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Forestry-related climate targets and measures in the Hindu Kush Himalaya

Opportunities and challenges for climate action

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The nationally determined contributions (NDCs) of the eight Hindu Kush Himalayan (HKH) nations – the ICIMOD regional member countries of Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – commit to forestry-related targets and measures.
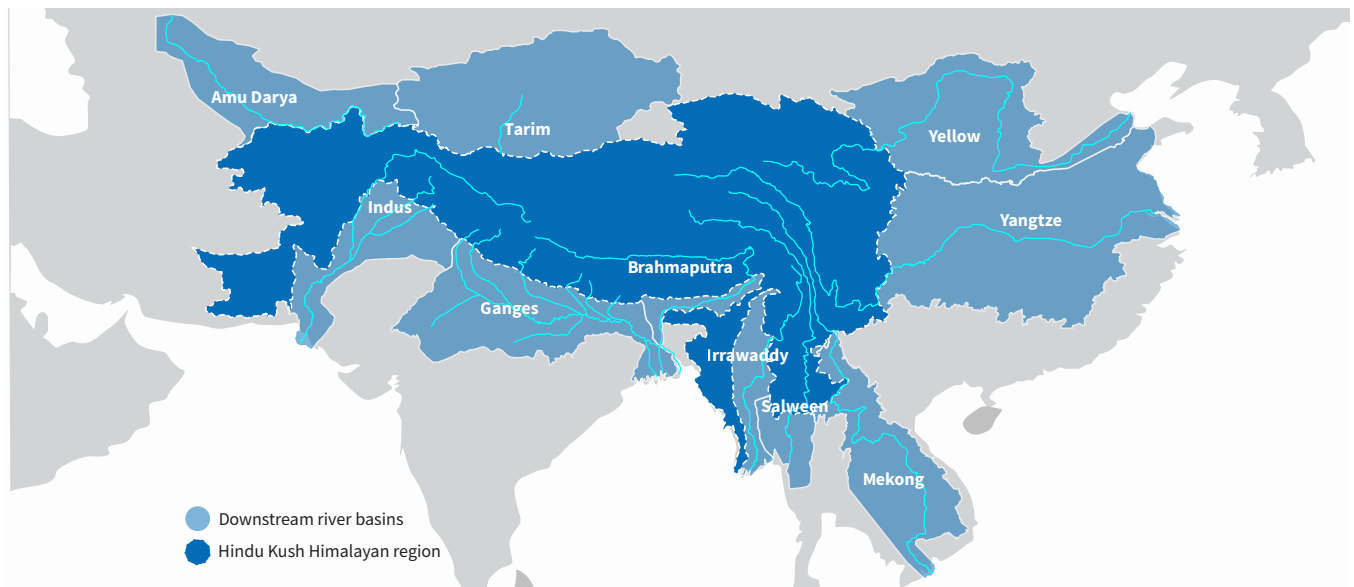
Forests are a key land use covering nearly 25 per cent of the HKH landscape. In 2018, they covered 82.81 million ha of the total land area[1]. We have known, since as early as 2009, that avoiding deforestation and degradation of forests in the HKH region would result in the sequestration of 3,000 to 4,000 metric tons of carbon dioxide equivalent ($MTCO_2e$)[2].

Here, we present a synthesis of the commitments from climate-related national documents such as the NDCs and other climate related documents developed by the eight HKH countries. We highlight their commitments around forests and how they create opportunities for achieving climate targets and net zero goals as communicated to UNFCCC during COP26.

We hope to draw the attention of the international community to the need to support regional collaborative actions amongst the HKH countries through strengthening other development assistance to the eight countries for cumulative climate action in the region as outlined in our HKH Call to Action[3].

About the HKH region

The HKH is particularly vulnerable to the impacts of climate change. It is home to a rich assemblage of biodiversity that provides a range of ecosystem services. A 1.5°C increase in global temperature is likely to result in a 2.1°C increase in temperature in the HKH by the end of the century due to elevation-dependent warming. This would expose 240 million people who live in the mountains and hills and over 1.65 billion people downstream to diverse climate-induced disasters as well as large-scale adverse impacts on health, food production systems, and biodiversity.[i]

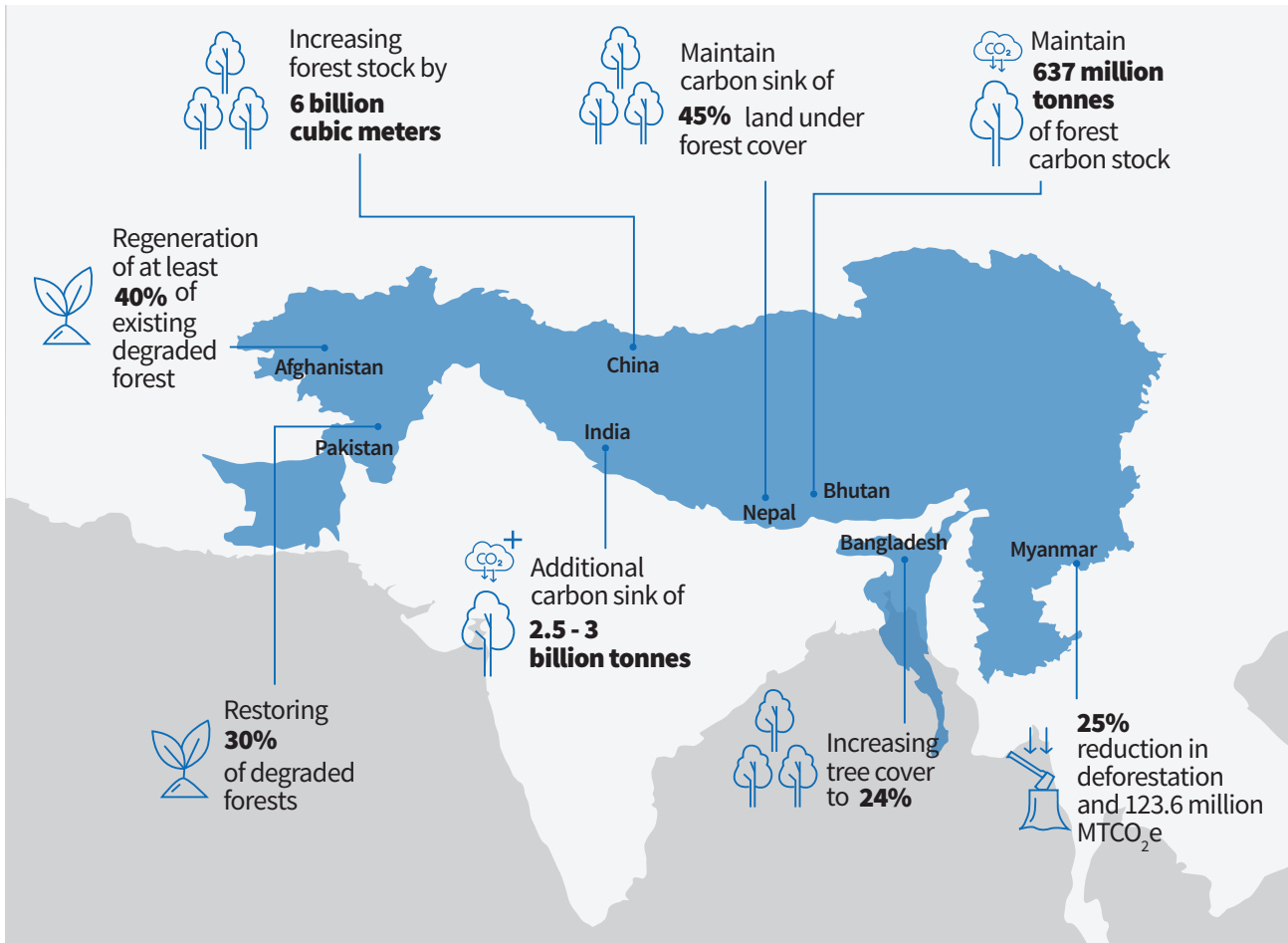Downstream river basins
Hindu Kush Himalayan region

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[i] The Hindu Kush Himalaya Assessment is the first comprehensive assessment of the HKH region. It comprises important scientific research on the social, economic, and environmental pillars of sustainable mountain development and will serve as a basis for evidence-based decision-making to safeguard the environment and advance people's well-being. https://lib.icimod.org/record/34383

MESSAGE 1

HKH countries recognise the potential of the region's forests for climate change mitigation and are committed to reducing deforestation and forest degradation, avoiding forest conversion, improving forest cover, and restoring forests

Forests contribute to both carbon emissions and carbon sequestration, with emissions from deforestation having a 2.2 per cent share[4]. The total annual carbon sink that forests provide is around 7.6 billion MTCO2e[5].

Globally, China and India are ranked first and third in GHG emissions. Nevertheless, all eight countries have committed to either expand forest cover and stock or restore degraded forests to enhance their potential for climate mitigation.

Increasing forest stock by **6 billion cubic meters**

Maintain carbon sink of **45%** land under forest cover

Maintain **637 million tonnes** of forest carbon stock

Regeneration of at least **40%** of existing degraded forest

Afghanistan

China

Pakistan

India

Nepal

Bhutan

Bangladesh

Myanmar

Additional carbon sink of **2.5 - 3 billion tonnes**

Restoring **30%** of degraded forests

Increasing tree cover to **24%**

25% reduction in deforestation and 123.6 million MTCO$_2$e

MESSAGE 2

HKH countries recognise the potential of forests to provide multiple ecosystem services and contribute to climate change adaptation for strengthened livelihoods and economic and social wellbeing and co-benefits

Globally, nearly 1.6 billion people are directly dependent on forests for their livelihoods.[5] In the HKH, rapid depletion and degradation of forest resources has seriously threatened rural mountain livelihoods as

forests are linked not only to the provision of benefits such as food, water, medicines, fodder, fibre, wild edibles, and fuelwood, but also water, air, climate, soil regulation, hazard mitigation, pollination, and pest and diseases management. Additionally, they offer knowledge and aesthetic and recreational services. Over the years, HKH countries have increased their commitments towards agroforestry innovations, REDD+, and community-managed forests. Most of these commitments take into cognizance the need to ensure that the benefits from forests become more participatory, gender-responsive, socially inclusive, and pro-poor.[6]

Below, we look at some key actions taken towards supporting adaptation to climate change in the HKH.

Afghanistan Regeneration of forests and other ecosystems linking with livelihoods		**India** Expanding plantation work for resilient food and farming system	
Bangladesh Conservation through scaling alterative income options for 55,000 families		**Myanmar** Expand plantation work for resilient food and farming system	
Bhutan Initiating and promoting agro-forestry in 15 acres		**Nepal** Support adaptation form REDD+ initiatives	
China Restoration of north-west pastoral zones linked with livelihoods of people		**Pakistan** Regeneration and management of 7 forest landscapes - 145,300 ha.	

We note that nature-based solutions, which have been globally adopted as effective, long-term solutions to environmental and societal challenges, are yet to find footing in the HKH. Actions around forests as part and parcel of NbS have not garnered adequate attention in the region, although actions around forests are linked to co-benefits involving climate, environment, biodiversity, livelihoods, and societal well-being.

THE ISSUE OF ACCESSIBILITY VS INACCESSIBILITY

Forests and natural resources play a vital role in the mountains. While efforts are underway to reduce the use of fuel wood by developing more efficient cookstoves, fuel wood is still the major source of energy in rural parts of the HKH. While the use of fuel wood might have only an insignificant impact on forest loss or the amount of emissions, infrastructural development in the form of roads has a significant impact on forests[7]. Conversion of forests for agriculture is also a major cause of deforestation, while the lack of income-generating opportunities also puts pressure on forests (through excessive resource extraction). There is need to ensure a balance between development interventions and livelihood diversification, and measures to reduce if not prevent the loss of forest area and quality.

MESSAGE 3

HKH countries have put in place progressive policies and initiatives to positively enhance forestry sector goals. However, ensuring the reinforcement of their net zero commitments will require the mobilisation of long-term public and private finances across sectors

So far, 92 countries have put forward net-zero targets[8]. Among them – from the HKH region – are Bhutan, China, India, and Nepal. The timeline towards carbon neutrality is not uniform across these countries. Nepal has pledged the earliest date (2045) while China and India have pushed their net zero targets to beyond 2050. This is mainly because the HKH countries are on different economic development trajectories.

Although there are many actions and targets for transforming the energy and transportation sectors, the net zero goal will be difficult to achieve without restructuring investment in forests. Net zero and carbon neutrality targets from the HKH region include pledges
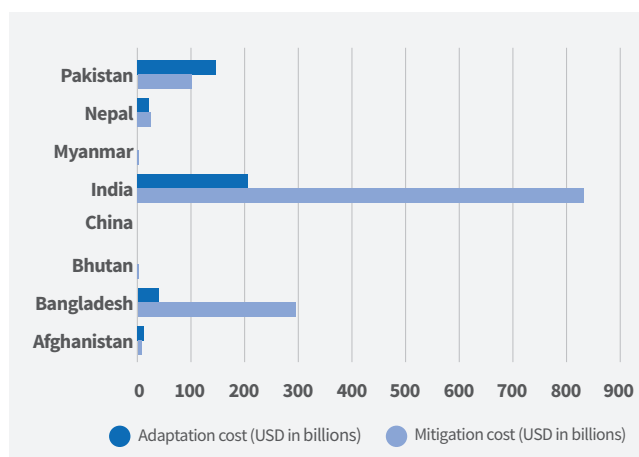
made by Bhutan (2050), China (2060), India (2070), and Nepal (2045). To reach the Paris Agreement target of 1.5°C, deforestation must stop completely and transition to net CO2 emissions by 2030.[9]

COP26 saw the declaration on forests and land use which aims to halt and reverse forest loss and degradation[ix]. For countries with a positive emission status, forest cover needs to be significantly increased to support carbon removal. For Bhutan, there is a need to maintain forest cover. As for China, and India, there is a need to maintain forest cover and avoid forest degradation as well as further increase forest cover.
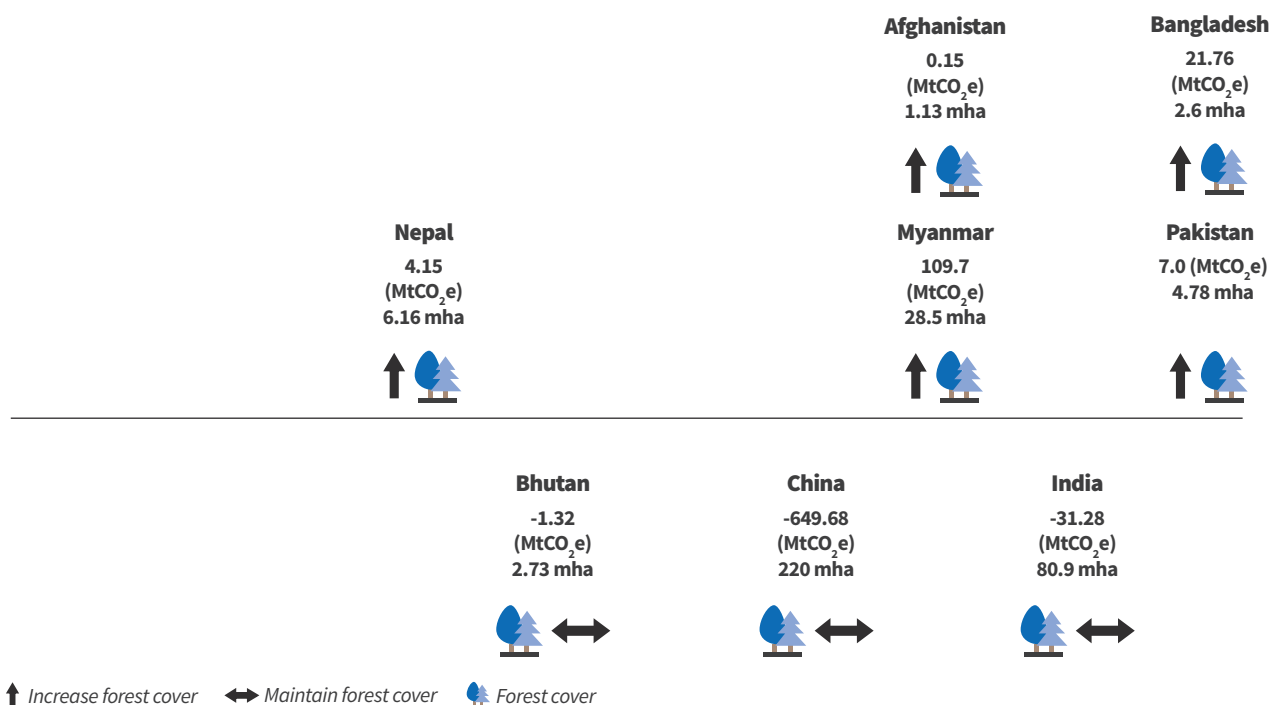
Most HKH countries have set targets with conditions attached; international financial support is one of them. The total country cost of mitigation for seven HKH countries[ii] – Afghanistan, Bangladesh, Bhutan, India, Myanmar, Nepal, and Pakistan – is estimated at USD 1,250 billion while the cumulative country cost of adaptation, as outlined in their NDCs (and, in Nepal's case, its national adaptation plan), is estimated at USD 425 billion. Although only Bangladesh and Bhutan explicitly mention the investments required till 2030 for forest-related targets (which cumulatively amount to USD 2.55 billion), timely availability of finance is vital for all countries to be able to implement interventions and build capacity to meet the targets.

As the above chart shows, substantial financial resources are required by the HKH countries to implement climate actions to achieve the long-term targets mentioned in their NDCs. HKH countries rely heavily on financial support from the international community to implement most climate actions. As the estimated conditional investment is huge, it is likely to be delayed under the current global economic situation. This would, in turn, delay the implementation of the planned climate actions.

REQUIRED FINANCE FOR IMPLEMENTING NDCS

● Adaptation cost (USD in billions) ● Mitigation cost (USD in billions)

GHG EMISSIONS FROM FORESTS AND ACTIONS

Afghanistan
0.15
(MtCO$_2$e)
1.13 mha

Bangladesh
21.76
(MtCO$_2$e)
2.6 mha

Nepal
4.15
(MtCO$_2$e)
6.16 mha

Myanmar
109.7
(MtCO$_2$e)
28.5 mha

Pakistan
7.0 (MtCO$_2$e)
4.78 mha

Bhutan
-1.32
(MtCO$_2$e)
2.73 mha

China
-649.68
(MtCO$_2$e)
220 mha

India
-31.28
(MtCO$_2$e)
80.9 mha

↑ Increase forest cover   ↔ Maintain forest cover   🌲 Forest cover

2019 data for forest cover and emission from forest
Source: Climate Watch Historial GHG Emissions (2022). Washington, DC: World Resources Institute. Available online at:
https://www.climatewatchdata.org/ghg-emissions

ii The figures are only for seven RMCs as the information on investment required for the implementation of the NDCs is not available for China.

Cross-learning and collaborative actions amongst HKH countries are vital to   helping deliver climate outcomes at speed and scale for the region. While the national targets and timelines will remain differential, regional and transboundary cooperation can ensure harmonisation of climate action across the eight countries.

It is difficult to judge the true potential of countries or the contributions from their forest sectors to climate mitigation and adaptation. Currently, the targets cover a diversity of actions – on reducing deforestation and forest degradation, improving forest management practices, strengthening community-based management, and afforestation and restoration. There is also acknowledgement that these actions must be complemented with the management of other ecosystems and protected areas (PAs).

There is a need for a detailed regional scale analysis as the cumulative strength of concerted action has not yet been analysed. Neither has the extent of investment necessary to operationalise them. Transboundary collaborative actions are necessary, especially to address inadequate technical capabilities by transferring technology and expertise. The HKH countries have identified capacity building as a crucial component in enhancing their NDCs and meeting the targets. However, in the field of climate science and practice, the region generally lacks the human capacities needed to implement climate actions. To ensure that this lack does not delay climate action implementation, the region requires international support for technology transfer related to GHG emissions reduction (in the various sectors and using nature-based solutions). Without the adoption of new and more efficient technologies, these countries will not be able to reach their targets.

Country targets and priorities: An overview

Afghanistan has the potential to increase biodiversity conservation and sequester approximately 1 million tonnes of carbon across three provinces through improved management of high conservation value forests and other forest types[10]. Its priority is to bring under conservation at least 10 per cent of the total land area and the habitat of selected species and to regenerate at least 40 per cent of the existing degraded forests and rangeland areas, which include approximately 232,050 ha of forests and 5.35 million ha of rangelands[11].

In Bangladesh, 75 per cent of the investments in climate change mitigation efforts are funded by the government. With government support in the agriculture and forestry sectors, the country has the potential to reduce emissions by 0.64 million tonnes of CO_2e[12]. As forests provide livelihood opportunities to nearly 10 million people in Bangladesh[13], forest restoration has been prioritised with around 300,000 ha of land estimated to be in need of either restoration or reforestation[14], the majority of it coming under the Chittagong Hill Tracts. Among the other priorities are the co-management of 72,000 ha in PAs and increasing tree cover from 22.37 per cent in 2014 to 24 per cent by 2030.

In Bhutan, the economy is highly dependent on the agriculture and forestry sectors, which are both climate sensitive. Bhutan's pledge is to remain carbon neutral; its forest cover currently stands at 70 per cent of the total land area. It also has a policy to ensure that it will always maintain 60 per cent of its land under forest cover. Among its priorities are maintaining a total of 637 million tonnes of forest carbon stock in and outside the PA system to ensure low greenhouse gas emissions, restoring and planting 2000 ha of forests, and promoting agroforestry[15]. To enhance carbon stock, Bhutan has invested in restoring degraded lands within its PAs under climate-smart reforestation[16]. The country has a 'Bhutan For Life' initiative that is driving climate action to meet these targets.

China has the economic capacity to engage actively in international cooperation on climate change. It supports environmentally friendly practices which focus on adaptation actions such as the promotion of improved agricultural practices, preservation of natural forests, and protection of grassland ecosystems. Science and technology have received special funding to support basic research on climate change mitigation and adaptation. The Chinese Government is also paying special attention to nature-based solutions to reduce GHG emissions, improve climate resilience, and pursue sustainable development. China has formulated the Ecological Conservation Redline Policy to mitigate and adapt to climate change[17].

In India, 12 Himalayan states fall within the HKH region. Their total forest cover (as of 2021) is 22.84 ha[18]. Nationally, forest and tree cover increased by 1.3 million ha between 2015 and 2019, which is an increase of 1.65 per cent. The total carbon stock in forests (as of 2021) is estimated to be 7,124.6 million tonne C or 26,124 $MtCO_2e$, which shows an increase of 42.6 million tonne C or 156.2 $MtCO_2e$ as compared to 2017[19]. The annual increase in carbon stock is 21.3 million tonne C, which is 78.1 $MtCO_2e$[20]. A major initiative in forests is the National Mission for Green India, for which each state has plans and targets[21].

Myanmar has enhanced its NDC to include agriculture and investment. It intends to invest in agroforestry, which has enormous potential for carbon sequestration and would contribute to climate mitigation and adaptation strategies. Its priorities in climate action for forests include reducing deforestation by 75 per cent and reducing total emissions by around 380 $MtCO_2e$ by 2030, which is conditional on external support. Among other targets is increasing the total land under the reserved and protected public forest area to 30 percent and under PA systems to 10 per cent by 2030[22].

Nepal plans to invest in the forestry and agriculture sectors. It intends to maintain 45 per cent of its total area under forest cover. The country seeks to sustainably manage 50 per cent of its Terai and Inner Terai forests and 25 per cent of its middle hill and mountain forests. Nepal will also develop institutional mechanisms and structures and provide adequate budget provisions to ensure social and environmental safeguards such as 'free, prior and informed consent', forest tenure, and access to finance and technology for local communities, women, and indigenous people. The country also has plans to afforest and reforest viable public and private lands, including investing in agroforestry[23].

In Pakistan, changes in land use and land cover constitute the fourth largest contributors to emission levels. Its priority areas include conserving existing forests, increasing tree cover through community participation, and meeting international obligations related to forests[24]. The country's NDCs have outlined increasing PA coverage from 12 to 15 per cent by 2023. To this end, Pakistan launched its Protected Areas Initiative in 2020 and a massive tree plantation project called the Ten Billion Tree Tsunami Programme in 2018. The main objectives of these initiatives are, respectively, to develop 15 model PAs across the country and to enhance carbon sequestration by 148.76 $MtCO_2e$ in 10 years[25].

Notes:

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