

May 2024



Monthly newsletter on issues
of sustainable development

ISSN No. 0974-5483 RNI No. 59360/94 | Vol. 34 | Issue No. 05

DEVELOPMENT ALTERNATIVES



Malwa Plateau, Indore, Madhya Pradesh

Land Restoration, Desertification, and Drought Resilience

Contents



Addressing Land Degradation, Desertification and Drought to Tackle Climate Change

03

Land degradation, desertification and drought are pressing crises that impact ecosystems, agriculture, biodiversity and human societies. India is experiencing land degradation and desertification, driven by natural factors and human activities. In this editorial, Dr Swayamprabha Das discusses various measures India is taking to counter this issue.

Bolstering Sustainable Land Restoration to Protect Land Legacy for a Resilient Future

India is facing severe impacts of land degradation and climate change, leading to a decline in land productivity, ecosystem services and local livelihoods. In this article, Shalini Dyani discusses approaches that will enable India to achieve climate and land degradation neutrality targets by 2030 and 2070.



05



India's Policies and Initiatives in Combating Land Degradation and Desertification

07

India has taken an integrated approach to combat land degradation and desertification, with policies, programs and international commitments. In this article, Vaishali Kanojia discusses the various initiatives India has launched to demonstrate its commitment to environmental sustainability, food security and socio-economic development.

BIWAL: Comprehensive Development of Bundelkhand Region by Restoring Historical Tanks and Augmenting Agrarian Livelihoods

BIWAL is a project that aims to revive the ancient tanks in the Bundelkhand region. This article discusses the initiative and how the project has led to several positive outcomes, including increased water levels in wells, a 35% increase in land under irrigation, the formation of water user groups and a 65% increase in average annual net income. Shalini Priya Barjo, from SRIJAN, sheds light on the project.



09



Harvesting Hope: Combating Desertification through Sustainable Farming in Dumar Village

11

In India, where almost 29.32% of the total geographical area is undergoing desertification or land degradation, the WADI model offers a sustainable solution to the problem. In this article, Vaishali Kanojia and Ekta Kashyap recount Jibril's success story and how it has helped him pave the way for a more prosperous and sustainable future.

The views expressed in the articles in this newsletter are those of the authors and not necessarily those of Development Alternatives.

Editor: Zeenat Niazi

Editorial Team: Shaila Sam, Bharti Kapoor, Payal Choudhary and Binu K George

Cover Photo Credit: Development Alternatives

Published By: Development Alternatives

B-32, Tara Crescent, Qutub Institutional Area, New Delhi-110016

Tel: +91(11) 2654 4100-200

Fax: +91(11) 2685 1158

Email: library@devalt.org

Website: www.devalt.org

Addressing Land Degradation, Desertification and Drought to Tackle Climate Change

Desertification, land degradation and drought (DLDD) gained attention at the Rio conference in 1992 along with climate change and biodiversity loss. Emerging from the concern that ecosystems were becoming degraded, affecting livelihoods, reducing resilience to climate shifts, actions for sustainable land management gained momentum. It is well understood that poly-crisis has a significant implication on food security and can often be exacerbated due to social conflict, limited infrastructure and financial stability.

Land degradation data for India reveals a complex pattern of degradation driven by a combination of natural factors and human activities. The Government of India has been addressing these challenges through targeted interventions, especially in arid and semi-arid areas, by focussing on afforestation, sustainable land and ecosystem management and improving agriculture and water conservation practices.

Management of land degradation has co-benefits for climate change mitigation, adaptation and biodiversity conservation, in addition to enhancing food security and sustainable livelihoods. Moreover, achieving land degradation neutrality (LDN) requires three concurrent actions:

1. Avoiding new land degradation through maintaining existing healthy land.
2. Reducing existing land degradation by adopting sustainable land management practices.
3. Making efforts to restore and return degraded lands to a natural or more productive state.

Land Degradation Neutrality Pathways for India

Land degradation data for India reveals a complex pattern of degradation driven by a combination of natural factors and human activities. According to the Space Application Center (SAC) under the Indian Space Research Organization (ISRO), revealed that as of 2011–13, 29.32% (96.4 million hectares, Mha) of India is experiencing LDD*, growing from 28.76% (94.53 Mha) in 2003–05 ^[1]. Erosion is the prime driver of LDD in India, accounting for over 16% of the total LDD national area (water erosion accounts for about 11%, while wind accounts for about 5.55%). It negatively affects land productivity, crop yield, farm



Land degradation in Bundelkhand

income and livelihood. Other major reasons for LDD in India include vegetative degradation, salinity, water logging, human dynamics (including settlement and man-made) and frost shattering. The Government of India has been addressing these challenges through targeted interventions, especially in arid and semi-arid areas, by focusing on afforestation, sustainable land and ecosystem management, and improving agriculture and water conservation practices.

India's approach to tackling land degradation and drought has involved a combination of national policies, state-level initiatives and international cooperation. At COP 2015 in Paris, India joined the voluntary Bonn Challenge pledge to bring into restoration 13 Mha of degraded and deforested land by 2020 and an additional 8 Mha by 2030. This pledge to restore 21 Mha by 2030 has been increased to 26 Mha during the COP14 in 2019 ^[2]. India has committed under the Paris Agreement to increase carbon sequestration through forests by 2.5-3 billion tonnes of carbon dioxide equivalent by 2030. India's national targets on restoration support the implementation of national priorities on sustainable development goals while contributing to the achievement of international commitments on climate change, biodiversity and land degradation ^[3].

On the national front, India has launched several schemes/programmes. These initiatives include the National Afforestation Program, the Green India Mission, and the Watershed Development Component

* Land Degradation and Desertification

of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). These programs aim to restore degraded land and achieve land degradation neutrality by focusing on the sustainable and optimal utilisation of land resources. They target restoration of 26 Mha of degraded land and achievement of land degradation neutrality with a focus on sustainable and optimum utilisation of land resources. The Watershed Development Component (WDC) of Pradhan Mantri Krishi Sinchayee Yojana, launched in 2015, plays a significant role in land restoration through various interventions such as building water harvesting structures, expanding protected irrigation areas, and increasing plantation areas through afforestation and horticulture ^[4]. Based on ecological and geographical conditions and extent of degradation, 15 states of India including Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Madhya Pradesh, Odisha, Rajasthan, Telangana, Uttar Pradesh, Uttarakhand, Tamil Nadu, Himachal Pradesh, West Bengal and Maharashtra, have been identified for interventions to achieve the LDN targets. These states account for more than 25% of the country's geographical area, with a total area of 83.78 Mha under desertification. In the Open Forest Area, only 30% of open forest areas are suitable for afforestation and can be treated to achieve LDN ^[3]. In addition to national programmes, various Indian states have implemented their own policies and initiatives to combat land degradation and drought. For example, Gujarat has the Sujalam Sufalam Jal Sanchay Abhiyan, a water conservation campaign focused on increasing water storage and groundwater recharge through community-based projects. Bihar has the Jal Jeevan Hariyali Abhiyan, which promotes water conservation, reforestation and sustainable land use practices. Telangana's Haritha Haram is a large-scale afforestation programme targeting degraded lands and promoting green cover.

On the occasion of International Day of Forests 2023, the Ministry of Environment, Forest and Climate Change, Government of India announced plans to revive the Aravalli region. The initiatives include implementing a single-use plastic ban, launching water conservation efforts and protecting natural resources. These efforts aim to green the 5 km buffer area around the Aravalli Hill Range in Haryana, Gujarat, Rajasthan and parts of Delhi NCR ^[5].

The UN Decade on Ecosystem Restoration 2021-30 provides an opportunity to jointly address ecosystem degradation and take measures for restoration, and the Aravalli Green Wall Project ^[6] can be one of the initiatives in this context.

Conclusion

India aims to mitigate the effects of land degradation and drought and promote sustainable development through sustainable land and water management, reforestation and climate resilience. Through this edition of the newsletter, Development Alternatives aims to raise awareness and urge action to protect the country's biodiversity. □

References

- [1] SAC. 2016. *Desertification and Land Degradation Atlas of India (Based on AWiFS Data of 2011–2013 and 2003–2005)*. Ahmedabad: Space Application Center. Details available at https://www.sac.gov.in/SACSITE/Desertification_Atlas_2016_SAC_ISRO.pdf
- [2] Ministry of Environment, Forest and Climate. 2023. Land degradation and desertification. Details available at <https://pib.gov.in/PressReleaseframePage.aspx?PRID=1946401>
- [3] Singh, S., Giri, K., Mishra, G., Kumar, M., Singh, R.K., Pandey, S., Mullick, M., and Sharma, R. 2023. Pathways to Achieve Land Degradation Neutrality in India. Dehradun: Indian Council of Forestry Research and Education. Details available at <https://icfre.gov.in/publication/publication51.pdf>
- [4] Ministry of Agriculture & Farmers Welfare. 2023. Loss of soil fertility. Details available at <https://pib.gov.in/PressReleasePage.aspx?PRID=1897010>
- [5] Ministry of Environment, Forest and Climate. *Annual Report 2023-24*. New Delhi: Ministry of Environment, Forest and Climate. Details available at <https://moef.gov.in/wp-content/uploads/2024/03/Annual-Report-English-2023-24.pdf>
- [6] Ministry of Environment, Forest and Climate. 2023. Shri Yadav unveils National Action Plan to Combat Desertification and Land Degradation through Forestry Interventions, Details available at <https://pib.gov.in/PressReleaseframePage.aspx?PRID=1910745>

Dr Swayam Prabha Das
sdas@devalt.org

Bolstering Sustainable Land Restoration to Protect Land Legacy for a Resilient Future



Representative image

In recognition of the global importance of sustainable development, the United Nations launched the 2030 Agenda for Sustainable Development in 2015, outlining 17 Sustainable Development Goals. This initiative underscores the urgent need for collective action to address environmental challenges and promote sustainable practices worldwide. The year 2023 became the midpoint for implementing these goals, including Sustainable Development Goal 15, 'Life on land' and the Sendai Framework for reducing disaster risks. The next seven years are crucial for achieving land degradation neutrality and prioritising actions to conserve terrestrial and freshwater ecosystems, which will help us reduce climate-led losses and damages and achieve the Global Biodiversity Framework by 2030.

The climate and land degradation neutrality targets earmarked for 2030 and 2070, will only be achieved when the social

transformation approach becomes a mainstream idea. Over the years, researchers and policymakers have been increasingly agreeing that without incorporating diverse knowledge systems, it will be extremely difficult to meet global goals and promises towards land restoration. These include incorporating indigenous knowledge into policies that promote environmental restoration, prioritise people and implement climate-sensitive strategies. For this to see the light of the day, intergenerational partnerships and collaboration between different government departments and schemes would be required. Then only we will see cooperation and participation from local to national levels.

India has also not been able to escape the impact of climate change. It has been estimated that 30%, or 96 million hectares, of the country's land has degraded due to climate change. This has led to biodiversity

loss and extreme weather events. Consequently, the country is witnessing a significant decline in land productivity and ecosystem services, directly impacting local livelihoods. By 2050, it is projected that climate change and land degradation will result in a loss of USD 1730 billion for India.

To counter this problem, India has been rapidly scaling up its restoration endeavours. Efforts are being made to sustainably restore the country's land so that desertification can be reduced, drought resilience can be improved and restoration of degraded land can be accelerated. It is believed that through these various initiatives, one will be able to halt biodiversity loss and contribute towards improving ecosystem health and reinstating ecosystem services, measures vital for supporting human well-being.



Drought resilience is the need of the hour

Land restoration would also entail developing and implementing national-level landscape restoration guidelines that incorporate locally relevant knowledge. Policymakers and researchers must design restoration projects that keep local societal challenges in mind and integrate the socio-economic and cultural needs of local stakeholders. They need to follow a people-centric approach. In addition, restoration priorities should be localised and tailored to suit the specific context while identifying different socio-environmental conditions that restoration programmes could consider when siting projects.

These guidelines should address critical gaps, identify institutions and their roles, build local capacity, leverage technology

for decision-making, encourage multi-stakeholder involvement, and promote inclusiveness and community participation. It is also essential to focus on poverty, which is quantified based on living standards and land tenure. For this, livelihood-based social support programmes can serve as a means to scale up ecosystem-based approaches towards achieving land degradation neutrality and realising global restoration, climate and biodiversity conservation goals simultaneously.

Another important aspect to remember is that land restoration should not be limited to rural areas but also include urban landscapes. Agri-pastoral restoration in private land tenures should also be made a priority, as should tree planting outside forests and in degraded mine areas. This will help move beyond carbon—and forest-based restoration projects and achieve enduring and just outcomes.

The Indian government has been providing strategic support to improve land restoration efforts. It is ensuring that these efforts can generate 'green' jobs that will directly reduce poverty in the country. In addition to the government's efforts to invest a significant amount of national funding towards land restoration, if international and inter-sectoral cooperation and private sector finances can be sought, then it will prove to be a game-changer in enabling India to achieve its larger goals. The marginalised locals can directly benefit from this approach, and their livelihoods can also be secured. When all of these measures are implemented, can then only a transformative change be ushered in India.



Dr Shalini Dhyani

Principal Scientist

CSIR-National Environmental Engineering

Research Institute,

Nagpur, INDIA

shalini3006@gmail.com

#Views expressed are the author's own and do not represent the organisation she is affiliated with.

India's Policies and Initiatives in Combating Land Degradation and Desertification

Climate change and global warming have a deep impact on the ecosystem. One of the direct outcomes of climate change is land degradation and desertification, which pose a major threat to human well-being. They are affecting food security, livelihood sustainability, ecosystem services and biodiversity conservation. Globally, the total area of arable land is estimated to be 24% of the total area of the land surface. At present, about half of this area is being cultivated ^[1]. In India, about 32% of the land is degraded, and 25% is undergoing desertification ^[2]. This raises concerns about sustainable land management, food security, water resources and livelihoods. India has adopted various strategies to overcome these pressing challenges, integrating various policies, programmes and international commitments. These policies and acts have evolved over several decades, helping the country combat land degradation and desertification (see Figure 1).

Following are the land resource management policies and acts:

1. The **Forest (Conservation) Act, 1980** extended *'to regulate the indiscriminate diversion of forest lands for non-forestry uses and to maintain a logical balance between the developmental needs of the country and the conservation of natural heritage'* ^[3].
2. The **Environment (Protection) Act** was enacted in **1986** *'to provide for the protection and improvement of environment'*, ^[4] where *'Environment'* includes water, air and land and the inter-relationship which exists among

and between water, air and land, and human beings, other living creatures, plants, micro-organisms and property ^[5].

3. The **National Forest Policy, 1988** aims *'to ensure environmental stability and maintenance of ecological balance for the sustenance of all life forms, human, animal and plant'*.
4. The **National Agricultural Policy, 2000** aims *'to attain output growth rate over 4% per annum in agriculture sector based on efficient use of resources'*.
5. The **National Environmental Policy, 2006** outlines strategies for mainstreaming environmental concerns into sustainable development, including *'conservation of critical environmental resources, intra-generational equity, integration of environmental concerns in economic and social development, efficiency in environmental resource use, environmental governance and enhancement of resources for environmental conservation'* ^[6].
6. The **National Policy for Farmers, 2007**, aims to promote the welfare of farmers and enhance agricultural productivity sustainably. The establishment of the **National Rainfed Area Authority (NRAA)** in the same year focused on the holistic development of rainfed areas.
7. The **National Water Policy, 2012** provides a comprehensive framework for the sustainable management of water resources, addressing soil erosion and land degradation caused by water scarcity and improper water management practices.



Figure 1: Evolution of land resource management policies

8. At the **United Nations Framework Convention on Climate Change (UNFCCC)** Conference of the Parties (COP), **2015** in Paris, India joined the voluntary **Bonn Challenge pledge** to bring into restoration **13 million hectares (Mha)** of degraded and deforested land by 2020, and additional 8 Mha by 2030. This pledge to restore 21 Mha by 2030 increased to 26 Mha during the COP14 to the United Nations Convention to **Combat Desertification (UNCCD) in 2019** ^[7].

These policies and acts demonstrate India's firm resolve to restore ecosystems, mitigate climate change and safeguard livelihoods nationally and globally.

India has also launched several schemes and programmes to address land degradation and promote sustainable land management. The **National Afforestation Programme (NAP)**



Figure 2: Semi-arid region: Bundelkhand, India

scheme aims to regenerate degraded forests and adjoining areas through community participation. The **Green India Mission** endeavours to protect, restore and enhance India's forest cover. At the same time, the **Watershed Development Component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** focuses on sustainable land resource utilisation for watershed development. Other initiatives, such as the **Rehabilitation of Coastal Habitat Project (Tamil Nadu)** and the **National Mission on Himalayan Studies (NMHS)** ^[8] address specific regional challenges. The **Aravalli Green Wall Project** aims to green the buffer area around the Aravalli Hill Range, highlighting the commitment towards ecosystem restoration and sustainable land management ^[9].

These policies and acts are proof of India's integrated approach to combating land degradation and desertification. They exemplify the country's commitment to environmental sustainability, food security and socio-economic development. India is forging towards a greener and more resilient future by leveraging robust policies, community-driven schemes, international partnerships and innovative projects. Collaboration across sectors and stakeholders will remain paramount in addressing the complex challenges of land degradation and desertification as the country continues to evolve its strategies and initiatives. □

Reference

- [1] Abdel Rahman, M.A.E. An overview of land degradation, desertification and sustainable land management using GIS and remote sensing applications. *Rend. Fis. Acc. Lincei* 34, 767–808 (2023). <https://doi.org/10.1007/s12210-023-01155-3>
- [2] Ministry of Environment, Forest and Climate Change nd. Desertification cell. Details available at Introduction | The Official Website of Ministry of Environment, Forest and Climate Change, Government of India (moef.gov.in)
- [3] Ministry of Environment, Forest and Climate Change nd. Forest Conservation. Details available at Introduction | The Official Website of Ministry of Environment, Forest and Climate Change, Government of India (moef.gov.in)
- [4] The Environment (Protection) Act, 1986, Act No. 29, https://www.indiacode.nic.in/bitstream/123456789/4316/1/ep_act_1986.pdf
- [5] Andhra Pradesh Pollution Control Board nd. Environment Acts & Rules. Details available at for Industry | The official Website of Andhra Pollution Control Board (pcb.ap.gov.in)
- [6] Ministry of Environment and Forest, National Environment Policy, 2006, https://ibkp.dbtindia.gov.in/DBT_Content_Test/CMS/Guidelines/20190411103521431_National%20Environment%20Policy,%202006.pdf
- [7] Ministry of Environment, Forest and Climate Change. 2023. Land Degradation and Desertification. Details available at Press Information Bureau (pib.gov.in)
- [8] Ministry of Environment, Forest and Climate Change. 2019. National Afforestation Programme. Details available at National Afforestation Programme (pib.gov.in)
- [9] Ministry of Environment, Forest and Climate Change. 2023. Shri Bhopender Yadav launches Aravalli Green Wall Project, a major initiative to green 5 km buffer area around the Aravalli Hill Range in four states. Details available at pib.gov.in/PressReleaseIframePage.aspx?PRID=1910745

Vaishali Kanojia
vaishali@devalt.org

BIWAL: Comprehensive Development of Bundelkhand Region by Restoring Historical Tanks and Augmenting Agrarian Livelihoods



Silt application

Context Setting

In ancient and medieval India, water management was the responsibility of the local community with the monetary support provided by the kingdoms. The community was in charge of selecting sites, planning, constructing, distributing and maintaining rainwater harvesting structures. The culture of building tanks was widespread in the Bundelkhand region, which was ruled by the Chandela and Bundela kings. Between 800 and 1200 AD, around 8000 Chandela and Bundela tanks were built. The Bundelkhand region, which spans over 14 contiguous districts, 7 of which are located in Southern Uttar Pradesh and the other 6 in Northern Madhya Pradesh, has a recorded history of droughts and water scarcity. This is due to the absence of any river systems and adverse geological conditions leading to suboptimal recharge.

In 2018, the **Bundelkhand Initiative for Water, Agriculture and Livelihood (BIWAL)** was launched with the aim of reviving the ancient tanks and their surrounding ecosystem to their past glory. The initiative is a joint undertaking by five civil action organisations led by SRIJAN and the communities to collectively revive

the water harvesting culture of the region. This consortium led by SRIJAN intends to work towards the holistic and comprehensive social and economic development of rural Bundelkhand. To mobilise the local community and ensure their active participation in the revival and desiltation operations of the tank, Tank Management Committees (TMCs) were formed at every site.

Tank Restoration

Desiltation is a critical operation in maintaining tanks. The programme is responsible for arranging for excavators for desiltation, while the community is responsible for transferring the silt from the tank site to agricultural fields. The TMCs play an important role in the management of silt removal. The TMC is responsible for activities such as hiring tractors for silt transportation, deciding upon timings and shifts of silt removal, collecting names of farmers interested in silt application on their farms, developing norms to ensure equity in silt distribution and conflict resolution, among others.

Since the initiation of the project, **the excavation of over 12.23 lakh cubic meters of silt has led to the desiltation of 224 historical**

tanks, which has benefitted **6468 farmers**. The project has contributed between 28-32% in tank restoration work, while the community has contributed between 68-72%.

The following are the key learnings from the programme.

- Water security interventions such as the restoration of tanks and the construction of Doha structures have been the highlights of the BIWAL programme. These interventions have benefited farmers in securing crops, increasing groundwater recharge, tackling the issue of lack of availability of drinking water in many instances and setting up the platform for agriculture and



Sorka Tank before and after

livelihood interventions. Trained strong community cadres helped to understand the programme intervention, i.e. Prakritik Krishi Kendra, to promote the agenda of sustainable agriculture.

- Integrated work with local administrations has helped in leveraging resources from government schemes.

Pre-intervention Scenario

These key highlights were reflected in the mid-term assessment conducted by Deloitte in detail.

- **Severe water stress** in the region affecting farm productivity and household incomes
- Poor quality of land resources, resulting in **low productivity and household incomes**
- **Dependence on chemical fertilisers** and pesticides for crops' nutrition and pest management
- **Lack of community ownership** of the water resources resulting in overutilisation and dry-outs
- High level of migration due to **low agricultural income**

Key Findings

- Tank and Doha structures were constructed, which **increased the water level in wells by roughly 6.8 feet**.
- As a result of the water conservation work, there has been a **35% increase** in land under irrigation.
- The formation of water user groups (TMCs) has led to an increase in **community ownership and collective decision-making** regarding the governance of water resources in the village, along with other livelihood interventions.
- **Women farmers** are an integral part of the programme.
- The average annual net income has **increased by 65%**.
- The average crop yield of **wheat has increased by 35%**.
- By adopting multi-layer farming, the income of farmers grew by four times, with an **average annual income of INR 25,000** from a plot of 600 square feet as compared to an average of INR 6,000 from the same patch of land.
- Around 75% of the farmers were either **marginal or small farmers**. □

Shalini Priya Barjo

*Project Executive, SRIJAN,
Niwari, Madhya Pradesh*

shalinipriyabarjo@srijanindia.org

Harvesting Hope: Combating Desertification through Sustainable Farming in Dumar Village

Land degradation and desertification are pressing environmental issues that affect numerous regions worldwide, impacting nearly one-fifth of the global population. Approximately, 33% of Earth's surface exhibits degraded conditions akin to deserts, primarily in arid, semi-arid and sub-humid regions ^[1]. Anthropogenic activities such as deforestation, unsustainable land use practices, mining, urbanisation and infrastructure development severely disrupt natural ecosystems, exacerbating these challenges.

According to the Desertification and Land Degradation Atlas of India, nearly 29.32% of the country's total geographical area, equivalent to 96.4 million hectares, is undergoing desertification or land degradation. In areas like Sonbhadra in Uttar Pradesh, approximately 6.35% of the land is affected by these issues, highlighting the severity of the problem ^[1].

Amidst this grim reality, interventions like the WADI model emerge as beacons of hope. As emphasised in the Special Report on Climate Change & Land by the Intergovernmental Panel for Climate Change, various factors, including land use changes, intensification and climate change, significantly contribute to desertification and land degradation. The report underscores how climate change, characterised by the escalation of extreme weather events, has exacerbated these challenges, adversely impacting food security and terrestrial ecosystems ^[2].

In this context, the story of Jibril and his family in Dumar village, Sonbhadra serves as a compelling case study. Jibril faced enormous challenges, which were further intensified by land degradation and water scarcity. He had to witness the closure of his poultry farm due to mounting debts that he had incurred.

Jibril was introduced to the WADI model as a sustainable farming solution, and he seized the opportunity to rejuvenate his land and secure his family's future. With the support of organisations like LIC-Housing Finance Limited and Development Alternatives, Jibril embarked on a journey of transforming his barren fields into thriving orchards. Through comprehensive training and assistance, he navigated the challenges of nurturing fruit trees in harsh conditions. Ultimately, his hard work paid off,

and he witnessed the fruits of his labour blossom into a sustainable source of income.

The WADI model has had a transformative impact on both Jibril's life and the broader community of Dumar village. As the orchard flourishes under his care, Jibril expresses profound gratitude for the alleviation of financial burdens and the assurance of a secure future for his family.



Cultivating resilience: the WADI model in action

In conclusion, the narrative of Jibril and Dumar village encapsulates the dual narrative of environmental degradation and regeneration. Initiatives like the WADI model, which prioritises sustainable land management and agricultural practices, offer a ray of hope amidst the challenges posed by climate change and desertification. By addressing these challenges holistically, communities can build resilience and pave the way for a more prosperous and sustainable future. □

References

[1] Pradeep Kumar, B., Raghu Babu, K., Rajasekhar, M. and Ramachandra, M. 2019. Assessment of land degradation and desertification due to migration of sand and sand dunes in Beluguppa Mandal of Anantapur district (AP, India), using remote sensing and GIS techniques. *J. Ind. Geophys. Union* 23(2): 173-180 https://www.researchgate.net/publication/331562875_Assessment_of_land_degradation_and_desertification_due_to_migration_of_sand_and_sand_dunes_in_Beluguppa_Mandal_of_Anantapur_district_AP_India_using_remote_sensing_and_GIS_techniques

[2] Press Information Bureau. 2020. Conversion of barren land into arable land. Details available at [Press Information Bureau \(pib.gov.in\)](https://pib.gov.in)

Vaishali Kanojia
vaishali@devalt.org

Ekta Kashyap
ekta@devalt.org



Radio Bundelkhand

Apna radio Apni baatein



Radio Bundelkhand - Climate communication radio programme for rural communities, a science-policy-community platform that broadcasts and educates climate change adaptation techniques in 150 villages across Jhansi and Niwari districts of Uttar Pradesh and Madhya Pradesh

For more information, contact us

Station Manager - Radio Bundelkhand

Development Alternatives

Tel: +91 9425141726 Email: radiobundelkhand@devalt.org

www.radiobundelkhand.org

The views expressed in this newsletter are those of the authors and not necessarily those of Development Alternatives (DA).

Owner and Publisher: Dr Ashok Khosla on behalf of Development Alternatives