

Land Use Challenges and Land Resource Management in Malihabad Region, Lucknow

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Abstract:

Land for humans has various dimensions and use. Its manifestations are space, as habitat and land in the form of soil itself. Men take birth on the earth/land somewhere, adopt land as a habitat and survive on its produce i.e. food from land. No other resource is important as land in real sense as other resources are related and find meaning because of land. The land use or the utilization of land for cultural activities is as important as land itself. Land decides the site and situation for habitation; and provides circumstances to develop accordingly. Development of the societies is heavily bound to the availability and nature of land to the men for use. Countries with suitable site and situation and with proper land utilizations develop efficiently as compared to the countries lacking such privileges. Sustainability and longevity of human on this planet earth is much more dependent on the appropriate and sustainable use of land. It is of immense magnitude to study the land utilizations of the places to find out the past, and present land use scenario, virtues and lacking of land resource

utilization for better planning, management and execution of the such plans virtuously to fulfill the demands of the food and habitat for immensely increasing populations. Present paper is an endeavor to study the land use of Malihabad region in district Lucknow; where land use transformations are at great extent and mango orchards have changed the land use a lot with several positive and negative consequences.

Keywords: *food and habitat, land resource management, land use, Malihabad region, sustainable use.*

INTRODUCTION:

Land is a resource of enormous value to mankind. According to the FAO/UNEP (1997); land and land resources refer to a delineable area of the earth's terrestrial surface, encompassing all attributes of the biosphere immediately above or below this surface, including those of the near-surface, climate, the soil and terrain forms, the surface hydrology (including shallow lakes, rivers, marshes and

swamps), the near-surface sedimentary layers and associated groundwater and geo-hydrological reserve, the plant and animal populations, the human settlement pattern and physical results of past and present human activity (terracing, water storage or drainage structures, roads, buildings, etc.) [10].

Land use or utilization is the basic concept of geography as geographers' foremost work is to describe and analyse the land use of the places, so it is important to have a clear understanding of the land use in the geographical studies because land use depicts the physio-cultural conditions, technological developments and various other advancements of the region. From geographical viewpoint term 'land' have three dimensions, viz. earth's surface, atmosphere and ocean and land use refers to the genuine and precise use of land under various purposes and categories as for forest, agriculture, pasture, settlements, and many other uses. The concept of land use is ever changing in nature and revolutionizes in space and time. Land use is generally influenced by a number of physical and societal factors. The main physical factors influencing the land use are location, terrain, topography, slope, temperature, rainfall, soil, availability of water, while social factors, like prevailing land tenure system, size and fragmentation of land holdings,

socio-cultural values, religion, customs, caste, and technological advancements etc. determine the land use pattern of a region [7]. In general change of land use from one functional class to another is a process that we cannot fully describe mathematically [3]. Reason behind this is due to individual and biased nature of humans to use their land. But with the minimized subjectivity, land use categorization can be done and strategies for sustainable use of land resource can be made. Land units, land utilization types and land use systems need to be defined differently for different scale levels, e.g., for farm, regional and world levels [1]. Today with the growing population and low man land ratio and the increasing land degradation, the need for the optimum land utilization assumes much greater relevance [4]. Many changes in land use are a consequence of the increase in human population and the resulting demand for more resources—among them, minerals, soil, and water. This demand now exceeds that which earth can provide sustainably [2]. Economist Erich W. Zimmermann stated in the year 1930, that *resources are not; they become*; [8]; according to him resources are not fixed things, but their meaning and value emerge as human appraise their significance and develop the technical and scientific knowledge to transform them into

useful commodities. Importance of resources depends upon *cultural assessment* and the value of their distribution and use. If we consider a particular thing to be a 'resource' today may not remain so in the near future. Technological developments, transportation facilities, marketing, etc. very much decide the changing nature of resource use precisely the land resource use. Now, man abuse resources and degrade them due to their greed. It has generated severe threat to the sustainability levels, but eco-friendly horticulture in various means can prove beneficial in optimum utilization of soil, air, water and sunshine. The need of the present is to practice organic and green environment friendly horticulture [7]. The long-term sustainability issue is more serious than, but exacerbated by, climate change [2]. Proper land resource management (LRM) is important for the longevity and sustainability of land and to the humans too on this planet. Land resource management (LRM) is the use of available land in sustainable manner to optimize the production per unit of land with minimizing destruction, degradation and depletion of land. Concept of land resource management (LRM) depicts the nature, scope and process of sustainable land management (SLM) both in rural and urban areas at different levels in space and time. Land resource management is

important in the sense that land is a limited resource. Management of agricultural land, forests, pastures, water bodies are the broad manifestations of land resource management (LRM). And they can't be separated in real sense as all are connected well in space. Poverty of masses, food and nutritional security can be well achieved only by the optimum and sustainable utilization, planning and management of land resource available to the masses in any area/ region or country at local, national and global level.

STUDY AREA:

Mango orchard region of Malihabad is famous, all over the world for its delicious mango and also known as the *mango capital* of India, as no any area or region is as rich as Malihabad in mango production, varietal diversity and uniqueness, particularly in *dashehri* cultivation, other famous mango varieties harvested here are *chausa*, *lucknowa safeda* and *langra*, etc. [7]. Geographically Malihabad, i.e. Malihabad region has its extent in 26° 52' 11" North to 27° 6' 40" North latitudes and in 80° 33' 40" East to 80° 50' 57" East longitudes, situated towards North-Western part of the district Lucknow [Fig.1]. Historically, Malihabad region was inhabited by ruler *Malia*,

but nothing more known about him. Nothing definite, however, was known of the place till the time of Akbar, when it was colonized by the *pathans*; this and later fully controlled by the *pathans* [5].

Administratively, the region is a *tehsil* of district Lucknow, comprising 2 blocks, namely Malihabad and Mal. The entire region is divided in 22 *Nyay Panchayats* and one *Nagar Panchayat (NP)*, and the whole region is further sub-divided into 187 villages, in which 185 villages are inhabited and remaining 2 villages are uninhabited [9]. Politically, the region is an integrated part of Malihabad *vidhan sabha* and Mohanlal ganj *lok sabha* constituency.

The whole region is spread in about 478.01 sq km of area, which is equal to 47801 ha. The region shares its boundary with district Hardoi in North, whereas district Unnao is

located in the West of Malihabad region and block Kakori shares boundary in the South and River 'Gomti' flows towards East for a long distance and makes its Eastern boundary; a natural boundary and separate it from *tehsil* Bakshi Ka Talaab (BKT). The physiography of any place is ultimately the result of geological structure and natural forces, defined in terms of relief and slope. Physiographical features of any region may be depicted with the help of the contours of the topographical sheets [7].

According to R.C. Tiwari (2004); on the basis of the stratigraphic and tectonic history, relief characteristics and erosional processes India may be divided in four major physiographic regions, viz. *The Northern Mountains, The Great Plains, The Peninsular Uplands* and *The Indian Coasts and Islands*. These may be subdivided into a number of *meso* and *micro* regions [6].

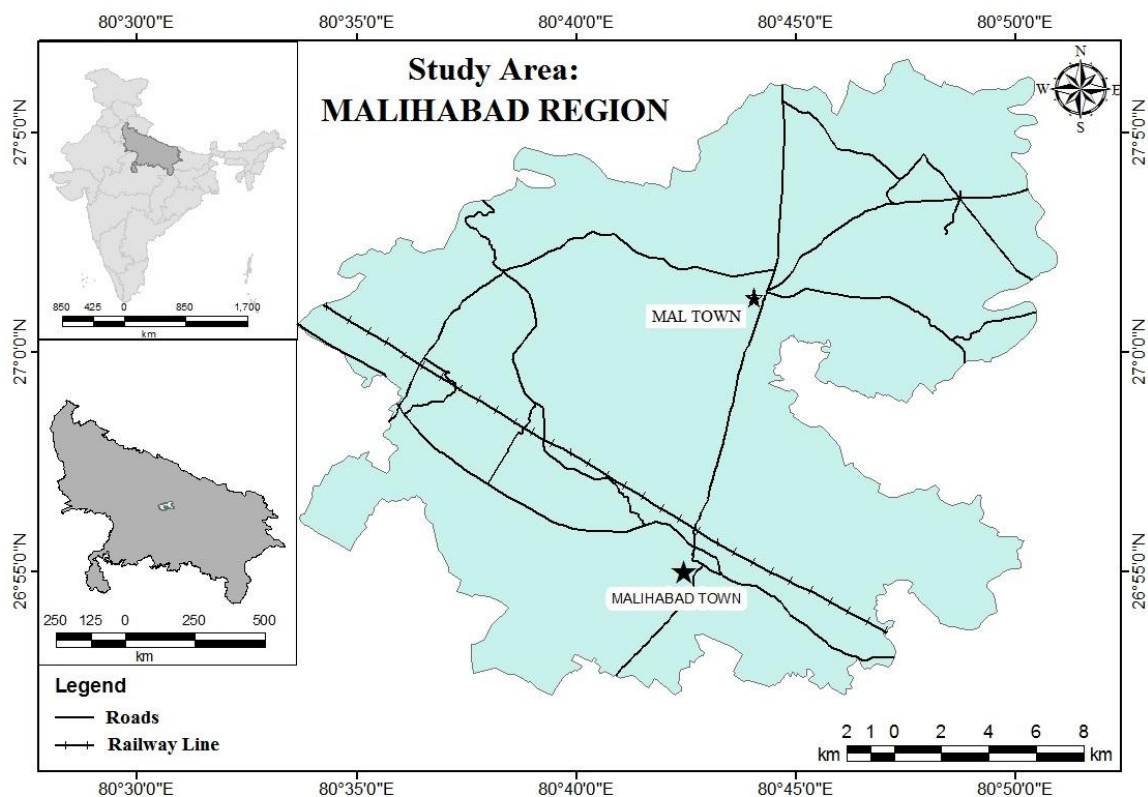


Fig. 1: Location map of the study area: Malihabad region, Lucknow

As an integrated part of The Great Gangetic Plain, Malihabad region is an aggradational plain formed by the alluvial deposits of the Ganga and its tributaries namely; Gomti and Sai River. The study area is lying between ‘Sai’ and ‘Gomti’ rivers. As, Malihabad is an aggradational plain; the region is devoid of any major physiographical land features. The Gomti river itself, ordinarily, runs in deep and tortuous bed with high banks, cut at places by ravines or the rivulets that join it on

either of its banks [6]. The central upland; situated towards west of Malihabad, on the higher watershed, running from north-west to the south-east separates the ‘Gomti basin’ from ‘Sai basin’. Deep ravines are prevalent along river banks where *nalas* have cut down the land before draining their water in River Gomti [7].

The relief of the region ranges between 109 m to 130 m above mean sea level (msl). Most of the region is plain as 120 m contour line prevalent throughout the region with some

exceptions. The general slope of the region is towards north-west to south-east following the slope of the Great Plains. All the channels flow very sluggishly except a few months of the rainy season when rain water heavily pours in rivers. The average elevation of region is about 129 m above mean sea level (msl) [7]. Population of the region is 368453 persons according to the census of 2011; comprising 193230 males and 175223 females, among which 205770 persons are literate while, 162683 persons are illiterate, while sex ratio is 907 females per thousand males [9].

OBJECTIVES:

Main objective of the present paper is to study and analyze the land use of the Malihabad region and find out the challenges in land use and make suggestions to sustainable use of land resource in the region.

METHODOLOGY:

Present study is based mainly on secondary data compiled from revenue office and various other sources. Map of the study region have been drawn from Survey of India toposheets. Based on the acquired data further analysis has been done and conclusions and suggestions have been made.

RESULT AND DISCUSSIONS:

Land use is the most obvious representation of the interaction between man's perception and physical environment; gives birth to the cultural landscape. Human is the modifier of physical landscapes and modifies physical settings mainly for the food, shelter, clothing, and recreational activities.

Land use generally refers to the use of land for various social and economic activities of man. In the broad sense use of land may be for settlement, roads, railways, pastures, forest, fields, orchards, educational, and other institutions. Malihabad region is spread in 47801 ha of land. The distribution or classification of land in various uses is much more important for optimum use of land, in the study region, whole land is not under solitary use rather multiple categories of land use can be noticed; the main categories among which the total geographical area of the region is distributed; are fallow land, forest, land not available for cultivation, other uncultivated land excluding fallow, net area sown, and mango orchards with various sub-categories.

Table 1: Broad Categories of Land use (in ha) in Malihabad, Lucknow

Land Use	Area (in ha)	Percentage
Forest	1308	2.74
Barren and Uncultivable Land	945	1.98
Land Put to Non Agricultural Use	4548	9.51
Pasture	588	1.23
Culturable Waste	982	2.05
Current Fallow	4958	10.37
Fallow other than Current	311	0.65
Net Area Sown	17538	36.69
Mango Orchards	16623	34.78
Total	47801	100.00

Source: Revenue Department, 2008.

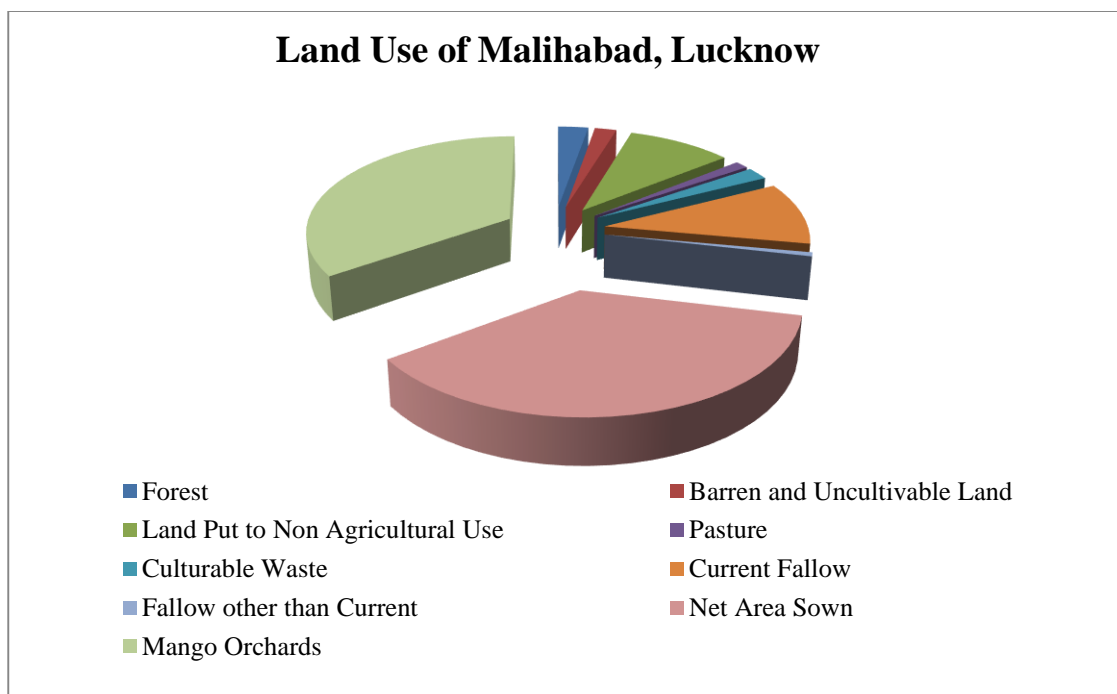


Fig. 2: Land use in Malihabad region

Out of the total geographical area of 47801 ha, the highest percentage of land is devoted to agriculture and for horticultural purposes; mainly of mango. The net sown area of the study region is 17538 ha (36.69 per cent)

whereas 16623 ha (i.e. 34.78 per cent) of land is devoted to permanent mango orchards. The land not available for cultivation, i.e. barren and uncultivated land is about 945 ha (1.98 per cent).

Table 2: Nyay/Nagar Panchayat -wise Land use (in ha) of Malihabad, Lucknow

Nyay/Nagar Panchayat	Total Geographical Area	Forest	Land Not Available For Cultivation	Other Uncultivated Land Excluding Fallow Land		Fallow Land			Net Area Sown	Mango Orchard
			Barren and Uncultivable Land	Land Put to Non Agricultural Use	Pasture	Culturable Waste	Current Fallow	Other than Current		
Jindaur	2177	11	25	169	8	41	226	7	910	780
Jauria	2573	253	81	266	58	167	277	41	985	445
Kasmandi Khurd	2616	100	27	266	68	28	186	7	1006	928
Mahmood Nagar	1475	0	6	125	10	14	126	0	171	1023
Garhi Sanjar Khan	1347	5	15	147	1	9	105	63	426	576
Gauda Muazzam Nagar	2605	70	52	148	11	21	496	5	790	1012
Dheremau	1952	74	68	218	47	10	117	0	1027	391
Bakhtiyar Nagar	1766	0	11	152	19	8	122	0	472	982
Sahilamau	1697	299	5	136	7	29	262	0	217	742
Kasmandi Kalan	2824	112	58	254	6	57	393	42	1080	822
Kahala	1004	3	10	101	28	13	48	3	109	689
Mal	1684	4	22	154	19	33	129	0	639	684
Amlauli	2181	4	21	133	18	21	181	0	798	1005
Nabi Panah	1788	6	8	176	20	54	40	55	689	740
Aumau	2428	36	137	214	1	23	192	0	812	1013
Atari	2290	0	77	291	28	253	190	16	859	576
Siswara	1791	6	15	274	64	12	106	9	820	485
Saspan	2858	240	68	323	73	25	461	20	1231	417
Shankarapur	2615	63	52	234	14	27	327	0	1247	651
Badaiya	1903	6	19	179	0	9	226	0	746	718
Madwana	2398	16	19	171	5	42	353	4	762	1026
Thari	3212	0	147	298	83	86	292	35	1651	620
Malihabad (NP)	617	0	2	119	0	0	103	4	91	298
Total	47801	1308	945	4548	588	982	4958	311	17538	16623

Source: Revenue Department, 2008.

The total share of land put to non agricultural uses is 4548 ha (9.51 per cent) whereas, 2.05 per cent of land with 982 ha is under culturable waste. Around, 10.37 per cent, i.e. 4958 ha and 311 ha (0.65 per cent) of land is occupied by current fallow and fallow other than current respectively. About 588 ha land (i.e. 1.23 per cent) of the total geographical area is devoted to pasture [Table 1 & Fig. 2].

Challenges and Land Resource Management (LRM):

From the above discussions and the Table 1 & 2 it is clear that there is neck to neck competition between food crops (net area shown) and mango crop/orchards for land as there is phenomenal differences are present between them in the sense of areal extent.

Forest land in the study region is only 2.74 per cent of total geographical area which is very less; this is not very supportive for the vigorous ecosystem but mango orchards; provide permanent green cover to the region and are surely compensating the lack of natural forests in the region. Due to the result region is more greener then the nearby areas of its vicinity. Pasture land is also very limited in the

Malihabad region as it is only 1.23 per cent of the total area and limit the healthy animal and dairying but reverse trend can be witnessed in the region and population is intensively engaged in producing milk and milk products managing fodder from neighboring areas. Region occupies very less barren and uncultivable land as it is only 1.98 per cent. This land can be further used for cultivating some specific varieties of mango and pastures can be developed with some efforts, plants like acacia (babool) etc. can be planted here in barren land to increase forest cover in the region. Panchayat bhavan, village hospitals, community centre and schools can be open here in this barren land. Culturable waste land in the region is 2.05 per cent which can be used efficiently for kitchen gardening and animals shelter houses and land resource wastage can be minimized.

From the Table 2; it is also clear that some Nyay/Nagar Panchayats like Jauria, Mahmood Nagar, Dheremau, Saspan, Shankarpur and Thari have very less area under mango plantations and dominated by food crops cultivation and animal rearing. Here there is further scope for new mango orchard plantation; which eventually increases the social and economic status of population residing in these

units and multiple benefits with sound economic gains can be secured. Mango orchards facilitate per hectare more money to the farmers in comparison to other simple food crops and less duration of engagement of population so that in spare time they can perform other works and cultural activities.

CONCLUSIONS

AND

RECOMMENDATIONS:

Natural ecological disturbance and changes in the ecosystem settings are the most obvious results of land utilization by men. Land, water, and forest are in degrading and depleting stages. In rural areas highest percentage of land remains devoted to agricultural purposes. Same trends of land use can be seen throughout the region. But in Malihabad region mango production is the main occupation of the population so that a huge proportion of land is under permanent mango orchards provide a distinct nature to the region and distinguished it from its neighboring areas. Commercial mango production, dairying, limited number of food crops production, nursery growing are the main economic activities prevalent in the region. Thus region need a special planning for sustainable land resource management (SLRM). Mango orchards have occupied the area of traditional

food crops and process is intensifying continuously. Land use transformations are at large scale in the Malihabad region and region is changing rapidly from traditional crop production to the commercialized mango harvesting.

Thus pressure on land is increasing. Due to changes in natural ecosystem and ecology, and also due to prevalent use of chemicals in agricultural and most precisely in mango production processes natural vegetation, crops diversity, numerous animals and micro-organism are at risk and region is losing its biodiversity at the great. Soil, water and air pollution are other problems increasing in the region day by day. Diversified land use choices are very limited to those farmers who have ownerships of mango orchards only.

Development of regional land resource management strategies, and their efficient implementation and execution, inter disciplinary research may prove helpful in achieving the sustainability goals. Organic mango horticulture and agriculture, water resource management with minimum vulnerability and optimized production from same piece of land can reduce chances of degradation and depletion of land, water and vegetation.

The need of the time is to focus on sustainable land use practices where there must be a balance between food and fodder crop production, animal rearing, and mango cultivation. As all three in balance proportions can minimize and balance the negative impacts of these practices on environment of the region and can maintain soil fertility, water and air quality, and biodiversity ultimately the ecological, economic and social sustainability in the region would maintain at a great extent.

REFERENCE:

- [1] Bouma, J. (1997). The land use systems approach to planning sustainable land management at several scales, *ITC*, 3(4), pp. 237-242.
- [2] Hooke, R. Lebel, J.F., & Pedraza, J. (2012). Land transformation by humans: a review. *GSA Today*, 22(12), pp. 4-10. DOI: 10.1130/GSAT151A.1.
- [3] Kazak, J., Wang, T., & Szewranski, S. (2015). Analysis of land use transformation potential in spatial management, *DE GRUYTER*, 23(1), pp. 1-14. DOI: 10.1515/remav-2015-0001.
- [4] Rynghnga, P.K., & Rynthathiang, Bring B.L. (2013). Dynamics of land use land cover for sustainability: A case of Shillong, Meghalaya, India, *IJSTR*, 2(3), pp.235-239.
- [5] Sharma, V.C. (ed.). (1959): *Uttar Pradesh District Gazetteer*, Lucknow, vol. xxxvii.
- [6] Tiwari, R.C. (2004): *Geography of India*. Prayag Pustak Bhavan, Allahabad, India.
- [7] Yadav, A.S. (2017). *Development of Horticulture and Its Environmental Consequences in Malihabad, District Lucknow*. An unpublished thesis submitted to the Kumaun University, Nainital.
- [8] Zimmermann, E.W. (1930 and 1951): *World Resources and Industries*. Harper and Brothers, New York.
- [9] Census, 2011 & Sankhiki Patrika of Lucknow, 2013-14.
- [10] Website of FAO/UNEP, 1997.