

Changes in land use and land cover as a consequence of rural development in North Bihar



Krishna Narayan

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University Department of Geography

B.R.A Bihar University, Muzaffarpur

Abstract

Gift of rich Gangetic alluvial soil and bountiful water resources, especially groundwater resources by and large comprise center parts for improvement of agribusiness in Bihar. Endeavors have been made in this paper to examine factors answerable for changes in land use design, particularly expansion in current fallows, contracting net planted region and moving of land for non-horticultural purposes in the state. A bigger convergence of current decrepit grounds was represented in Gaya, Patna, Purnea, Munger, Jehanabad and Kishanganj regions. The precipitation and street length essentially affect the degree of current fallows. Unpredictable rainstorm and work shortage during the review time of present century brought about collection of current neglected lands. It was additionally seen that the non-rural utilization of land was distinguished as the prevailing element for changes in like manner lands as it impacted the ongoing fallows adversely. It is a provoking undertaking for strategy creators to expand the pay of ranchers from a constantly declining in net planted region, weakening climatic circumstances as well as work scant circumstances, in this manner bringing about conglomeration of current fallows. To support the creation and upgrade rancher's pay, it is important to put the rising propensity in current fallows down or to bring current fallows under development.

Keywords: Climatic condition, Current fallows, Endowment, Fallow lands, Profit

Introduction

Bihar with an all out populace of around 116 million individuals is the most thickly populated state in India and positioned third biggest territory of India as for populace and seventh concerning region. Bihar is supplied with different enhanced natural gifts. Fruitful Gangetic alluvial soil, plentiful water resources, especially groundwater resources together structures the center parts for improvement of horticulture in Bihar. The state is considered as objective for second Green Upset in the country. A few reports including the Public Ranchers' Bonus have stressed the requirement for sped up improvement of farming in eastern India for getting food security of the country. Change in land use design is a mind boggling peculiarity, which is impacted by a few financial, climatic circumstances and institutional variables. Mechanical changes have additionally expanded change in land use design. Concentrated development, bringing about changing peripheral land into additional useful agrarian terrains through capital escalated development, lighted by innovative changes. The significance of institutional elements prompting under use of horticultural terrains, particularly when individuals utilized in metropolitan regions keep lands inactive for utilizing it after retirement or for speculative purposes. Be that as it may, this isn't accurate if there should be an occurrence of flood and dry season inclined regions, and state like Bihar, where ranchers are monetarily frail and innovative development is exceptionally restricted. Regardless of this, the adjustment of land use has occurred in congruity with moving of land towards non-agrarian purposes. There was a general diminishing pattern in region under long-lasting fields (eating area) and desolate and uncultivable land. Expansion in land under non agrarian purposes has been because of moving of region from the land under cultivable waste, current fallows and decrepit grounds other than current neglected. In Bihar, region under current neglected has been found moving forward throughout the time, in this manner diminishing the net planted region. For the state all in all, the ongoing fallows rose to 8.61% during the seventies(70s) to 9.40% in eighties (80s) and from that point, it showed declining at 7.58% and 6.53% during 90s and 2000s, separately and further, ended up being up by 7.42% during 2003-13. Moving of land towards non-farming purposes and declining net planted region are of incredible worry for food and healthful security. Contest among horticultural and non-farming areas for land is escalating because of developing populace strain ashore for food creation, cover and modern development. In 1970-71, net planted region was 62.68%, which decreased to just 58.46% in 2013-14, while land put to non-farming purposes hopped up from simply 11.77% in 1970-71 to 17.85% in 2013-14. Be that as it may, the shrinkage in net planted region isn't being repaid by expanded efficiency of yields in order to give fillip to higher creation.

Decadal development execution of decrepit grounds were tracked down regrettable in the times of 70s, 80s and 90s, showing decrease in neglected terrains or transformation of neglected grounds to rural creation purposes as well with respect to non-horticultural purposes like foundation of businesses, development of private structures, development of streets and other infrastructural bases. However, in the times of 2000s and 2003-13, compound development rates were found positive for example 1.49 and 2.21%. Regardless of expanding strain ashore, there is additionally propensity to keep land decrepit because of elements like vulnerability of storm, unfortunate water system offices, and expensive water system through diesel siphon sets, work shortage and so forth, reminding that everything isn't well with land the executives in the state.

Condition for estimating land usage and land cover change

For comprehensive development and improvement in different circles and areas, food and water security for the developing populace should be met and issues rising up out of environmental change should be tended to (Ramakrishna, 1998). Perceiving these multifunctional prerequisites of land, the different aspects and connections of various areas of the general public should be perceived. In this unique situation, land use arranging and the board are viewed as a joined complex web framework. Considering this, due consideration has been given in India to creating public arrangements of different areas of land the board.

In spite of the fact that India has just 2.3 % of earthly land region, it harbors 17% of the global populace and 11% of the global animals. The strain on the Indian expanse of land is just about 4-6 times the global normal. Over the most recent 40 years the region under crop has nearly stayed steady at around 140 ± 2.0 Mha. To support the blasting populace, in India there is concentrated horticulture, which every year pulls out around $2000-2500 \times 10^6$ m³ of water. India's metropolitan populace has developed amazingly throughout recent a long time with around 7-8 million individuals being added to the metropolitan populace every year. Taking into account the pace of urbanization as a boundary to demonstrate the development of a city, it is observed that eleven urban communities in India are among the 100 quickest developing urban communities of the world (TOI, 2007). Albeit the metropolitan districts of India have a few present day advancements for arranging and improvement, it is rustic India, which is around 72% of the all-out populace in the country, which needs logical and specialized inputs in by and large socioeconomic turn of events.

Almost three-fourth of the households in the nation representing 33% of complete essential energy utilization are in country regions with little admittance to energy sources other than biomass. Water security will be one of the main pressing issues in the next few decades with a projected water interest of north of 980 billion cubic meters by 2050. India, being an agrarian local area, should guarantee that water security is addressed in the next

few decades to keep up with economic improvement as well as to take care of its steadily expanding populace. There is a need to foster practical administration of the ground water as well as successful use of surface water for keeping up with the water security in the nation. Moreover; India has motivations to be worried about the effect of environmental change. Its huge populace relies upon environment touchy areas like farming and ranger service for jobs. India has an extremely lengthy shoreline. The beach front zone of India is thickly populated and extends more than 7500 km with the Bedouin Ocean in the west and the Indian Sea/Straight of Bengal in the east. The absolute region involved by seaside areas is around 379,610 km² with a typical populace thickness of 445 people for each km² (around 1.5 times the public normal; Earth Pattern, 2003). Late examinations on the expected effect of a one meter ocean level ascent along the Indian coast propose that the all-out area of 5763 km² along the Waterfront Territories of India i.e., 0.41% could be immersed and practically 7.1 million i.e., 4.6 % of the seaside populace could be straightforwardly impacted (TERI, 1996). These and other related effects of environmental change will compromise food security and cause a dieback of natural biological systems including species that support food creation.

Land use and land cover change modeling

In land use and land, most importantly, cover change demonstrating is the age of situations. This is on the grounds that the relationship of individuals with the land has a similar beginning as their development - the capacity to change their environmental elements to suit themselves. Land use change is a locally inescapable and globally critical biological pattern. On a global scale, almost 1.2 million km² of timberland have been switched over completely to different purposes during the most recent three centuries. While cropland has expanded by 12 million km² during a similar period. As of now, people have changed huge parts of the world's property surface: 10-15% is overwhelmed by horticulture or urban industrial regions and 6-8% is field. These progressions in land use have significant ramifications for future changes in the world's environment and, thus, more prominent ramifications for ensuing area use and land cover change. The surface intensity and dampness spending plans rely particularly upon land use and land cover which, thus, influences climatic unsteadiness. Reproductions of the conceivable human influenced scene changes following various situations might uncover key approaches that ought to be adjusted to work on the climate.

Conclusion ‘

The continuous conversation uncovered that the net planted region in the state has consistently declined over the period under study. For additional raising the pay of cultivators, the main choice is to raise the trimming power.

All in all, it is conceivable through appropriate usage of diminishing area accessibility. Quick development in region under non-rural purposes has been noticed with the end goal of settlement of ever rising populace and formative exercises. The most striking component concerning the land use design in the state is that the ongoing neglected land has raised during the principal concentrate on time of the current hundred years. The justification for heightening in the ongoing fallows may likely be given to an exceptionally low net revenue building in the development of harvests, presumably because of whimsical precipitation, higher wages of work emerging out of redirection of work to MNREGA and for better business open doors in metropolitan regions. The precipitation has been viewed as the main determinant for current neglected lands, be that as it may, during the new period (present 100 years) the ongoing decrepit land enlisted expanding pattern presumably by virtue of flighty precipitation. Then again, the speculation is that the street length ought to have negative connection with current neglected yet shockingly the flow fallows have created positive and critical connection with street length, notwithstanding the expansion in street length in the express this may most likely be because of unfortunate marketing offices for the produce as well as relocation of work from the state to different states. The main variable influencing the normal terrains has been distinguished as non-rural purposes of land. The other element populace thickness showed positive and huge effect on normal terrains; it is maybe because of movement of sizeable extent of populace to the next far off metropolitan urban communities and towns in the mission of better work/occupations. It very well might be matter of strategy suggestions that the right now rising tenure of current decrepit grounds might be deterred or diminished or as such, it could be put under best use for example for beneficial development through utilization of similarly modest wellspring of water system for example electric or sun based energy worked siphon sets in lieu of diesel worked siphoning framework (more expensive). It warrants a progressions in strategy that redirection of work to MNREGA might be used in horticulture for example for development purposes with the goal that the higher wages made by deficiency of work might be killed and in this manner thus, it might assist with diminishing the expense of creation of developing harvests.

References

1. Abutaleb, K.; Ngie, A.; Darwish, A.; Ahmed, M.; Arafat, S.; Ahmed, F. Assessment of Urban Heat Island Using Remotely Sensed Imagery over Greater Cairo, Egypt. *Adv. Remote Sens.* 2015, 4, 35–47.
2. Basha, G.; Kishore, P.; Ratnam, M.V.; Jayaraman, A.; Kouchak, A.A.; Ouarda, T.B.M.J.; Velicogna, I. Historical and Projected Surface Temperature over India during the 20th and 21st century. *Sci. Rep.* 2017, 7, 2987.
3. Kahn, M.E. Urban Growth and Climate Change. *Annu. Rev. Resour. Econ.* 2009, 1, 333–350.

4. Kumar Suresh and Chand Ramesh (2012). Land use dynamics and cropping pattern: case study of village in Karnal district of Haryana. *Agric. Sci. Digest*, 32 (1) : 83 - 86 .
5. Lim, T.K.; Rajabifard, A.; Khoo, V.; Sabri, S.; Chen, Y. The smart city in Singapore: How environmental and geospatial innovation lead to urban livability and environmental sustainability. In *Smart Cities for Technological and Social Innovation*; Elsevier: Amsterdam, The Netherlands, 2021; pp. 29–49. 108.
6. Maalik, Jitender. (2012). Changing land use pattern in Haryana, *International Journal of Computing and Corporate Research*, 2(6):1-20.
7. Nadkarni, M.V. and Deshpande R.S. (1979). Under-utilization of land- climatic or institutional factors. *Indian journal of Agricultural Economics* 34(2): 1-16.
8. National Intelligence Council. India: The Impact of Climate Change to 2030—A Commissioned Research Report. 2009. Available online: <https://www.hsdl.org/c/abstract/?docid=24157> (accessed on 11 September 2022). 112.
9. Pandey, V.K. and Tiwari, S.K. (1987). Some ecological implications of land use dynamics in Uttar Pradesh”, *Indian Journal of Agricultural Economics* 42(3):388-394.
10. Premakumara Seema (2013). Land use pattern in India and Karnataka- A comparative analysis, *Intrnational Journal of Scientific Research*, 2(10):1-2.
11. Ramasamy C., Balasubramanian, R. and Sivakumar, S.D. (2005). Dynamics of land use pattern with special reference to fallow landsAn empirical investigation in Tamil Nadu, *Indian Journal of Agricultural Economics*, 60(4): 629-643.
12. Sangha, Kanaljit Kaur (2014). Modern agricultural practices and analysis of socio-economic and ecological impacts of development in agricultural sector, Punjab, India- A review. *Indian J. Agric. Res.*,48(5): 331-341.
13. Sharma, U.K. and Pandey, V. K.(1992). Dynamics of land use in different states of India”, *Agricultural Research Review*, 5(1):22-33
14. Singh, P. and Vashist, A.K. (1997). Dynamics of land use pattern in Bihar, *Agricultural Situation in India*, 53(11):18-26
15. Singha Chiranjit and Swain Kishore Chandra (2016). Land suitability evaluation criteria for agricultural crop selection: A review. *Agricultural Reviews*, 37 (2): 125-132.
16. Sinha, D.K.; Ahmad, Nasim and Singh, K.M. (2016). Shrinking net sown area: An analysis of changing land use pattern in Bihar, *Journal of AgriSearch*, 3(4): 238-243, DOI: 10.21921/jas.v3i4.6709.
17. Subramanian, S.R, Krishnamurthy, S. and Nasurudeen P. (1994). .Perspective Plan for Land Use in Tamil Nadu”, Department of Agricultural Economics, Tamil Nadu Agricultural University, Coimbatore

18. Svirejeva-Hopkins, A.; Schellnhuber, H.J. Urbanised territories as a specific component of the global carbon cycle. *PIK Rep.* 2005, 94, 5–126.
19. Ullah, S.; Tahir, A.A.; Akbar, T.A.; Hassan, Q.K.; Dewan, A.; Khan, A.J. Remote Sensing-Based Quantification of the Relationships between Land Use Land Cover Changes and Surface Temperature over the Lower Himalayan Region. *Sustainability* 2019, 11, 5492.
20. Yaduvanshi, A.; Zaroug, M.; Bendapudi, R.; New, M. Impacts of 1.5 °C and 2 °C global warming on regional rainfall and temperature change across India. *Environ. Res. Commun.* 2019, 1, 125002.