed from selected 45 villages and the selection criteria was as follows-

1. The village should be having minimum 100 household.
2. The village should be uniformly distributed all over the block.
3. The village should be inhabited by different caste and religion.
4. The village should be easily accessible by the road.
5. Respondents should have their agricultural land or involved in agriculture.
6. Respondents should be as far as possible representative of animal husbandry.
From each village five to seven percent of the total households were selected on purposive sampling basis. From each household, either the senior member of the household or the one who takes the decision of day-to-day affairs of family was selected. After collecting information the analysis was done.

1.15 Research Design

- The reference material was collected from different university’s and institution’s departmental catalogue, online literature was also collected.
- To collect primary data intensive field survey was carried out.
- Secondary data have been collected from inside and outside the district from various agencies.
- Data has been classified and analyzed using various statistical techniques.
- Maps, graphs, charts and diagrams were prepared using different cartographic and statistical techniques.
- Report writing.

1.16 Organization of the Work

Present study is divided into seven chapters

Chapter I deals with conceptual background including introduction, meaning and definition of resource, types of resource, various terms like concept of sustainability, resource conservation, resource preservation and environmental management, review of literature, statement of problem, objective, hypotheses, database and methodology.

Chapter II describes study area which includes location and extension, administrative setup, historical background, climatic condition, structure and relief, drainage system, transportation network.

Chapter III deals with human resource base and utilization. Various human resource related aspects have been discussed here. The focus was given on work participation of the population.
Chapter IV deals with the status of biophysical resource utilization which includes land use pattern, irrigation network, various agricultural aspects like crop combination, crop intensity and crop productivity, fertility state of soil, livestock resource, and water resource.

Chapter V deals with the perception and attitude towards resource and environment on the basis of primary data.

Chapter VI deals with environmental management and planning strategies related to human resource development, land resource management, water resource management, forest cover management, agriculture development plan etc.

Chapter VII presents summary and conclusion.

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REFERENCES


Bhatia, S. S. (1965). *Pattern of Crop Concentration and Diversification in India.*


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