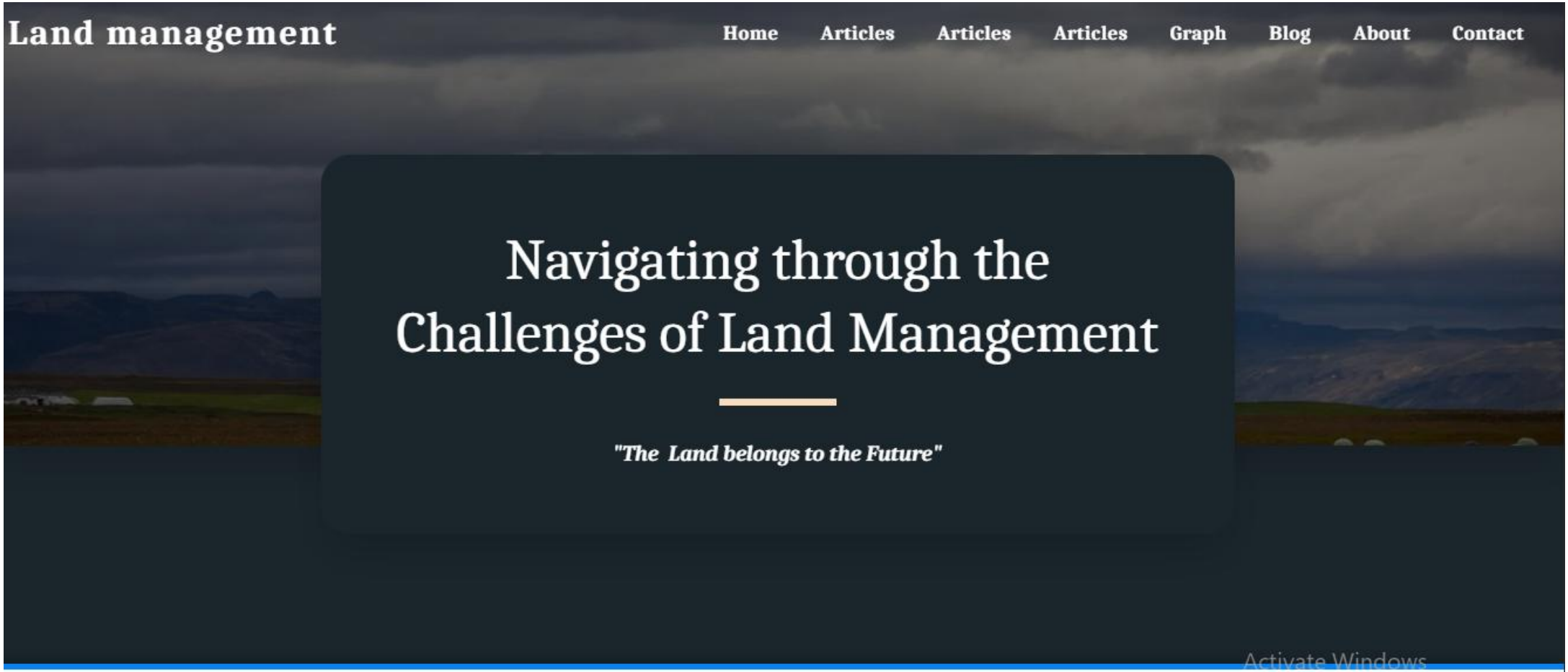

ARTICLES

Sustainable Land Use Planning

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Effective land use planning helps balance agricultural, urban, and conservation needs. Proper zoning, environmental protection policies, and integrated land management are key strategies in preventing land degradation.

Land Use Planning is a critical instrument in realizing the Sustainable Development Goals (SDGs), a set of 17 global objectives established by the United Nations in 2015. These goals aim to eradicate poverty, protect the environment, and ensure prosperity for all by 2030. Land Use Planning involves the careful evaluation of land and water potential, examination of different land use options, and consideration of economic and social factors to determine the most beneficial use of land. This practice plays a pivotal role in achieving several of the SDGs, as land is a vital resource for many of these objectives.

For instance, Land Use Planning can significantly contribute to Goal 2 (Zero Hunger) by promoting sustainable agricultural practices. This ensures that farmlands are used efficiently and responsibly, leading to sustainable food production systems and improved nutrition. It can also support Goal 11 (Sustainable Cities and Communities) by guiding urban development. This involves planning for less urban sprawl and more compact, dense cities, which helps reduce land consumption, enhances the efficiency of infrastructure, and fosters sustainable urbanization.

Moreover, Goal 15 (Life on Land) is closely linked with Land Use Planning. By setting aside protected areas and regulating land uses that could negatively affect biodiversity, planners can help conserve and sustainably use terrestrial ecosystems. This is crucial for preserving biodiversity, reducing land degradation, and halting biodiversity loss.

- 1. Zoning and Land Use Policies: Effective land zoning policies can separate areas for agriculture, conservation, urban development, and recreation. By designating areas for specific uses, conflicts can be minimized, and land can be used in ways that maximize its benefits without overexploiting it.
- 2.Integrated Land Use Planning: Encouraging integrated planning where agriculture, forestry, water management, and urban development are considered together can prevent land degradation. This holistic approach ensures that all land uses complement each other rather than compete or harm one another.

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Agroecology and Sustainable Agriculture

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Agroecology applies ecological principles to agricultural systems, improving biodiversity, soil health, and resilience to climate change. Practices such as agroforestry, organic farming, and crop rotation are central to sustainable agriculture.

The United Nation's second Sustainable Development Goal (SDGs-2) aims to "end hunger, achieve food security and better nutrition," and promote sustainable agriculture by 2030 (Lartey, 2015). However, the current state of global agricultural and food systems does not guarantee adequate nutrition and food security. There are currently around a billion hungry people globally, which is forecasted to double as the global population reaches 9.1 billion by 2050 (Tripathi et al., 2019; Ikrang et al., 2022). Although over 60% of the population depends on agriculture for food and income, the current population growth rate has outpaced food production (Porkka et al., 2017; Odusola, 2021). Contemporary agricultural practices are characterized by expansive monocultures, the use of high-yielding

agriculture by 2030 (Lartey, 2015). However, the current state of global agricultural and food systems does not guarantee adequate nutrition and food security. There are currently around a billion hungry people globally, which is forecasted to double as the global population reaches 9.1 billion by 2050 (Tripathi et al., 2019; Ikrang et al., 2022). Although over 60% of the population depends on agriculture for food and income, the current population growth rate has outpaced food production (Porkka et al., 2017; Odusola, 2021). Contemporary agricultural practices are characterized by expansive monocultures, the use of high-yielding crop varieties, synthetic fertilizers and agrochemicals including pesticides, fuel-based mechanization, and extensive irrigation operations. Although these practices are able to increase yields, they have failed to eliminate hunger and thereby raise serious concerns regarding the economic, social, and environmental sustainability of the modern farming practices. Industrial agriculture also produces between 25 and 30% of the world's greenhouse gas (GHG) emissions, further aggravating the effects of climate change and jeopardizing the ability of the planet to provide sufficient and nutritious food into the future (Liu et al., 2020).The current annual usage of pesticides stands at over 2.6 million tons with a market value of more than US$ 25 billion (Rajbhandari, 2017; Abd-Aziz et al., 2022). Such massive use of pesticides often impairs natural regulating systems and contributes towards the loss of biodiversity that would otherwise support food production. The use of high-yielding crop varieties and synthetic fertilizers appears to offer only short-term benefits and have failed to stem declining yields, especially among major cereal and legume production regions (Rajbhandari, 2017; Kuyah et al., 2021). Meanwhile, the current rate of global population's growth has outpaced that of food production, hence, resulting in severe food shortages, chronic hunger and malnutrition especially among the least developed regions of the world (Smith and Glauber, 2020). Many African nations are currently in this category. Despite agriculture being considered as the backbone of the economy and its significant contribution to the livelihood of majority in Africa, most nations in the continent are still challenged by factors which hinders agricultural productivities such as declining soil fertility, climate change effects, water shortages, post-harvest losses, and restricted market access among others (Gashu et al., 2019). This condition has presently resulted in food security challenges, as recently reported in Ethiopia (Yigezu Wendimu, 2021), South Africa (Chakona and Shackleton, 2018), Nigeria (Ayinde et al., 2020), Ghana (Atanga and Tankpa, 2021), Rwanda (Chigbu et al., 2019), and Cameroon (Mbuli et al., 2021) among many others. Hence, the need for a new paradigm for agricultural growth that supports more environmentally friendly, biologically diversified, long-lasting, resilient, and socially acceptable agricultural practices.The foundation for these new agricultural systems comprise at least 75% of the 1.5 billion smallholder composed largely of family farmers and indigenous people operating 350 million small farms that occupies about 20% of the world's arable land and providing no less than 50% of the world's agricultural production for home consumption (Machovina et al., 2015). Agroecology which has been increasingly

lasting, resilient, and socially acceptable agricultural practices.The foundation for these new agricultural systems comprise at least 75% of the 1.5 billion smallholder composed largely of family farmers and indigenous people operating 350 million small farms that occupies about 20% of the world's arable land and providing no less than 50% of the world's agricultural production for home consumption (Machovina et al., 2015). Agroecology which has been increasingly recognized for its potential to bring about the transformative changes necessary to meet the SDGs is one such holistic and people-centered farming approach that embraces a long-term vision and has the potential to help successful transitions towards sustainable agriculture and food systems (Anderson et al., 2019a). Agroecology is an applied science that employs ecological concepts and principles to build and manage sustainable agroecosystems with minimal reliance on external inputs but more on natural processes like biological control and natural soil fertility without expanding the agricultural land base (Hathaway, 2016). This ecology-based discipline is characterized by five principles: diversity, efficiency, natural regulation, synergies, and recycling (Anderson et al., 2019a). Agroecological transitions toward more sustainable agriculture and food systems have been categorized into three major categories namely; increasing eco-efficiency, input substitution, and system redesign (Landert et al., 2020).

Agricultural intensification: applications of sustainability in diverse settings

The need for sustainable agriculture came to the limelight in the early 1980s in response to a variety of ecological concerns However, since sustainable agriculture is a normative notion, different fields and affiliations have given it diverse meanings (Mohd Hanafiah et al., 2020). However, the traditional view of sustainable agriculture frequently concentrates on contexts of on-farm and watershed-level sustainability of agriculture with an emphasis on ecological and agronomic dimensions (Martin et al., 2018). Although the commonly practiced conventional approach of agriculture which entails utilization of non-organic fertilizer and pesticides has made considerable strides, but has disregarded some crucial contextual features such as the culture, food tradition, human and social values, and only partially able to identify some broad trends in sustainable agriculture. Since the 1950s, industrialization, and uniformity in the production, transportation, and sale of food and fiber have caused the agricultural systems to become more and more defined by monocultural landscapes. There has therefore been an increase in the consolidation of small farms and the tendency toward economies of scale (Petersen-Rockney et al., 2021). Conventional agriculture in industrialized nations has been negatively linked to excessive energy use, the loss of small farms, and local biodiversity within its framework of massive, heavily financed, automated farms and expanding food networks (Gomiero et al., 2008). These unfavorable consequences have had a significant

impact on how the idea of sustainable agriculture has emerged in industrialized nations. In these nations, attempts to reorganize the environmental, sociocultural, geographical, and temporal components of the traditional food system serve as the foundation for ideological concepts of sustainable agriculture (Eakin et al., 2017). This reframes the link between agriculture and the environment by utilizing techniques like organic and biodynamic farming (Muhie, 2023). The nature of the geographical and temporal exchanges that occur in traditional agriculture has also changed as a result of the use of alternative food channels that connect customers and producers directly, such as farmers' markets and community-supported agriculture.In contrast to industrialized nations, efforts towards sustainable agriculture in poor nations place a greater emphasis on the economic independence, health, and cultural lives of producers than on the esthetics or environmental advantages to the consumers. Agroecological management-based crop and animal diversification reduces the economic risk and uncertainty associated with pest and disease outbreaks and declining prices of agricultural produce (Garrett et al., 2020). Therefore, an integrated farming system with diverse forms of production is characterized by the integration and recycling of various on-farm components to enhance the economic benefits and self-sufficiency in resource utilization (Garrett et al., 2020; Hercher-Pasteur et al., 2021). The intricacies of resource use in sustainable agricultural initiatives in poor nations differ from those in developed countries. Movements for sustainable agriculture in developing nations have emerged as an immediate response to the national economic crises by thriving toward a self-sufficient economy (Lang and Barling, 2012). Therefore, the practices of agroecology have been embraced as approaches that offer resilience for restructuring agricultural development, in spite of the variation in the practice of sustainable agriculture and food security from country to country. The report of Wezel et al. (2014) enumerated a total of 15 the agroecological practices, 9 of which was considered as poorly integrated in agriculture such as the applications of natural pesticides, biofertilizers, crop rotations and crop choice, agroforestry with fruit, nut trees or timber, intercropping and relay intercropping, mulching or direct seeding into living cover crops and integration of semi natural landscape elements at field and farm. However, the agroecological practices that are already well integrated include reduced tillage, organic fertilization, split fertilization, cultivar choice and biological pest control.

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ARTICLES

Conservation and Restoration of Ecosystems

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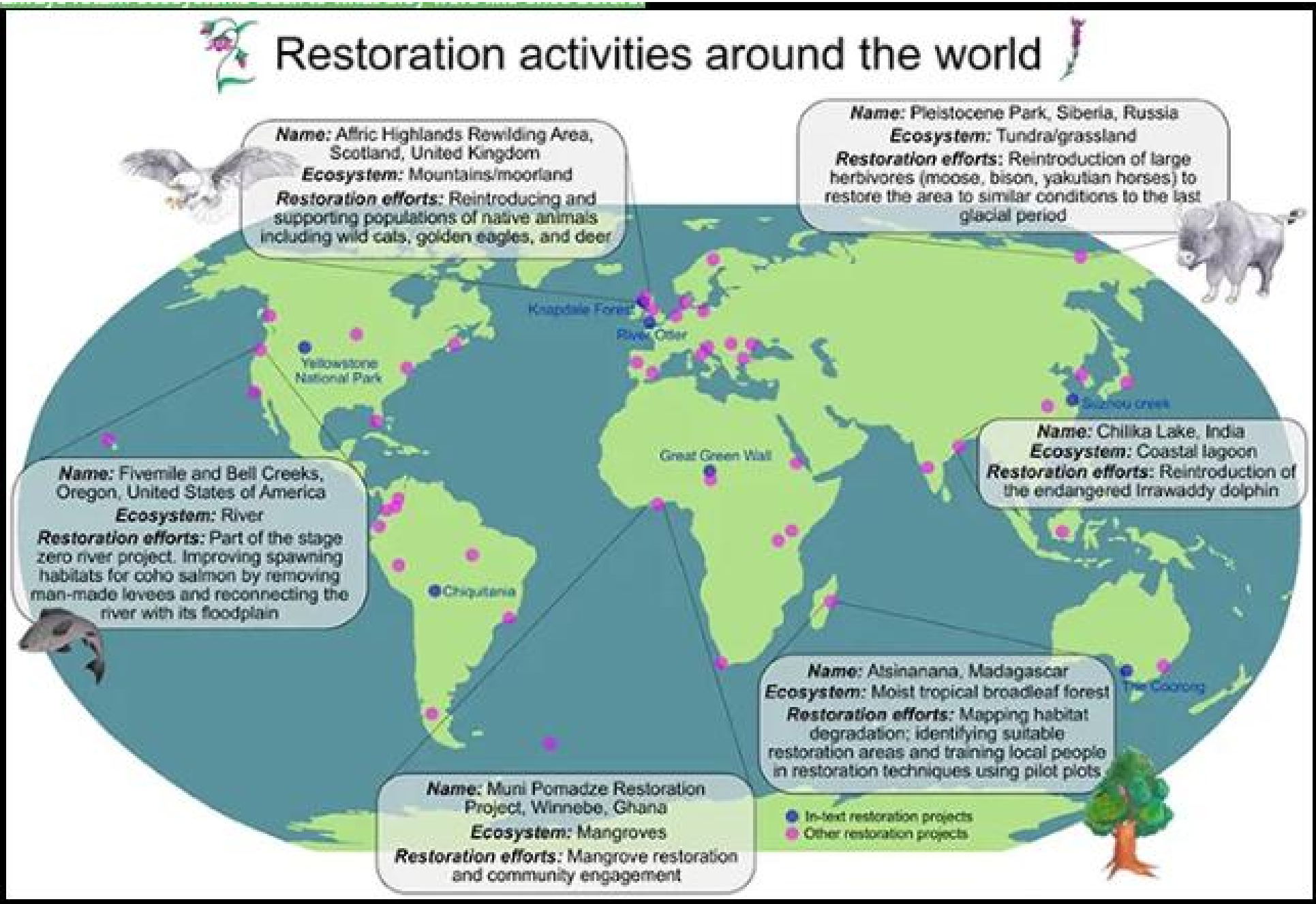
Our world contains many ecosystems, from tropical forests to coral reefs to urban parks. Ecosystems help us in important ways, including cleaning our air and water, storing carbon, and producing food. People have been shaping most ecosystems for at least 12,000 years. Human impact has become so intense that many ecosystems are now threatened. That is why the United Nations has decided that the next 10 years are the Decade on Ecosystem Restoration. But what is ecosystem restoration and how do we do it? In this article, we will tell you why ecosystem restoration is important and why it can be difficult. We will explain how it can be done well, and give examples from a range of projects. Successful restoration must include local people and requires lots of data. Restoration should not always return ecosystems back to what they were like once before.

Restoration activities around the world



How Does Ecosystem Restoration Work?

People around the world are repairing the damage done to degraded ecosystems. Ecosystem restoration projects can take many forms and can apply to ecosystems of various types and sizes. One project may focus on a single stream; another may span multiple countries. Projects often start by removing the thing that is causing the damage in the first place. For instance, keeping deer out of a forest, to protect young trees from being eaten, may allow the forest to grow again. Stopping people from taking peat from a wetland for compost or fuel can allow the wetland to recover. Sometimes this is enough, and the ecosystem restores itself. But sometimes we need a more hands-on approach to ecosystem restoration. We may need to bring back native species or change the land surface.There are many ecosystem restoration projects happening all over the world . For example, beavers have been restored to the River Otter in Devon, England. Beavers are ecosystem engineersSpecies that create, change, maintain, and destroy habitats. These organisms have a big impact on those around them and on the wider landscape.—they build small dams, which create ponds full of wildlife. After only 5 years, many beaver dams have been built on the River Otter. These dams have increased the number of fish and have stopped a village from flooding, protecting local people and their homes. Another beaver project was undertaken in Knapdale Forest, Scotland . There, beavers have built canals, supporting animals, and water-plants.

Restoring Ecosystems For the Future

The Decade on Ecosystem Restoration aims to deliver restoration projects across the world over the next 10 years. Ten years to restore ecosystems might seem like a long time, but it is not. Trees can grow for hundreds of years! In fact, a big problem with restoration is how little time we have. To protect biodiversity and slow down climate change, we need healthy ecosystems. We need to act quickly and involve as many people as possible, including Indigenous peoples and young people. Working with local communities is key to these projects. Young people have the most to lose and the most to gain. Perhaps you can get involved with a project near you!

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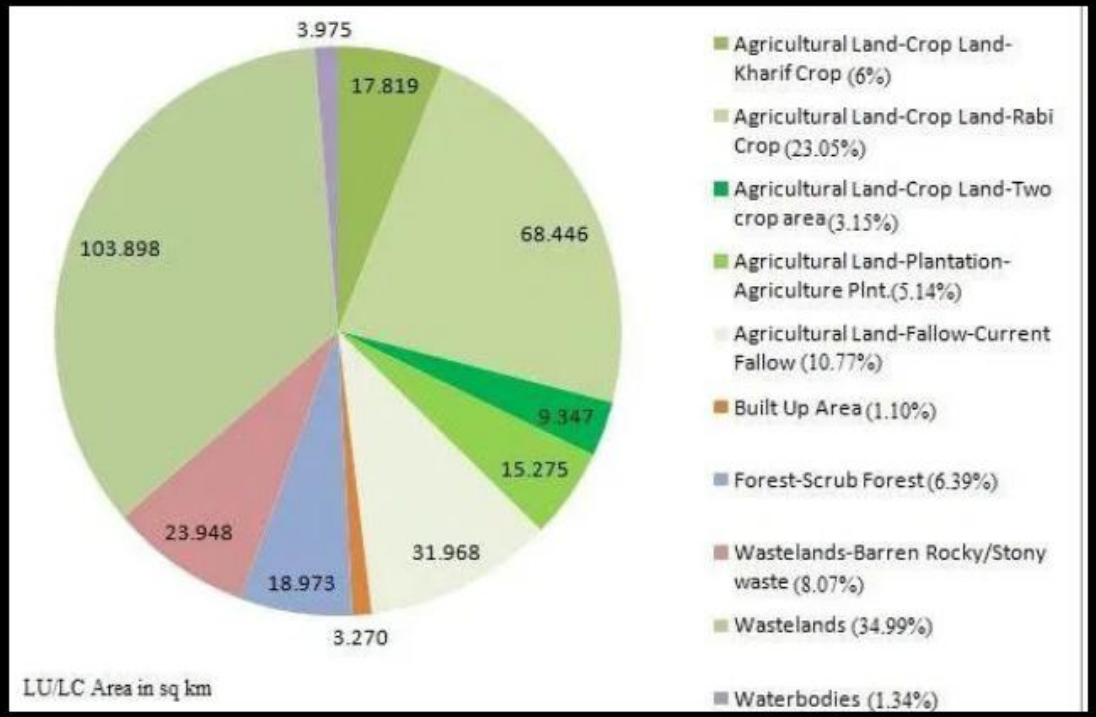

Agricultural Area

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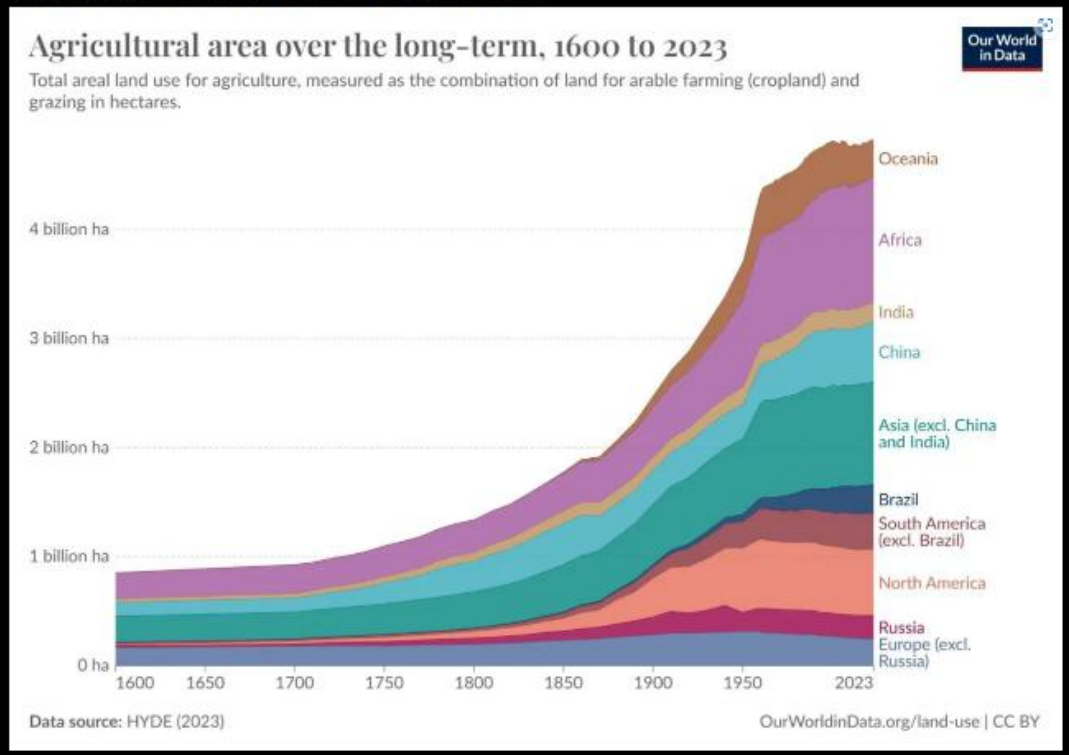

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LAND MANAGEMENT SOFTWARE MARKET

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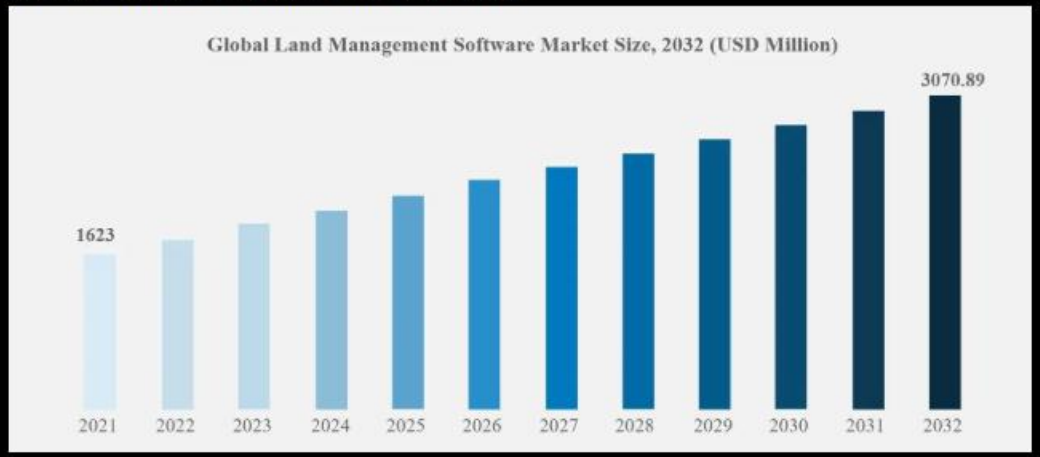

global land management software market size was USD 1623.0 million in 2021 and market is projected to touch USD 3070.89 million by 2032 at CAGR 5.97% during the forecast period.

The land management software market is experiencing notable growth, propelled by an increased recognition of the importance of digital solutions in land-related activities. As economies recover, there is a growing demand for efficient tools to streamline processes related to real estate, land development, and property management. Market players are actively adapting to the evolving needs of the industry, leveraging technology to enhance land management processes. Investments in innovation and operational efficiency underscore the market's commitment to providing responsive solutions, supporting the overall efficiency and sustainability of land-related operations.

Innovation and adaptability form the bedrock of the land management software market, where industry participants are focused on enhancing technological capabilities to address the diverse challenges in land-related activities. Ongoing research and development initiatives highlight the market's dedication to improving land management methodologies, ensuring better integration with evolving industry trends. As the sector responds to challenges posed by urbanization and environmental considerations, companies in the market play a crucial role in shaping the future of efficient land use and sustainable development. In the dynamic landscape of land-related activities, the market remains integral to supporting the evolving needs of industries involved in real estate and land management.

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BLOG

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We are group of student from lovely proffessional University. Spreading Solution to the land management.

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