

Land Utilization Types (LUTs) is a specific way of using the land as actual or alternative, consisting of a combination of key attributes, such as production, labour, capital, management, technology and scale of operations. Due to close relationships, the key attributes are identified simultaneously and described at the appropriate aggregation level, in accordance with the purpose and detail of land evaluation. As LUTs are technical, organisational unit in specific socioeconomic setting, it is also related to other similar selected LUT's of the particular area. In the every identification of land use requirements, descriptions of key attributes should be sufficiently informative. The FAO framework distinguishes between single, multiple and compound Land Utilization Types (LUT's).

A Single Land Utilization Type: It specifies only one kind of use undertaken on an area of land (example: Rainfed, groundnut farming area).

A Multiple Land Utilization Type: It consists of more than one kind of use simultaneously undertaken on the same area of land and different use having its own inputs, requirements and production (example: turmeric grown in between rows of young coconut trees under irrigated farming).

A Compound Land Utilization Type: It comprises of more than one kind of uses, sequentially undertaken on the same land. The different kinds of use may occur in time sequence (example: crop rotation) or simultaneously in different areas of land within the same organization unit (example: mixed farming system), involving relations between arable crops and livestock production form of grasslands. It refers to four or more uses undertaken on areas that are treated as single unit for the evaluation purpose.

Land use

Land is the most vital resource of a country. It is a fixed asset and cannot be expanded to meet the needs of an increasing population. Therefore, it must be used carefully and in the best possible manner. The total geographical area of India is 32.88 lakh sq. kms.

Net Sown Area (NSA)

The total land area on which crops are grown in a region is called net sown area. The net sown area and the area sown more than once together are called gross cultivated area. In India, about 47 per cent of total reporting area is under the net sown area.

States namely Punjab, Haryana, West Bengal, Uttar Pradesh, have the high proportional share of NSA than the national average. Against this, the share of NSA is less than one half of the national average in states of Himachal Pradesh, Uttarakhand, Meghalaya, Manipur, Nagaland, Mizoram, Sikkim and Arunachal Pradesh. All these states suffer from physical disabilities such as undulating terrain due to hilly topography, limiting the availability of plain land and fertile soils, important for cultivation. This is evidently clear from state wise distribution of proportional share of NSA that physiographic factors play an important role in availability of net cropped area in a region.

Forest

The area under forest cover is about 68 million hectares or 22 per cent of the total area in the country. This area has increased from 40 million hectares in 1951 to 68 million hectares in 2000. For the ecological balance the forest cover should be at least 33 per cent of the total geographical area of a country. The states of Arunachal Pradesh, Mizoram, Jammu & Kashmir and Tripura have relatively larger proportion of area under forest cover.

Land Not Available for Cultivation

The land under the settlements, roads, mines and quarries along with barren lands are included in this category. The sandy waste land of Rajasthan, marshy land of Kutchh (Gujarat) and rugged and eroded areas of northeast and northern mountains are few examples of barren lands. About 13 per cent of the total reported area is recorded under this category. Nagaland, Manipur and Assam registered a very high percentage of area not available for cultivations.

Fallow Lands

When lands are left unused to regain their lost fertility in a natural way is called fallow land. On the basis of usability criteria fallow lands can be divided into two groups current and old. Current fallow is the land in which no crop is raised during the current year. Old fallow land remain unused for a period of one or more years but not exceeding 5 years. This is due to low investment capacity of numerous small and marginal farmers in advanced technology, lack of awareness, loss of fertility of soil, inadequacy of rainfall, lacking in irrigational facility etc. The fallow land occupy about 7.5 per cent of the total reported area. The states of Mizoram, Tamil

Nadu, Meghalaya, Bihar, Andhra Pradesh and Rajasthan have a high percentage of area under fallow land. It is to be noted here that old fallow land may not be economically important but from ecological point of view fallow land is important category of land.

Cultivable Waste

It is the land in which crops were raised for some period of time but has not been cultivated for the last five years due to certain deficiencies such as alkalinity and salinity in the soils. Such cultivable waste are locally known as reh, bhur, usar, and khola in the some part of North India. Maghalaya, Himachal Pradesh and Rajasthan have a very high share of cultivable waste land in total land use in respective states.

Permanent Pastures and Grazing Lands

Notwithstanding the highest live stock population in the world, India has only less than 4 per cent of the country under pastures and grazing lands. The states of Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Gujarat and Rajasthan have high above 5% of area under this category.

The area under different landuses are given below:

Table: Land Utilization in India

Landuses	Area (in lakhs hectare)	In percentage
1. Area under non-agriculture uses	212	6.95
2. Barren and uncultivable land	197	6.46
3. Net area sown	1442	46.64
4. Forest lands	679	22.27
5. Miscellaneous tree crops and groves	37	1.21
6. Cultivable waste lands	150	4.92
7. Current fallows	138	4.53
8. Old fallows	96	3.15
9. Permanent pastures and grazing land	118	3.87
Total	3069	100

AGRICULTURAL LAND USE

The net sown area, current fallows and land under tree crops and groves are included in agricultural land use. The agricultural land in India is little more than 50 per cent of the total geographical area in the country. This is the highest share of land in any country in the world. But due to large size of population in India, per capita arable land is available only 0.17 hectares, which is lower than the world average (0.24 hec). The per capita agricultural land in some select countries is much higher than India. In Australia it is 2.8 hec., in Canada 1.35 and in Brazil 0.33

hec. The lower per capita availability of land is an indicator of high pressure of population on land resources. Since there is little scope for increasing land under the plough, the way out to feed the growing population can be found in increasing land productivity. Over the period, area sown more than once has been increasing which is about 15 per cent. If the same piece of land is sown more than once in a year, it is called cropping intensity. Which stands for the ratio between gross cropped area and net sown area. The use of new technology, fertilizers, good quality of seeds and irrigation facilities are necessary for increasing intensity of cropping. The so called Green Revolution is also nothing but technological package, which include HYV seeds, chemical fertilizers and artificial irrigation. After the adoption of Green Resolution by India in 1966 onwards agricultural, land use has undergone a significant change.

CATTLE REARING

Cattle rearing is an important economic activity in India. Milk and milk products (Butter, Ghee etc) meat, eggs, leather, and silk are raw materials for industries. Animals provide a large proportion of energy required in the farm sector. The bullocks, buffaloes, horses, ponies, camel etc. are used as draught animals. They are used in agricultural activities like ploughing of fields, drawing of water from wells and for carrying loads. It is to be noted here that with rise in mechanized farming, the use of animal power for farm operations is on gradual decline. This is more true of Green Revolution areas. Hides and skins of animals are used as raw material for leather industries. Sheep, goats and camels provide wool. Their dung are used for biomass gas production and for making manure.

India is leading producer of milk in the world. It is due to initiative taken by government through 'Operation Flood'. Under this program good breeds of cows and buffaloes, which yield more milk, have been introduced. Co-operative societies in this field were encouraged. The modern dairy farms produced milk powder, butter, and cheese; condense milk, cream, and ghee along with milk.

The largest number of livestock is found in Uttar Pradesh followed by the states of Rajasthan, Bihar and Madhya Pradesh. These four states account for 44% of total livestock of India. The density of animals in India is the highest in the world. It is about 130 heads of livestock per 100 hectare of land. The percentage of area under permanent pasture is very low in comparison to the density of animal population. Cattles, Buffaloes, sheep and goats are important livestock in India.

Distribution of Animal Resources in India

Cattle rearing in India is an important economic activity. The cattle population accounts for 43.5% of the total livestock in the country. The largest number of cattles in the country is found in Uttar Pradesh. Except Haryana, Punjab and Rajasthan, in other states of India the number of cattles are greater among livestock. The yield of milk from Indian cows is the lowest in the world. It is only 188 liters per animals per annum in India while in Netherland it is 4200 liters differing by about twenty three times. Buffaloes account for 18% of total livestock in India. They outnumber other animals in the states of Haryana and Punjab. For the milk point of view, buffaloes are important as they account for about 53% of total milk production in India.

Sheep are found mostly in the cold and dry regions of the country. They are very few in areas which are very hot and receive heavy rain during monsoon. They develop hoof diseases in hot and humid climate. Rajasthan, Tamil Nadu, Jammu & Kashmir, Himachal Pradesh, Andhra Pradesh and Uttar Pradesh are major states where sheep are in large numbers.

Among the other animals goats, camels, horses, yaks and mithuns are important. The goats reared mainly for meat and milk. In Rajasthan goats are greater in number than other animals. Camels are reared in western Rajasthan and adjoining areas of Gujarat, Haryana and Punjab. Camel is called the aeroplane of desert region implies to Thar Desert of India. Horse and ponies are distributed all over India specially in Jammu & Kashmir, Uttar Pradesh, Bihar, Madhya Pradesh and Punjab. Yaks are found in mountainous areas of Jammu & Kashmir, Haryana, Himachal Pradesh, Sikkim, and Arunachal Pradesh. Mithuns are found in Nagaland and Arunachal Pradesh.