

Spatial Changes in Nature of Irrigation Facilities : A Case Study of Sample Villages in Parbhani District

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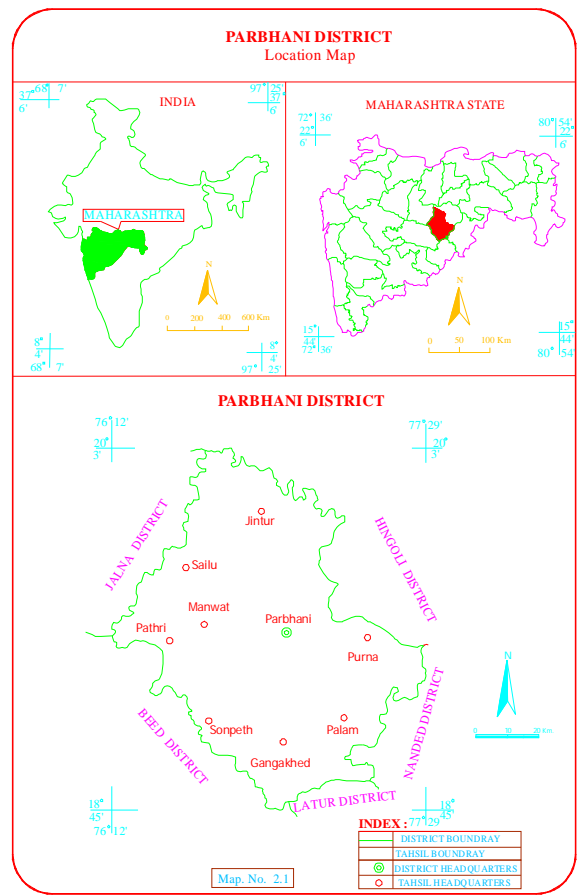
Introduction:

The factor irrigation influenced more than any other factor, because the basic need of agriculture development is irrigation. Without irrigation facilities, there will not be any agricultural development, without any agricultural development there will not be

an economic growth of any sector of the region, so the sugar factories executive committee has decided and help to irrigation with help of private and nationalized banks.

Study Region:

Parbhani district is situated in the central of Maharashtra and lies between 18⁰ 45’North to 20⁰01’ North latitudes and 76⁰ 13’East to 77⁰26’ East Longitudes. The boundaries attached to the neighboring districts on north by Buldhana and Akola, on east by Hingoli and Nanded, on south Latur and Beed and on west Jalna district. The river Purna runs on the boundaries of Hingoli and Parbhani district and work as attach these two regions. The other River Godavari which runs on the boundaries of Beed and Parbhani forms a part of study region. It runs through Pathri, Sonpeth, Manwat, Gangakhed, Palam and Purna tahsils.



The area of study region is 6511 sq. kms, which is 2.11 percent of the total area of the state. The population of the study region is 1491109 (2001 census) which is 2.76 percent of the total population is 229 persons per sq.km. Among the thirty five districts of the state, the district ranks 26th in terms of population and 18th in terms of density. The region includes 830 inhabited villages and eight urban centers. The study region is administratively subdivided into nine tahsils namely Parbhani, Gangakhed, Palam, Sonpeth, Purna, Pathri, Manwat, Sailu, and Jintur. (Map. No. 2.1).

Objectives:

The present research paper aims to deal and analyses various aspects of sugar industry in Parbhani district with following objectives.

1. To study the changes in nature of irrigation facilities.
2. To study the villagewise changes in nature of irrigation facilities.
3. To study the sample villages of spatio temporal changes in cropping pattern.

Database and Methodology:

The main source of database (research material), which was immense use to researcher, are subdivided into primary sources and secondary sources. The primary sources of research material are as follows:

Special questionnaires, personal interviews, personal correspondence, participant observation, official documents of Talathi and Mamledar's office etc. Statistic of Maharashtra, Season and crop report published by the govt. of Maharashtra, annual socio-economic review and district statistical of Parbhani district, district census handbooks of Parbhani district, district Gazetteer, Agricultural Epitomes, Periodicals, Map of Parbhani district Published by govt. of Maharashtra, village maps prepared by 'land survey and records office Parbhani, Marathwada Agricultural University Report, Annual sugar factory report.

The Changing Nature of Irrigation Facilities:

The factor irrigation influenced more than any other factor, because the basic need of agriculture development is irrigation. Without irrigation facilities, there will not be any agricultural development, without any agricultural development there will not be an economic growth of any sector of the region, so the sugar factories executive committee has decided and help to irrigation with help of private and nationalized banks.

Here, an attempt has been made to study the irrigation which is available in the year 2001 and 2011. The table no. 1.1 gives clear idea about the irrigation facilities which are developed during the last 10 years through sugar factories of Parbhani district.

Table No. 1.1: Irrigation Facilities of Sample Villages
(2001 and 2011)

Sr. No.	Name of the Village	Total area	Land under Irrigation				Growth
			2000-01	% To Total	2010-11	% To Total	
1	Singnapur	804	32	3.98	348	43.28	39.22
2	Tadpangri	987	96	9.72	544	55.11	45.39
3	Amdapur	611	53.7	8.78	294	48.11	39.33
4	Taroda	374	9.35	2.50	46	12.29	7.79
5	Lohgaon	693	40	5.77	156	22.51	16.74
6	Limla	2483	160	6.44	217	8.73	2.29
7	Sayla Kh.	534	159	11.42	279	51.95	22.35
8	Pokharni	1507	60	3.98	123	8.16	4.18
9	Pegarghavan	991	36	3.63	153	15.43	11.80
10	Daitana	778	50	6.42	144	10.50	4.08
11	Khali	1069	82	7.67	545	50.98	43.31
12	Pokharni Bh.	909	319	35.09	642	70.62	35.53
13	Tadkalas	890	152	17.07	687	77.19	60.12
14	Dhanora Kale	712	56	7.86	603	84.69	76.83
15	Makhani	2594	156	6.01	592	22.82	16.81
16	Suki	1040	17	1.62	21	2.01	0.39
17	Parbhani Kh.	1164	206	5.15	513	44.07	38.92
18	Ku. Takli	921	137	14.87	397	43.10	28.23
19	Nandgaon Kh.	1263	115	9.10	306	24.22	15.12
20	Pedgaon	417	35	8.39	98	23.50	15.11
21	Gangakhed	1479	287	19.40	1031	69.70	50.30
22	Esad	585	46	7.86	110	18.80	10.94
23	Mardasgaon	2390	140	5.85	1722	72.05	66.20
24	Sonpeth	916	82	8.95	213	23.25	14.30
25	Shelgaon	919	60	6.52	116	12.62	6.10
26	Narwadi	846	16	1.89	108	12.76	10.87
27	Khadka	426	9	2.11	54	12.67	10.56
28	Pathari	2326	29	1.24	540	23.21	21.97
29	Bhabhulgaon	445	35	7.86	81	18.20	10.34
30	Simurghawan	1494	120	8.03	266	17.80	9.77
31	Hadgaon	2451	107	4.36	203	8.28	3.92
32	Manvat	360	25	6.94	54	15.00	6.06
33	Purna	996	67	6.72	132	13.25	6.53
34	Kavalgaon	581	14	2.40	39	6.71	4.31
35	Mategaon	453	20	0.95	51	2.43	1.48
36	Vasmat	1055	37	3.50	122	11.56	8.06
37	Dhangar Takli	855	45	5.26	72	8.42	3.16
38	Palam	422	4	0.94	22	5.21	4.27
39	Loha	1945	12	0.61	134	6.88	6.27
40	Rajegaon	209	12	5.74	37	17.70	11.96

Source: Field work.

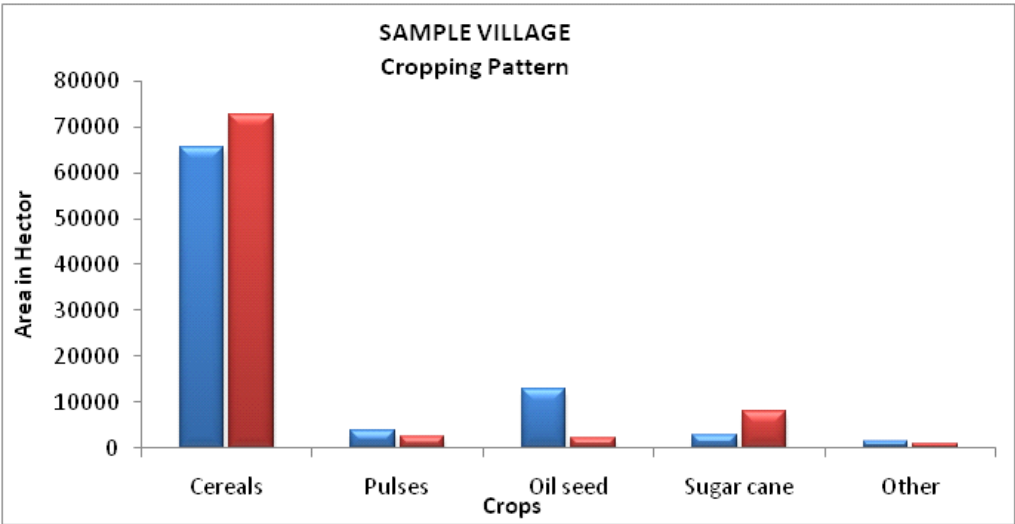


Fig.No.1.1

The Impact and Conclusions:

The sugar factories have been a great influence on the farmers belonging to its catchment area. It helped to improve their land holding capacity and their land use as well as. The factory has created many employment opportunities. For the purpose of the study of the impact of the sugar factories of Parbhani district on the farmers, the sample survey was conducted. The survey was conducted in 40 benefited villages and 10 farmers from each village have been randomly selected. The data has been collected for the year 2000-01 and 2010-11. In this way thus the impact of sugar factories has been studied in comparative manner, which as follows.

- A) In 2000-01, 19017 members were there but in 2010-11 the number of members increased up to 31497.
- B) In 2000-01 the total cultivable land was 11176 hector, which was increased up to in 2010-11.
- C) Here, it is observed that, the farmer who has irrigated land they gained respect even though they have low land holding and medium income. The marginal farmers, as they do not have more resources, they could increase their land holding capacity and their income as well. The farmers who have already irrigated land and after irrigation facility more land came under irrigation. Such farmers gained many benefits. This means that rich farmers become richer yet small and marginal farmers also earned much.
- D) Because of the incentive of sugar factories in Parbhani district, the cropping pattern is also changed. Earlier the farmers usually grow cereals and pulses. But after the facility of irrigation farmers started growing cash crops, such as sugar cane, The factory has given prime importance to increases more production of sugar - cane the within the catchment area, for the sugar factory.

E) Sugar factories are created more job opportunities to the people belonging to the catchments area. In the year 2000-01 the number of worker increased from 85 to 112 in the sample villages. Due to increase in the income, the literacy is also increased. It has created more employment opportunities in the study region.

The growth of income levels of the sample farmers have also studied. It is observed that the incomes of the farmers have also increased more in the year 2010-11 than the year 2000-01. The data concerning to income per year of the farmers has been collected by interviews and it is grouped into 11 categories for the purpose of analysis.

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Spatio-Temporal Changes in Regional Distribution of Sugarcane Production in Parbhani District

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Introduction:

Around the eighth century A.D. Arabs introduced sugar to the Mediterranean. Mesopotamia. Egypt North Africa and Spain by the tenth century. Sources state, there was no village in Mesopotamia that did not grow sugarcane. It was among the early crops brought to the Americas by the Portuguese. Boiling houses in the 17th through 19th centuries converted sugarcane juice into raw sugar. These houses were attached to sugar plantations. Made of cut stone, rectangular boxes of brick or stone served as furnaces with an opening at the bottom to stoke the fire and remove ashes. At the top of each furnace were up to seven copper kettles or boilers, each one smaller and hotter than the previous one. The cane juices began in the largest kettle. The juice was then heated and lime added to remove impurities. The juice was skimmed then channeled to successively smaller kettles. The last kettle, which was called the 'teache', was where the cane juice became syrup. The next stop was a cooling through, where the sugar crystals hardened around a sticky core of molasses. This raw sugar was then shoveled from the cooling through into hogsheads (wooden barrels) and from there into the curing house.

A sugar plantation on the island of reunion in the late 1800's. Sugarcane is still extensively grown in the Caribbean, Christopher Columbus first brought it during his second voyage to the Americas initially to the island of Hispaniola modern day Haiti and the Dominican Republic. In colonial times, sugar formed one side of the triangular trade of new world raw materials, European manufactures and African slaves. France found its sugarcane islands so valuable it effectively traded its portion of Canada. Famously dubbed "a few acres of snow", to Britain for their return of Guadeloupe. Martinique and St. Lucia at the end of the seven years war. The Dutch similarly kept Suriname, a sugar colony in South America, instead of seeking the return of the New Netherlands (New York). Cuban Sugarcane produced sugar that received price supports from and a guaranteed market in the USSR the dissolution of that country forced the closure of most of Cuba's

Sugar industry Sugarcane remains an important part of the economy of Belize. Barbados, Haiti along with the Dominican Republic, Guadeloupe, Jamaica and other Islands.

Study Region:

Parbhani district is situated in the central of Maharashtra and lies between 18° 45’North to 20°01’ North latitudes and 76° 13’East to 77°26’ East Longitudes. The boundaries

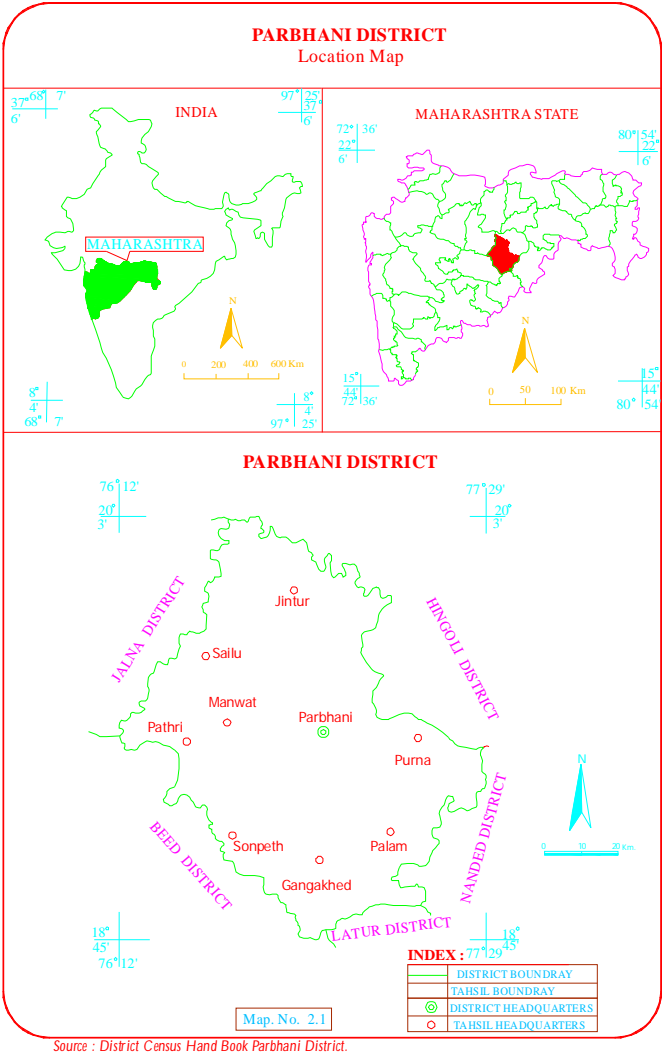
attached to the neighboring districts on north by Buldhana and Akola, on east by Hingoli and Nanded, on south Latur and Beed and on west Jalna district. The river Purna runs on the boundaries of Hingoli and Parbhani district and work as attach these two regions. The other River Godavari which runs on the boundaries of Beed and Parbhani forms a part of study region. It runs through Pathri, Sonpeth, Manwat, Gangakhed, Palam and Purna tahsils.

The area of study region is 6511 sq. kms, which is 2.11 percent of the total area of the state. The population of the study region is 1491109 (2001 census) which is 2.76 percent of the total population is 229 persons per sq.km. Among the thirty five districts of the state, the district ranks 26th in terms of population and 18th in terms of density. The region includes 830

inhabited villages and eight urban centers. The study region is administratively subdivided into nine tahsils namely Parbhani, Gangakhed, Palam, Sonpeth, Purna, Pathri, Manwat, Sailu, and Jintur. (Map. No. 2.1).

Objectives:

The present research paper aims to deal and analyses various aspects of sugarcane



production in Parbhani district with following objectives.

1. To study the changes in regional distribution in the year 2010-11 to 2011-12 in sugarcane production.

Database and Methodology:

The main source of database (research material), which was immense use to researcher, are subdivided into primary sources and secondary sources. The primary sources of research material are as follows: Special questionnaires, personal interviews, personal correspondence, participant observation, official documents of Talathi and Mamledar's office etc.

The Secondary source of data of research material is as follows: Statistic of Maharashtra, Season and crop report published by the govt. of Maharashtra, annual socio-economic review and district statistical of Parbhani district, district census handbooks of Parbhani district, district Gazetteer, Agricultural Epitomes, Periodicals, Map of Parbhani district Published by govt. of Maharashtra, village maps prepared by 'land survey and records office Parbhani, Marathwada Agricultural University Report, Annual sugar factory report.

The Sugarcane Crushing Capacity and Production:

The sugarcane crushing capacity of the Tridhara sugar factory was 2500 metric tone per day but the actually crushing is more than its crushing capacity. Renuka Sugar factory was 1250 metric tone per day crushing capacity, Gangakhed Sugar factory was 6000 metric tone crushing capacity. It means that the sugar factory runs with full crushing capacity.

The table no 1.1 shows crushing season, capacity, cane crushed, sugarcane production and average sugar recovery in percent. The sugar factories are important agricultural back bone of rural economy. This is second largest agricultural activity of our country.

In the year 2010-11, the Tridhara sugar factory was crushed 63697 metric tone sugarcane, Renuka Sugar factory was crushed 211006 metric tone sugarcane and Gangakhed sugar factory was crushed 554182 metric tone sugarcane. In the year 2000-01 to 2007-08 cane crushing trend was negative, but in the year 2008 to 2009-10 and 2010-11 it was positive. Compared to 2008 sugar production is increased in the year 2007-08 to 2009-10 and 2010-11. In other years it decreased table no. 1.1 and figure no. 1.1A give clear idea about the sugarcane crushing capacity, sugar production and average sugar recovery.

Table No. 1.1: Sugarcane Crushing, Production and Recovery (Factory Average)

Crushing Season	Crushing capacity (in mt.)	Cane crushed mt.(Total)	Sugarcane production in Quintals	Average Sugar Recovery in percent
2000-01	2500	395738	402320	10.19
2001-02	2500	527403	599650	11.35
2002-03	2500	610028	649451	10.65
2003-04	2500	582167	654500	11.26
2004-05	2500	379009	411130	10.84
2005-06	2500	273217	300580	11.00
2006-07	2500	5527	2040	6.01
2007-08	2500	closed	closed	Closed
2008-09	22500	3246	371680	11.45
2009-10	2500	605459	658500	19.90
2010-11	4000	434158	580790	10.90

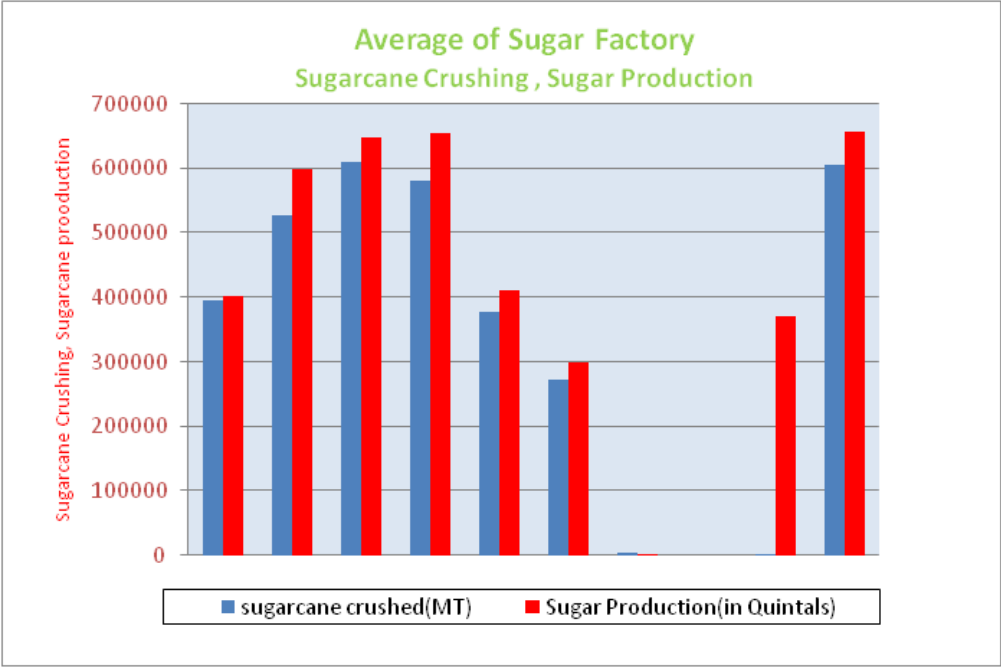


Fig No.1.1 A

The sugar factory has provided various types of facilities to cane grower farmers, so that they have produced and yielded more sugarcane. In the study region due to lack irrigation

facilities the variations are shown in the lands under sugarcane and sugarcane production and area increased slightly up to 2000-01 but later it decreased.

The table no. 1.2 gives details about the area and crushing of sugarcane within the command area.

**Table No. 1.2: Land Under Sugarcane and Crushed Sugarcane
(1995-96 to 2005-06)**

Year	Land under Sugarcane (in Hector)	Crushed sugarcane in metric tone
2001-02	3760	395738
2002-03	4336	527403
2003-04	6450	610028
2004-05	7000	582167
2005-06	3301	379009
2006-07	4152	273217
2007-08	66	5527
2008-09	CLOSED	CLOSED
2009-10	3240	3246
2010-11	6578	60545
<i>Source: Compiled by the Researcher.</i>		

Conclusions:

The production of sugarcane gets affected because of the area of sugarcane and the numbers of sugar factories are in proportion. If the number of factories are more in comparison with the area of the sugarcane the sugarcane crop is cut before it is matured. The sugarcane crop is also snatched from one place to other. It affects the crop production. If the numbers of factories are less in proportion to the area of the sugarcane, the sugarcane is cut after its full growth. It affects the recovery of sugar. It is also one of the important problems in this area.

In the year 2010-11, the Tridhara sugar factory was crushed 63697 metric tone sugarcane, Renuka Sugar factory was crushed 211006 metric tone sugarcane and Gangakhed sugar factory was crushed 554182 metric tone sugarcane. In the year 2000-01 to 2007-08 cane crushing trend was negative, but in the year 2008 to 2009-10 and 2010-11 it was positive. Compared to 2008 sugar production is increased in the year 2007-08 to 2009-10 and 2010-11.

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Comparative Study Between Electronic Commerce And Traditional Commerce

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Abstract: Traditional commerce is exchange of goods or services directly between two or more parties involved. It can be traced way back since the beginning of human civilization. However, in today's technological era we see new technology within a short period of time. Thus traditional commerce is also taking a drastic change with use of electronic medium for exchange and transaction of goods or services. It has evolved to such an extent that in some cases you do not require any interaction between the seller and buyer. This research paper highlights what is traditional commerce and electronic commerce and it is also a comparison between traditional commerce and electronic commerce. This paper tries to find out behavior and thinking of consumers towards traditional and electronic commerce. The paper also discusses the different process involved in traditional and electronic commerce and tries to identify the difference between both ways of commerce. It also highlights few factors that have played a vital role in shifting the consumer preference from traditional commerce to electronic commerce.

Keywords - E-commerce, traditional commerce, internet, e-commerce v/s traditional commerce.

Objective of Research Paper

1. To compare electronic commerce and traditional commerce.

Introduction

In last one decade, India has seen a vast change in its technological advancement and lifestyle of people. In the technological era we have seen rise of internet and World Wide Web to great extent. Large population in India is today using internet on daily basis. With innovation in technology within a short period of time, internet is available for everyone at cheaper rates. Today one carries internet connection in pockets in the form of data cards or mobiles. Wi-Fi and wireless connections at lower prices and easy availability of smart phones has made it very easy to access internet. With increasing literacy rates and job opportunities for women, today we see even the so yesterdays home maker is busy with her professional career. This has made the husband and wife both busy in working environment. Easy internet access and busy lifestyle have marked increased use of internet

for gathering information. With expanding city boundaries and lots of traffic on city roads, traveling to and from work place has also become hectic and time consuming. Thus most of the people are devoting time for entertainment to distress and are less interested to spend time for shopping and going to markets which might again take more of their time and energy. Thus most of the consumer today is trying to find out easy medium of purchase of goods and services. Also on the other hand there is increase in competition to all consumer businesses. This has made the managers and entrepreneurs think in different ways and mediums to attract and reach out to consumers to sell their products and services. They want to provide their consumers convenient way of shopping available to consumers when ever and where ever they want. Thus this has given rise to electronic commerce where the consumers can gathers different information, save in their online accounts or online shopping carts and make the purchase any time. Thus for most of the consumers electronic commerce is the best medium available which can be used to purchase products and services 24 by 7, 365 days a year by simply sitting in office or luxury of their homes.

Review of Literature

Busy lifestyles, rising standard of living, education, availability of wide range of product etc are increasing use of e – commerce in India. E-commerce market in India was worth about \$2.5 billion in 2009. It rose to \$8.5 billion by 2011 thus depicting a definite surge in the last two years. (Nisha Chanana and Sangeeta Goele, 2012). Globally, the online shopping industry is growing at 8 to 10 % annually, however, its growth in India is approximately 30% annually (Sharma, 2011). Amin and Amin (2010) argued that online shopping grown in India like a mushroom, and it is well accepted for different products and services like computer products, automobiles, travel products, investment products, clothing, flowers, books and music because technological advances, changed perceptions of the corporate world, convenient and customized offering by companies, availability of software and various search engines. There are many categories like automobiles, shares, real estate, travel, tourism, and hotels etc that are dealing in e – commerce. There is still large scope in India for e – commerce due to its large geographical area and vast population. However there are barriers like payment collection, vendor management, logistics, taxation etc. (Waghmare G T, 2012). E - Commerce provides best environment for information search and purchase of products and this is an important characteristic that differentiates E - Commerce from traditional business transactions. Consumer is able to sit in front of a terminal and search the net and examine the information on goods. Consumers can also choose any time to visit website to search and purchase products. (Henry, C. et al. 2009).

Traditional Commerce

Traditional Commerce can be traced back to beginning of civilization. It was started due to the inability of humans to fulfill all their needs by themselves. In today's world and in earlier period also it was not possible to have everything that one needs to fulfill his or

her requirements. For example, it was not possible to grow all crops and fruits by one particular family or at one particular region. It is also not possible for each and everyone to develop all the skills like construction of houses, making utensils, making of different crafts and many more such skills that are needed by everyone to satisfy oneself. Thus commerce started between people so that one can fulfill all his needs and demands. So in earlier period there was barter system of commerce where one will exchange what is produced by him or her with another person and in exchange will acquire what he cannot make. This was eventually spread on larger scales between communities of different regions. Like one community will exchange their goods with another communities goods which cannot be manufactured by them or it was not available with them due to various geographical reasons. In the early stages it was barter system where there was exchange of goods or services with some other kind of goods or services. Then it was replaced by use coins in exchange of goods or services and then use of currency started which is most popular form in today's era.

Traditional commerce involves following process.

1. First the buyer will identify his or her need and decide to make a purchase to fulfill it.
2. Buyer will search for seller in market.
3. Buyer and seller will meet at one particular place, which preferably is a market place.
4. Then actual product or its sample is checked and verified physically.
5. Based on requirements and capacity of buyer, he will choose one among the options available and place an order and make the payment.
6. Actual delivery of product will be made by seller.

Electronic Commerce

Electronic commerce is use of electronic tools to communicate and make business transactions. Electronic commerce mostly started in India on 90's era. With internet easily available everywhere at very cheaper rates, it is now possible to reach out to everyone with this medium of business transaction. It is similar to what process a traditional commerce will involve, however in Electronic commerce there is use of electronic tools and internet to carry out the transaction. In today's era we find Electronic commerce to be more popular in urban areas, as it has made it very easy for everyone to shop and do business online. There are many reasons why Electronic commerce has made such a boom on lifestyle of people. With ample job opportunities for both the male and female, everyone has become busy with their professional life. This made Electronic commerce the need off the hour. As people can sit in the comfort of their offices or homes and with simply using their laptops, computer or even mobiles can search product and services online. Due to increasing competition and rising property rates, even the sellers find it more economical in selling product and services online. This also makes sure that the seller can reach out to customers from different parts of city which would have not possible if there was only shop in one particular part of city to sell the product or services.

Electronic commerce involves following process.

1. First the buyer will identify his or her need and decide to make a purchase to fulfill it.
2. Buyer will search for information about product or services through different online websites and compare the offers available.
3. Buyer will finally decide on best available option for him/her.
4. Buyer will then place order online only using net banking or credit or debit card or will ask of cash on delivery (choose among which ever options are available).
5. Then Seller will home deliver the actual product to address provided by customer.
6. Actual product is then checked and verified physically by customer.
7. If the product is not as per the details or different, then it is returned back to seller for replacement of product.

Electronic Commerce versus Traditional Commerce

As mentioned above, we understand that the main difference that electronic commerce has from traditional commerce is its use of electronic medium and the internet for different parameters involved in them. Other some important differences that can be noted are as mentioned below.

1. Traditional commerce is more of physical in nature. Which means, in traditional commerce everything should be present in front of us to complete the transaction. Right from going to market place to receiving of goods has to be face to face. However in case of electronic commerce there is no such need. One can simply use internet and carry out the transaction.
2. In traditional commerce there is need of shop or place where one can visit and purchase the product however in electronic commerce you get the product delivered to your home or office or any other place agreed between buyer and seller.
3. In traditional commerce there is lot of human interaction is required to carry out all the activities, where as in electronic commerce there is not much human intervention except during home delivery.
4. In traditional commerce high cost is involved as you will be required to have shop in each locality at well connected spot to display the products, workforce required to maintain the shop, decorate to attract the shop, and so on. However in case of electronic commerce you just need to have a warehouse where everything can be stored and this cannot necessary be in well connected place or in every locality. Product can be kept at any safe and secure place and can be delivered to customers place.
5. In traditional commerce customers will have to visit the shop and only then there will be transaction taking place. While in electronic commerce the customer can simply place the order online and get it as per his convenience.
6. In traditional commerce when the customer visits the shop and looks for the product, the required product should be available in the shop and it should be in good condition. Otherwise there will be no sell. But in case of electronic commerce, even if the product

is not available with the seller or is not in good condition, the seller can take the order and make necessary arrangements to deliver proper product to buyer. There by chances of loss of sales opportunity is less in electronic commerce as compared to traditional commerce.

Conclusion

With increasing number of internet users and many among them having potential to purchase, it is fast changing the purchase behavior of consumers from traditional commerce to electronic commerce. Changing lifestyle of consumers, especially in urban areas, has become one of the important factors for selection of electronic commerce over the traditional commerce. Though traditional commerce cannot be ruled out completely as still majority of consumers are using this method, however in this paper we tried to compare it with electronic commerce so as to understand the growing importance and scope of electronic commerce is near future. Thus it will be far better for the sellers and various business enterprises to be well prepared to offer even this medium of business transaction to its target audience. Although many companies and almost all the high end brands have already initiated and implemented combination of traditional commerce and electronic commerce so as to not lose any of its customers. Thus it is in the benefit of seller to understand the importance and requirement of electronic commerce. In near future electronic commerce is surely having great potential in selling of most of the products and services.

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Review On Health Status By Clinical Analysis Of Blood And Urine Of Some Rural Peoples Of Pimpalner Region, Dist- Dhule (M. S.)

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ABSTRACT

Health status is the sum of sign and symptoms or physical comfort of the person. It is largely depends on various factors which enabled well being. In present investigation, the health status of some rural peoples of tribal region showed, 70 % patients has very less amount of Hb, 45 % patients having less number of Red blood cells count, 22.5 % patients showing reduction in number of leucocytes and 37.5 % patients have low level of platelets. Similarly, in chemical examination of urine, 27.5 % patients showing presence of proteinuria in their urine; 17.5 % patients indicating presence of RBC's; 57.5 % patient's urine contains pus cells; 32.5 % patient urine showing epithelial cells and 10 % patient urine contains crystals of calcium oxalates. The above data of the health of people living in the tribal region is very poor.

Key words: Health, rural people, tribal region, leucocytes, platelets, proteinuria, pus cells, calcium oxalates.

INTRODUCTION

The modern age is the world of Science and technology. Man develops number of equipments for performing and analyzing difficult task with help of the computerized equipments. Nowadays in the clinical pathological laboratories instead of using routine methods for finding out total count of blood cells or percentage of hemoglobin and different chemical as well as microscopical examinations of blood and urine. For such examinations widely utilized equipment namely "Auto Hematology Analyzer" (Shenzhen mindray Bio- medical electronics, China) is commonly used in most of the clinical laboratories. With help of this analyzer a single person can examine hundreds of blood and urine sample within few hours.

In the present investigation, Hematogram value and chemical as well as microscopical examinations of urine of some rural peoples of Pimpalner region has been studied. This data indicate the health status of this region.

STUDY AREA

Pimpalner is one of the largest villages in Sakri tahsil. This village is the main and central market place of people living in western part of Sakri. Near about 50 % people visits every day for market as well as getting medical facilities, they do not have such facilities in their village's i. e. Padas, where these tribal lives. This area mostly dominated by tribal caste such as *Kokani*, *Mavachi*, *Bhil*, *Pawara* and *Koli* etc. Economically these peoples are very poor and ultimately the health status is not well. Therefore, in present communication, an attempt has been made to study the medical report and find out health status of rural peoples living in this area.

MATERIAL AND METHODS

Material

The medical reports of Hematogram value as well as chemical and microscopical examination of urine (40 patients) each was obtained from Shriram Pathological Laboratory, Pimpalner.

Methods

Instead of performing routing or traditional methods of blood and urine analysis. The Pathological Laboratory owner, Dr. Sitaram Ahire, were used *Auto Hematology Analyzer*. This computerized equipment directs provide the result on their monitor. While examination of some critical microscopic examination of urine, they were uses the Pathological microscope.

Some facts and feature of Hematogram and Urine examinations

HEMATOGRAM EXAMINATIONS

1. Hemoglobin: Hemoglobin (Hb), the red blood cell pigment of blood consists of the colorless globin (protein) molecule attached with haem (iron) molecule. The globulin molecule consists of 2 α and 2 β polypeptide chains. Hb is formed in developing erythroblasts in the bone marrow. The main function of Hb is to transport oxygen from the lungs. The normal value of Hb in Man is 13 to 16 g and in female it varies from 12 to 15 g/ 100 ml blood.

Interpretation: A decrease in hemoglobin suggestive of anemia and it is raised in polycythemia. The reduction of hemoglobin in anemia is due to iron deficiency or bone marrow malfunction and increased hemolysis.

2. Total Red blood cell count: The erythrocyte or R. B. Cs is important blood cells in the blood plasma. They transport the gases like oxygen and carbon dioxide and help in oxidation reactions or metabolism. The normal level of erythrocytes lies between 4.0 to 6.3 million per cubic millimeter.

Interpretations: A low R. B. C count is seen in anemia and high count is found in polycythemia.

3. Total White blood cell count: The leucocytes or WBC are other important blood cells in the blood plasma. They are mainly for phagocytic in nature. The normal levels of these cells are 4000 to 10,000 per cubic millimeter.

Interpretations: A high total leucocytes count or Leucocytosis is seen in the person suffering from acute infections e. g. appendicitis and or pneumonia, Hemorrhage, Hemolysis, Burns and Leukemia. A leucocytes count below normal is called Leucopenia. It is seen during patient has typhoid fever and measles.

4. Platelets count: The platelets or thrombocytes are small, oval structure which helps in clot formation or blood clotting. The normal range of these cells varies from 1.5 to 4.5 lacks per cubic millimeter.

Interpretations: A reduction in platelet count or thrombocytopenia is seen in patient showing infections like Dengue, acute Leukemia and drug induced. An increase in platelets count or thrombocytosis is seen in chronic myeloid Leukemia, infections and hemorrhage.

URINE EXAMINATIONS

Examination of urine is important for diagnosis and management of diseases of the kidney or urinary tract as well as other diseases not directly related to kidney.

A) Chemical Examination of Urine:

I. Test for Sugar: In this method the urine sample is boiled with Benedict's reagent, in which the cupric ion is reduced to cuprous oxide by the sugar. After heating on the basis of amount of sugar present in the urine, the solution turns greenish or brown or yellow or brick red colour.

Interpretations: This test indicates patient suffering from diabetes mellitus diseases. This test may be positive in the presence of other sugars like lactose and drug like ascorbic acid. Therefore indicates pregnancy or drug induced person.

II. Test for Protein: Cloudiness to very thick precipitation develops in the test tube and boiling of urine for two minutes.

Interpretations: The turbidity implies proteinuria.

III. Ketone bodies test: Acetone and Acetic acid gives a purple color with alkaline Sodium nitroprusside. A formation of purple ring at the junction indicates positive test

for ketonuria.

Interpretations: Presence of ketone bodies or ketonuria in the urine indicates the patient suffering from diabetic ketoacidosis and toxic state such as with excessive vomiting and diarrhea.

IV. Test for Bile salts and Bile pigment: For bile salt, a sulphur powder is sprinkled on the surface of urine. For bile pigment, when Barium chloride is added to the urine, it produces precipitates of barium sulphate on to which bilirubin is absorbed producing a greenish blue color spot.

Interpretations: If bile salts are present, sulphur particles sink to the bottom of the test tube, because of lower surface tension of urine. A greenish blue color indicates bilirubin in urine (urine). The bilirubin in urine is found in patients like hepatitis and obstructive jaundice.

B) Microscopic Examination of Urine: Microscopic examination of urine, first of all centrifuge the urine sample at 1500 to 2500 rpm for 5 minutes. Place the drop of sediment on a microscope slide, and cover with a cover slip. Examine first under low power, then under high power. Microscopically, substances appearing in the urine deposits are mainly. Blood cells (RBC's and WBC's), pus cells, epithelial cells, cast cells, crystals and bacteria. (please see chart showing microscopic structure of different cells)

i) **RBC's:** They appear as pale discs (double ring) appearance under high power. They may show irregular margins.

ii) **WBC's:** Normal types of white blood cells appear in the urine.

iii) **Pus cells:** They appear as round, granular spheres, larger than RBC's.

iv) **Epithelial cells:** Small round cells slightly larger than neutrophils but with large round nucleus. They may be caudate with tail like process. Sometimes large flattened cells with abundant cytoplasm and small round nucleus seen. Finding of more than 1 – 2 cells / HPF is abnormal and patient showing traumatic conditions and renal diseases such as acute glomerulonephritis.

v) **Crystals:** Generally crystals of Calcium oxalate found in acidic urine. These are colorless; octahedral appear as small squares crossed by two diagonal lines. They may also be dumb-bell shaped. Occurrence of such crystals in the urine indicates patient prone to kidney stone.

RESULTS AND DISCUSSIONS

In present investigation, Clinical analysis of blood and urine of rural peoples from Pimpalner region were studied. The data of Hematogram values and urine examinations are presented in table-1 and table-2 respectively.

Hematogram values: Table- 1 shows Hematogram values of patients, it includes the

parameters like gram percentage of Hemoglobin and Total counts of blood cells like erythrocytes, leucocytes and platelets. The results of these Hematogram were found to be as follows:

i. Hemoglobin: Out of 40 patients investigated for percentage of hemoglobin, 22 patients shows slightly less Hb as compared to the normal level. Four patients showing decreased hemoglobin level up to 8.0 g/ 100 ml of blood and 02 patients showing very less level of hemoglobin in their blood i. e. below 7.5 g/ 100 ml blood. This indicates total 28 patients (14 male and 14 female) i. e. 70 % may showing less level of hemoglobin and they may suffering from anemic condition.

ii. Total Red blood cell count: 10 male and 8 female patients showing less level of red blood cells as compared with normal level. Amongst them, 13 patient having slightly less level, 4 patients shows decreased level and single patient has very low level of RBC's i. e. 2.85 m/cmm. There fore, 45 % patients may suffer from anemic condition.

iii. Total White blood cell count: In this case total 11 patients (2 female and 9 male) i.e. 27.5 % patients showing abnormal level of leucocytes. Among these, nine patients showing low level of blood cells as compared to normal cells, they may suffer from typhoid fever or measles. Whereas two patients showing high level of blood count i.e. more than 11000, and therefore they may suffer from number of pathological conditions like acute infection of appendicitis or pneumonia, hemorrhage, hemolysis, burns or leukemia etc.

iv. Total platelets count: Like the erythrocytes and leucocytes count, the platelets count also reduces below the normal level in 13 male and 2 female patients i.e. total 37.5 % patients suffering from either infection in dengue or acute leukemia or they may be drug induced patients. Among patient checked for this test, two patient showing very low level of platelets i.e. 0.59 and 0.79 lacks per cubic millimeter.

Chemical and Microscopic Examination of Urine: Table 2, showing chemical and microscopic examination of urine. The chemical test includes; sugar, protein, ketone bodies and bile salts/ bile pigment test. Whereas in microscopic examination of urine, the cells like RBC's, WBC's, pus and epithelia cells and crystal test where reported.

i. Chemical test: In chemical test, only 11 patients (6 male and 5 female) comprising 27.5 % showing presence of protein in the form of traces in their urine. This indicates, these patients may suffer from proteinuria symptoms. In same table sugar, ketone bodies and bile salts / pigment test is completely nil i. e. zero per cent.

ii. Microscopic examination: In microscopic examination, out of 40 patients, seven patients showed abnormal RBCs in their urine (occasionally 3 and; in 4 patients there

was 4 to 7/ hpf were reported). Pus cells was reported in urine of 16 male and 9 females (23 patients) comprising 57.5 %; Epithelial cells was found in 13 patients (9 male and 4 female) contributing 32.5 % and occurrence of crystals of Calcium oxalate in urine sample of four patients i.e. 10 %. Whereas WBC's were totally nil in their urine.

CONCLUSION

From above results it is concluded that,

- 70 % patients has very less amount of Hb, therefore they may suffer from anemic condition.
- 45 % patients having less number of Red blood cells count as compared to normal level.
- 22.5 % patients showing reduction in number of leucocytes as compared to normal values. Whereas 5 % showing very high number of white blood cells.
- 37.5 % patients have low level of platelets.
- In chemical examination of urine, 27.5 % patients showing presence of proteinuria in their urine.
- 17.5 % patients indicating presence of RBC's in their urine.
- 57.5 % patient's urine contains pus cells.
- 32.5 % patient urine showing epithelial cells.
- 10 % patient urine contains crystals of Calcium oxalates.

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Table 1: Hematogram of patients

Patient Sr. No	Hemoglobin (gm %)	Total Count		
		R. B. Cs. (million/ C mm)	W. B. Cs (per cubic mm)	Platelets (Lac/ Cubic mm)
01	7.5 ***	3.88 *	3700 *	3.53
02	11.4 *	4.96	7500	2.51
03	12.3	4.63	8700	1.87 *
04	11.8 *	4.19	7300	3.12
05	11.8 *	4.09	6800	1.97 *
06	9.8 **	3.22 **	7400	2.12
07	10.8 *	4.25	7800	1.86 *
08	11.4 *	4.60	5300	1.47 **
09	12.7	5.13	6000	1.51 *
10	11.6 *	3.81 *	3000 **	1.58 *
11	12.5	4.15	6900	2.15
12	9.4 *	3.31 *	2300 ***	0.59 ***
13	10.3 *	4.38	7700	2.81
14	7.4 ***	3.41 *	9700	2.67
15	13.3	3.85 *	4900	1.79 *
16	13.9	4.64	4900	2.35
17	15.6	4.99	7400	2.63
18	12.8	4.68	9900	2.79
19	12.8	5.03	1700 ***	1.54 *
20	12.7	3.79 *	3100 **	1.95 *
21	11.6 *	3.65 *	6900	2.47
22	10.6 *	3.68 *	11900 #	3.80
23	11.0 *	3.30 **	6900	2.71
24	9.5 **	4.17	4400	2.81
25	8.8 **	3.80 *	3000 **	1.14 **
26	9.4 *	3.18 **	7500	4.05
27	9.2 *	3.90 *	3500 *	1.15 **
28	11.1 *	3.59 *	7100	3.85
29	11.8 *	4.06	3100 **	0.79 ***
30	10.3 *	4.38	9700	3.85
31	11.1 *	3.81 *	7100	20.91
32	11.3 *	4.97	5700	2.78
33	12.4	4.39	6300	2.50
34	10.9 *	4.23	12900 #	2.93
35	9.7 *	3.85 *	5000	3.15
36	13.1	4.85	7900	1.86 *
37	13.3	4.95	5100	2.90
38	10.5 *	3.15 **	11000	2.50
39	10.0 *	4.05	9100	5.02
40	8.0 **	2.85 ***	2900 **	2.29
Total	28	18	11	15
Percentage	70 %	45 %	27.5 %	37.5 %

Abnormal values (* indicates less and # indicates high than normal values)/ counts.

Table 2: Chemical and Microscopic examination of Urine

Patient Sr. No	Chemical Examination				Microscopical examination					
	Sugar	Protein	Ketone bodies	Bile salts and bile pigments	R. B. C's. / hpf	W. B. C's. / hpf	Pus cells / hpf	Epithelial cells/hpf	Crystals	
01	--	--	--	--	--	--	1 - 2	--	--	--
02		--			--		1 - 2	2 - 3	--	--
03		Trace			5 - 6		1 - 2	--	--	--
04		Trace			6 - 7		2 - 3	--	Few Ca oxalate	
05		--			Occasional		1 - 2		--	--
06		Trace			--		2 - 3		Few Ca oxalate	
07		--			Occasional		3 - 4		--	--
08							Occasional	--		
09							2 - 3	3 - 4		
10								1 - 2		
11								--		
12								--		
13		--					--	--		
14		Trace					8 - 10	20 - 55		
15		--					7 - 8	1 - 2		
16		--					1 - 2	--		
17		Trace					20 - 25	4 - 5		
18	--	--	--	--	--	--	50 - 60	--	--	--
19	--	--	--	--	--	--	1 - 2	--	--	--
20	--	Trace	--	--	--	--	4 - 5	--	--	--
21			--	--	--	--	2 - 3	--	--	--
22	--	--	--	--	--	--	--	--	--	--
23	--	--	--	--	Occasional	--	--	--	--	--
24	--	--	--	--	--	--	--	1 - 2	--	--
25	--	--	--	--	--	--	2 - 3	--	--	--
26	--	--	--	--	--	--	4 - 5	1 - 2	--	--
27	--	Trace	--	--	--	--	2 - 3	4 - 5	--	--
28	--	--	--	--	--	--	--	--	Few Ca oxalate	
29	--	--	--	--	--	--	1 - 2	--	--	--
30	--	Trace	--	--	--	--	--	5 - 6	--	--
31	--	--	--	--	--	--	--	--	--	--
32	--	Trace	--	--	--	--	1 - 2	--	--	--
33	--	Trace	--	--	5 - 6	--	--	--	--	--
34	--	--	--	--	--	--	--	2 - 3	--	--
35	--	--	--	--	--	--	--	1 - 2	--	--
36	--	--	--	--	--	--	1 - 2	--	--	--
37	--	--	--	--	--	--	--	--	--	--
38	--	--	--	--	--	--	--	--	--	--
39	--	Trace	--	--	4 - 5	--	--	--	Few Ca oxalate	
40	--	--	--	--	--	--	--	--	--	--
Total	00	11	00	00	07	00	23	13	32.5 %	04
Percentage	00	27.5 %	00	00	17.5 %	00	57.5 %	32.5 %	10 %	

A Study Of Natural Resources In Maharashtra For Sustainable Agriculture

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Abstract

An attempt has been made in this paper to demarcate the existing natural resources of Maharashtra State by adopting methodical and inclusive approach for sustainable agriculture. Though, about one third of its part frequently suffers from drought condition, Maharashtra is seen to be characterized by diverse type of soil, climatic, water, vegetational and animal resources. The study reveals that, proper planning of natural resources and its appropriate execution will definitely augment the agriculture of the state.

Key words: Resources, Sustainable, Agriculture

INTRODUCTION

Though one third part of Maharashtra state often suffers from drought condition, the state is seen to be characterized by diverse climatic, water, soil, mineral, vegetational and animal resources. Population growth based expansion of urban centers, farm fragmentation, rapid industrialization, expansion and widening of roads and railways have declined the man-land ratio in the state. This alarming situation has compelled the farmers and agricultural planners of the state to adopt location specific varieties of crop and suitable cultivation practices for sustainable agriculture i.e. maintenance of production levels necessary to meet the increasing needs of the population without degrading the environment and resources (Dev, et. al. 2003). The current aim of sustainable agriculture is to develop farming systems that are productive and profitable, conserve the natural resource base, protect the environment and enhance health and safety in long term perspective (Ramaswami, 1999). With this background, the present paper attempts to demarcate the existing natural resources of Maharashtra by adopting methodical and inclusive approach for sustainable agriculture.

LOCATION

The State of Maharashtra is located between 15° 40' N to 22° 00' N latitude and 72° 30' E to 80° 30' E longitudes. It covers an area of 3, 07, 713 Sq. Km. and has a stretched coastline of 720 kilometers along the Arabian Sea. Maharashtra is bordered by the states of Gujrat, Madhya Pradesh, Chhattisgad, Andhra Pradesh, Karnataka and Goa. It is the second largest state in India both in terms of geographical area and population. As per the 2011 census of India, it has a population of 11.23 crore which is 9.3 per cent

of the total population of country. The State is highly urbanised with its 45 per cent urban population.

GEOLOGY

About 90% area of Maharashtra is occupied by the part of Deccan Traps which comprises of huge accumulation of volcanic rocks classified as vesicular basalt, amygdoloidal basalt, fractured jointed basalt, massive compact basalt and weathered basalt. The eastern plateau of the state is rich with minerals like iron, bauxite, coal, manganese, lime, gypsum, etc. Laterite rocks occur in the form of plateaus at Konkan strip *i.e.* from sea level to up to 300 feet elevation and at high elevation of Sahyadri ranges in the form of plateaus. High altitude Lateritic plateaus occur in Satara, Kolhapur, Ratnagiri and Sindhudurg districts in Maharashtra. Vertical slits present on lateritic rocks in which soft silica matter is present. Because of high rainfall, exposed rock slits become empty due to wash out of soft silica matter. Lateritic rock shows brown and black color.

PHYSICAL SETTING

The state of Maharashtra forms a plateau with the main north-south extended Sahyadri range lying almost parallel to the coast line. Sahyadri is elevated from 600 to 1600 mt. asl (above mean sea level) and forms the major drainage divide of the state. The part of Peninsular Plateau which lies in the state is popularly known as Deccan plateau. It gently slopes and extends eastward. However, physiographically the state can be classified into three distinct divisions viz. The Sahyadri (Western Ghats), The Western Coastal Tract (Konkan) and the Eastern Plateau (Deccan Traps).

The Sahyadri

The Sahyadri is characterized by western escarpment face and the eastern denudational slope. This is the elevated edge of Deccan Traps. *Kalsubai* is the highest peak in the range of Sahyadri which is elevated 1,646 mt. a.s.l. The drainage divide varies from 600 to 900 mt. asl. The Sahyadri consists of flat-topped tetrahedral pyramids, associated with flat-topped spurs. Elongated camel-back ridge extensions, intervening Saddles, round-top hillocks and deep erosional valleys are also found in this physiographic division.

The Western Coastal Tract

The north-south running western coastal tract varies from 30 to 100 km in width and elevated up to 350 mt. a.s.l. Along with the north-south aligned hill range in the north with the flat plain of the Ulhas River. Behind it, the plain also has a few outlier Ghats. In Raigad district, the plain is gently seaward slopping. From the south of Raigad, the tract becomes rugged and in Sindhudurg district it becomes relatively flatter.

The Eastern Plateau

The eastern plateau occupies major portion of the state. From north to south, the plateau can be divided into well marked ranges and wide valleys. From north to south, these ranges and valleys are located as Satpura range, Tapi-Purna valley, Ajanta range

and plateau, Godavari valley and Balaghat range.

CLIMATE

Climate of the state is tropical monsoon type. There are three distinct seasons in the year viz. Summer, Rainy and Winter. The period from March to April form Summer season in which highest temperature of the year is experienced. Temperature in this season reaches up to 42^o C in May. The northern part of the state experiences very hot summer and where maximum temperature reaches up to 46^o C. The severity of temperature remains low in the uplands of western Maharashtra. Sea breezes in Konkan keep the temperature low.

Rainy season in Maharashtra starts in the first week of June. Atmospheric temperature comes down with the onset of monsoon. In June, the state experiences its highest rainfall followed by August. Rainfall decrease further in the month of September and withdrawal of monsoon takes place by the end of this month. The spatial distribution of rainfall in the state is highly uneven. Coastal plain normally receives 2,000 to 3,000 mm rainfall and it increases up to 6,000 mm towards higher elevation in Sahyadri. Further it decreases up to 600 mm in the rain shadow area of Sahyadri. This region is characterized by drought proneness where the nature of rainfall is erratic and scanty. Rainfall again steadily increases eastward up to 1,600 mm in the eastern most part of the state.

The months of October and November are characterized by post monsoon season whereas, winter falls in the months of December, January and February. The mean minimum temperature of these months ranges between 16 and 25^oC. Some times the state experiences cold waves during this period. Minimum temperature of the state may falls up to 5^oC during this season.

WATER RESOURCES

Most of the natural water bodies in the state are seasonal. The north-south stretching range of Sahyadri divides the drainage into eastward and westward flowing rivers. About 75% area of the state is drained by eastward flowing rivers viz. Godavari and Krishna to the Bay of Bengal. The remaining 25% area of the state is drained to the Arabian Sea by Narmada, Tapi and many coastal rivers. It is because of the tropical location of the state, the evaporation rate of surface water is high and the basalt of plateau allows less water to be percolated in the ground.

SOILS

It is because of the large variations in physiography and climatic conditions; soils of the state are diverse in their characteristics. On the basis of their physico-chemical characteristics soils are classified into eight main types.

Coarse shallow soils in the state occur on higher elevations of Ajanta, *Balaghat* and *Mahadeo* ranges. These soils are coarse in texture and have low productivity. Less water demanding crops like Bajra, Nachni and Wari are sustained in these soils. The lower elevation of eastern slopes of Sahyadri is occupied by medium black soils. These

soils occupy the largest area of the state at middle elevations between drainage divides and the valley area in moderate to low rainfall zone. The river terraces, valley floors and flood plains of the state are covered by deep black soils. In flood plains, these soils are transported. In *Vidarbha* region these soils are popularly known as black cotton soils. Due to their good water holding capacity, these are being used for agriculture. Clay loam soils occur in the region of 1,500 to 2,000 mm rainfall. High temperature and rainfall makes favorable conditions to the process of laterization. The western coastal tract of the state called Konkan is characterized by lateritic soils. Laterite soils are least productive soils of the state and they support forests and only millet crops. Coastal alluvial soils are derived from the alluvial wash from higher elevations. These soils are finer in texture and are being used for paddy cultivation. The easternmost part of the state and some parts of the Sahyadri are occupied by reddish yellow and brown soils. These soils are the derivatives of granite rock, poor in productivity and with moderate fertility found in Wardha-Wainganga basin.

MINERALS

The total potential mineral area in the State is about 58 thousand sq. km. spread in Bhandara, Chandrapur, Gadchiroli, Nagpur & Yavatmal districts in Vidarbha region, Kolhapur & Satara districts in Western Maharashtra and Raigad, Ratnagiri, Sindhudurg, & Thane districts in Konkan region. The deposits of minerals like coal, limestone, manganese ore, bauxite, iron ore, dolomite, laterite, kyanite, fluorite (graded), chromite etc. are found in these regions. Upto 31st March, 2011, total 277 mines of major minerals with 0.6 lakh employment are operational in the State (GoM,2012).

NATURAL VEGETATION

As the state is under influence of monsoon climatic conditions in the tropics, where distribution of rainfall and humidity is highly uneven, natural vegetation of the state has become heterogeneous in its composition. Forest in Western Ghats are thick while they are scanty in the rain shadow area of the state. Most of the forest area in the state is replaced by agriculture.

The recorded thick forest area in the state was 61,939 km² (23,915 sq mi) which was about 20.13% of the state's geographical area. (GoM, 2012). *Nim, Palas, teak, Sal, Ber, Babhul, Hirda, Behda, Karvand, Shisav, Anjan, Kanchan, Jamun, Catechu, Haldu* are the important plants of the State.

ANIMAL HUSBANDRY

Animal husbandry is an important agriculture related activity. The State's share of livestock and poultry population in India is 6.8 per cent and 10 per cent respectively and the State ranks sixth in India in livestock and poultry population. Livestock and dairy play an important role as they provide supplementary income opportunities to millions of rural households having agriculture as main source of livelihood. As per Livestock Census 2007, the total livestock in the State was about 360 lakh and livestock per lakh population

was 31,995, much lower than all India level of 43,770. The State's share in poultry population of India was 10 per cent. The State ranks sixth in India in livestock and poultry population (GoM,2012).

FISHERIES

The share of Fisheries in GSDP of Agriculture & allied activities sector during 2010-11 was 1.7 per cent. The State has 720 km. coast line. The area suitable for marine fishing is 1.12 lakh sq.km. In addition to this, the area suitable for inland and brackish water fishing in the State is 3.01 lakh ha. and 0.19 lakh ha. respectively. There are 162 fish landing centres in the State. The potential of marine and inland fish production has been estimated at 6.3 lakh MT (GoM,2012).

POPULATION

As per the census of 2011, the state ranks second in India with its population of 11,23,74,333 (9.28% of India's population) of which 58,243,056 are male and 54,131,277 female. The total growth of population in 2011 was 15.99 percent. After 1971 the growth rate of population in Maharashtra has remained higher than the national average in 2011. Hinduism was the main religion of the state which contributes 82.5% of the total population, whereas, 13.4% population belongs to Islam. Sikhism, Christianity, Jainism and other religions comprised of 4.1% of the state's total population. Maharashtra has the highest number of Buddhists in India. The population density of Maharashtra was 365 inhabitant per sq. km. while the literacy of the state was 83.2% of which male literacy stood at 89.82% and female literacy at 75.48% (Census, 2011).

Census	Pop.	%±
1961	39,554,000	—
1971	50,412,000	27.5%
1981	62,784,000	24.5%
1991	78,937,000	25.7%
2001	96,752,000	22.6%
2011	112,373,000	16.1%

Source:Census of India^[50]

AGRICULTURE

Agriculture in Maharashtra is mainly dependent on climatic conditions of the region. Rainfall is the major influencing factor along with the atmospheric temperature and humidity. Jowar, Bajra, Soybean, black gram, green gram, sunflower, cotton, paddy are the important Kharif crops whereas, wheat, safflower and horse gram are the important Rabbi crops of the state. Sugar cane, grapes, banana, orange, mango, sweet lemon are the vital cash crops of the state.

Limited irrigation is one of the major constraints of the State Agriculture. Only 15.4 % of the State's net sown area is irrigated as against 35% of the countries area under irrigation. More than 55% of the total irrigation is from ground water. About 3 lakh

hectares of the area has been covered under drip irrigation in the State under horticultural and cash crops.

CONSLUSION

The study reveals that, the natural resources in the state are not very much suitable for agricultural development due to physical constraints such as hilly; rugged terrain, vast rain shadow area, infertile soils and low seasonal rainfall over most of the plateau region. The judicious and intensive use of available natural resources by the means of well planned extension campaigning, demonstrations, execution of participatory planning, collection of essential data/information and its proper documentation for resource evaluation, transfer of technology from research stations to farmers will prove to be helpful in enhancing the potentialities of the region for sustainable agriculture in the state.

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Gender Issues In Patriarchy: The Main Cause Of Declining Female Birth Ratio In India

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Today, our country is facing major problem i.e. female birth ratio consistently declining in India and it became the biggest problem which needs to be solved soon. This paper is attempted to find out the reasons of this fall of women's birth ratio. The patriarchal society and exploitation of women are the main reasons of this fall. Superstitions and religious and cultural factors also responsible for it but all these issues are the aspects of our society but they are the production of patriarchy. This paper deals with gender issues in larger patriarchal structure of Indian society.

Sociologically, there are two forms of society, Matriarchy, and Patriarchy. In Matriarchy, the husband goes to the house of the bride and adopts the family name of his bride and settled permanently there. The family is ruled by female who may be mother, grandmother or great grandmother. This marriage system and society were prominent in Paganism. Now a day it is no more in vogue. In patriarchy, the bride leaves her father's home permanently and accepts the name of her husband and settled there forever. The man who rules and controls the family may be father, grandfather or great grandfather. The female plays subordinate, subservient role in this family structure.

The Oxford Mini English Dictionary defines patriarchy as 'the male who is a head of a family or tribes, rules on other family members.' Kate Milliet argues in her book Sexual Politics, 'Patriarchy demands "a systematic overview- as a political institution." Patriarchy subordinates the female to the male or treats the female as an inferior male, and this power is exerted, directly or indirectly, in civil and domestic life to constrain women. Women are exploited not only in homes but outside also. We are living in democratic nation but, are human rights meant only for men? Are women not human being? For women home has become a hell, where women, in fact, are being physically, mentally, and sexually abused, assaulted, and ruthlessly exploited in manifold ways, right from their womb to their tomb. We have discussed some gender issues in patriarchal India. The female foeticide which is most important, and influential cause for declining female birth ratio in India. The people of India are so eager for sons and try to get rid of their daughters through sex determination test, with corrupt doctors who are in real sense the criminals. Another gender issue of patriarchy is female infanticide i.e. murder of female infant after birth. Dreaded by the prospect of dowry, many of the poor families in some parts of India, especially some district of our country commit the crime of female infanticide. They kill female babies as soon as they are born, often with the consent of

their mothers.

Domestic violence is another feature of patriarchy. The domestic violence and abuse is most common in our country and most women accept it as their husband's privilege or right on historical traditions. This is not in lower classes of couples but also among the well-educated and higher classes where wife beating often occur. This wild treatment leads to bride burning which is the most barbaric, ant-human and inhuman act of cruelty and atrocity, committed by husband and bride's in-laws. The common reason for this is non-satisfaction of the heavy dowry demand by the bride's parents. Sexual harassment occurs in public Hospitals, work places, rape and gang rape also great crime against women. Poor classes and so-called educated and economically empowered communities lead the way in sex selection practices. While women in urban India are not as chained to the home and hearth as before, dowry deaths and harassment continue, as does the practice of working women handing over their income to their husbands. All these issues are responsible for declining sex ratio steadily over the 20th century, from 972 females per 1,000 males in 1901 to 933 in 2001. Now this masculinization of the sex ratio at birth is no longer restricted in some states of India but spread to every part of our country.

Patriarchy and religious philosophy as well as traditions and customs are responsible for this drop of female birth ratio in India. The demand of only sons and gender problems is eliminating millions of girls before their birth. The point is to change in our mind set, and rejecting cruel customs and traditions and giving the equal rights to women will be increase the female birth ratio.

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