Impact Report 2023

regenerate Sundarbans

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New beginnings

This report presents the work of the first year of Regenerate Sundarbans. The collaborative initiative brings together organizations, researchers and other stakeholders that are active in the Sundarbans. **Our shared vision is to realize the Sundarbans as a pioneering region for the protection of the environment and the empowerment of local communities.**

Together, we strive to ensure that the Sundarbans are a green and clean ecosystem that not only provides a safe habitat for people, animals and plants, but is also a basis for sustainable income opportunities for the local population. Through mutually reinforcing partnerships, we are committed to preserving the unique importance and diversity of the Sundarbans for future generations.

The first year was characterized by the coming together of likeminded organizations. We set ourselves common goals and determined how we aim to track the results in a standardized way. This Impact Report is a representation of the progress of the projects conducted by organizations on a yearly basis.

It not only provides information on the different thematic areas, but also sheds light on valuable insights from the field. Each chapter contains, for example, the assessment of leading representatives of involved organizations in the Sundarbans on the latest developments and the necessary measures in the Sundarbans.

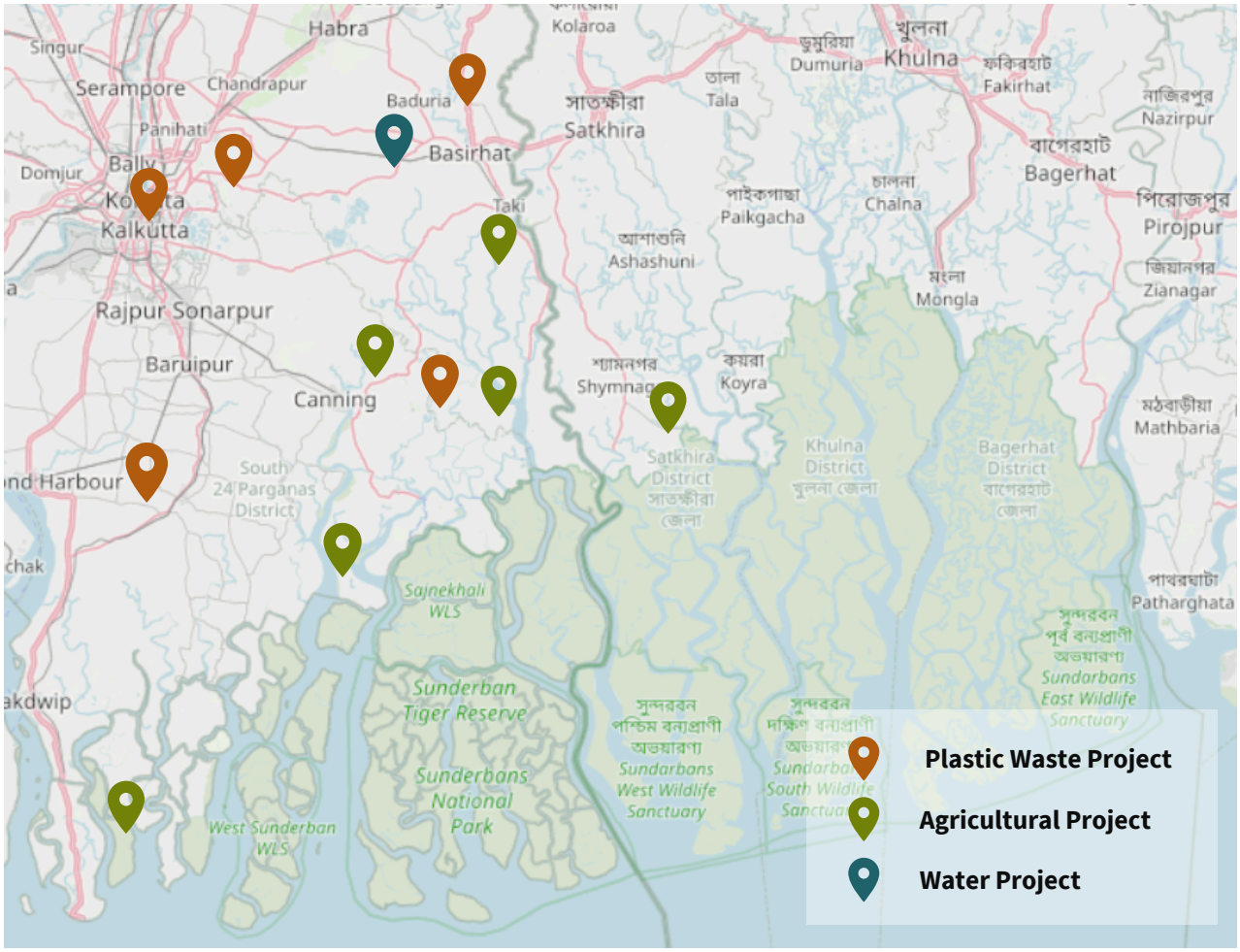
This Impact Report is only the beginning: We strive to expand our engagement in the Sundarbans and use our resources as effectively as possible to achieve the greatest possible impact. We are always looking for new partners who would like to join our network and work with us for the Sundarbans.

Partners in the Global North

The involved partner organizations in the Global North have committed in 2023 more than 1.1 million Euro (data from six organizations) in funding and technical support in the different focus areas in the Sundarbans:

Our focus areas

The organizations that have come together to form Regenerate Sundarbans are working mainly on the topics of plastic waste, agriculture and water as part of the initiative, but also on the topics of livelihood development and food security. Together, we are addressing some of the most important challenges faced by the population. The project locations are spread across the entire region, as the map shows.



This is why Regenerate Sundarbans is so important

The Sundarbans are unique from various angles: Located in the world's largest delta-region, they are also world's largest contiguous mangrove forest. Home to a diverse range of flora and fauna, the Sundarbans are a crucial region for biodiversity. At the same time, they are on the Indian side home to more than 5 million inhabitants and the ecosystem forms the basis for the livelihood of many in the region. Like under a magnifying glass, most challenges our world is facing today can be seen in the Sundarbans: the effects of climate change, human-nature-conflict, urbanization and migration as well as various forms of pollution.

Impacting together: Goals and Focus Areas

We know that the challenges in the Sundarbans can only be solved together. That is why organizations from the Global South and the Global North are working together for Regenerate Sundarbans to combine their strengths, knowledge and resources and thus work more efficiently and effectively.
The diagram below provides an overview of the goals that the organizations working on Regenerate Sundarbans have jointly set themselves. The topic of climate change is seen as an overarching theme that is taken into account in all three thematic areas of plastic waste, agriculture and water. There are also other themes that reflect on each of these areas, such as livelihood development, food security or gender equality. The following pages of this report show examples of how the goals of the different areas are already being addressed.

Climate Change

Increasing the resilience of communities in the Sundarbans and adjacent areas in view of the effects of climate change, e.g. by creating safer living conditions, developing resilient income opportunities, addressing associated health risks and increasing disaster preparedness.

Plastic Waste

Develop **waste management infrastructure** in all inhabited blocks of the Sundarbans and adjacent areas, to **reduce environmental pollution.**

Increase environmental awareness among the local communities.

Improve the **living and working conditions** of waste workers.

Agriculture

Promote sustainable agriculture* and raise awareness of the benefits of natural farming methods and the use of traditional varieties.

Make better use of **economic opportunities** and sustainable modern technologies.

**sustainable agriculture implies usage of non-genetically modified seeds, no harmful chemical fertilizers or pesticides, and promotion of local seed varieties*

Water

Enhance **preparedness** of the population for disasters by implementing measures for **sustainable water management.**

Ensure and advocate for **access to safe drinking water and related topics.**

Support **livelihood opportunities** in face of increasing natural calamities.

Climate Change

Climate change affects all areas in which Regenerate Sundarbans' partners operate, and threatens safe living conditions, livelihoods and health. This is why we have chosen to address the issue as an overarching theme of the initiative.

The frequency and intensity of extreme weather events and natural disasters in the Sundarbans is increasing due to climate change. These environmental changes are creating a vicious cycle where the loss of natural resources and livelihoods drives more people to migrate, leaving behind fewer resources and putting additional strain on already vulnerable ecosystems. Some parts of the Sundarbans have already become uninhabitable, and this trend is expected to continue unless immediate action is taken.

The main sources of income in the Sundarbans, agriculture and fisheries, are severely threatened by the effects of climate change. As a result, the livelihoods of many inhabitants are more at risk, threatening their economic stability and food security. Climate change also poses significant health risks. Increased temperatures can lead to heat-related illnesses, while the scarcity of freshwater exacerbates hygiene and health problems, and uncertainty about future conditions can have an impact on mental health.

To counter these threats, the Regenerate Sundarbans initiative integrates the issue of climate change into all projects. The focus lies on building community resilience by creating safer living conditions and income opportunities that are adapted to the increasing threats posed by climate change, while also taking into account the associated health risks.

Our work in 2023

1.728.000
mangrove seeds and seedlings were planted

1.394.274
other trees were planted

Climate Change

Insights from the field

Promoting Resilience

The Sundarban Social Development Centre (SSDC) is a non-governmental organization that was founded in 1986 and is committed to implementing community-based development initiatives in various sectors. Bhakta Purkait, General Secretary of SSDC, explains how the organization helps the local population to improve their resilience to the effects of climate change.

How does climate change affect your work in the Sundarbans?
Bhakta Purkait: Lying in the low coastal zone makes the Sundarbans more vulnerable to the effects of the changing climatic conditions such as floods, cyclones, sea-level rise, and coastline erosion. The majority of the population is highly dependent on forest resources such as fish and crabs for their livelihood. However, the degradation of these forests and the loss of biodiversity lead to reduced income and heightened food insecurity, as crop yields are also decreasing. Due to increasing water scarcity and diseases such as dengue fever, malaria and waterborne illnesses, the health of the population is also at risk, especially that of women and children.

What measures are you taking to counteract these changes?
Bhakta Purkait: As a social development organization, which has its roots within the community, SSDC has been working tirelessly to address the issues related with climate change effects on Sundarbans and its peoples' lives. We have undertaken various initiatives, including the plantation of mangrove saplings and native trees, alongside community awareness programs to encourage the protection and nurturing of these plants. Additionally, we provide training to community members, focusing on vulnerable groups, to help them develop alternative livelihoods. This includes setting up homestead gardens to ensure a regular supply of nutritious food. To combat water scarcity, we have installed new tube wells and rainwater harvesting units, renovated old ones, and constructed high raised platforms to maintain access to safe drinking water even during floods. In the healthcare sector, we have operated a Clinic Boat that visits different islands, providing medical check-ups and distributing free medicines. Unfortunately, this service is currently halted due to a lack of funds, but we continue to offer prenatal and eye health services to the community.

What kind of support do you think organizations in the Sundarbans need to increase community resilience in times of climate change?
Bhakta Purkait: To enhance community resilience in the face of climate change, organizations need a regular flow of funds with long-term commitments. This financial stability is crucial for sustaining and expanding projects. In addition, technical expertise and government support is needed to increase community resilience.

Plastic Waste Management

The Sundarbans' mangrove ecosystem and its species are highly endangered by **plastic pollution**. The proximity of the Sundarbans to the Bay of Bengal exacerbates this problem, as plastic waste also contributes to plastic pollution in the ocean.

A major challenge in managing plastic waste in the Sundarbans is the lack of a solid waste management infrastructure. Currently, waste collection relies on informal waste collectors. They face numerous problems, including health issues due to prolonged exposure to waste, unsafe handling methods and limited financial resources. They also often lack social recognition and support, which makes their work even more difficult and unsafe.

Another key factor contributing to plastic pollution is the local population's low awareness of proper waste disposal and separation. Economic difficulties often force residents to resort to plastic as an affordable material, especially during natural disasters when plastic items can be lifesaving. This dependence, combined with inadequate knowledge of waste management, can lead to improper disposal practices that exacerbate pollution.

To combat plastic pollution and to protect the Sundarbans, it is important to develop a comprehensive waste infrastructure in the region. This is why Regenerate Sundarbans aims not only to reduce pollution, but also to promote environmental awareness among residents. By improving the living and working conditions of waste collectors and workers, the goal is to create a sustainable and inclusive waste management system. This approach will strengthen the resilience of the community, protect the mangrove ecosystem and contribute to the global fight against plastic pollution.

Our work in 2023

1300 tons
plastic waste collected and processed

180 waste workers
involved and working conditions improved

Insights from the field

Increase in Awareness

Bithari Disha is a well-known not-for-profit organization operating three waste management facilities in the Sundarbans, where it works with informal waste collectors to recover and process waste that would otherwise go uncollected. Secretary Dilip Pal shares the latest developments in this sector.

What developments have you noticed in the waste management sector in the Sundarbans in the past year?

Dilip Pal: Initially, there was a widespread lack of awareness about pollution and proper waste management practices. Waste collection was primarily handled by a few informal collectors operating at the household level. Recognizing the gravity of the situation, we engaged with the local administration to highlight the pollution issues and the urgent need for organized waste management system. In response, we initiated training programs focused on waste collection, source segregation, and recycling. Thanks to continuous efforts, there has been a noticeable increase in public awareness compared to previous years. The local administration has also started to actively collaborate with non-governmental organizations like ours, and has selected us as a leading organization to replicate our waste management model in the whole Sundarbans area. But there are some problems which should be addressed. The government only supports the operating costs of solid waste management projects for six months. As a result, many waste management facilities are either closed or converted into landfills that spread foul odors and cause pollution, and public objection leads to the closure of these facilities. For social businesses like ours to grow, we need support from different parties to develop long-lasting systems.

In your opinion, what kind of support does the waste management sector require from organizations and donors?

Dilip Pal: The involvement of all informal waste collectors is necessary for proper waste management. Bithari Disha has published a directory of waste collectors in a small area, but there is no data on all informal waste collectors in the Sundarbans. To address this gap, there is a need to support initiatives that conduct research, awareness training and provide a revolving fund for waste collection to informal waste collectors. Support is also crucial to support medical insurance, equipment, and regular health check-ups. Besides that, investment is needed for vehicles and recycling machinery to improve the efficiency and safety of waste management operations. As mentioned before, the operation cost need to be support for longer periods for us to run waste management facilities successfully.

What are your hopes for the future of waste management in the Sundarbans?

Dilip Pal: We aim to replicate our sustainable entrepreneurship model across the region. We want to protect the unique environment of the Sundarbans and create more employment opportunities, particularly for women. Our goal is to foster a circular economy that supports the community while ensuring that waste management practices are both effective and sustainable.

Sustainable Agriculture

To ensure the long-term resilience of agriculture in the Sundarbans, there is an urgent need to shift to more sustainable farming practices. Currently, agriculture in the Sundarbans is largely dominated by conventional methods that rely on chemical fertilizers and pesticides. While these practices may increase yields in the short term, they often lead to long-term negative impacts such as soil infertility, water pollution, loss of plant diversity as well as negative effects on the health of consumers.

Since the "Green Revolution", the cultivation of high-yielding crops has prevailed in the Sundarbans, which are often less able to cope with the climatic challenges of the region. As a result, the use of indigenous seed varieties, which are better adapted to local conditions and climate change, has declined. Besides that, farming in the Sundarbans is often not seen as a lucrative profession, which drives seasonal migration to the cities where people seek work in other sectors. To overcome these challenges, the promotion of sustainable agriculture in the Sundarbans is essential.

This includes raising awareness of the benefits of natural farming methods and the use of indigenous seeds. Sustainable agriculture in this context means avoiding genetically modified seeds, harmful chemical fertilizers and pesticides and instead using indigenous seed varieties and environmentally friendly farming methods. Promoting natural farming will strengthen the region's resilience to climate change, protect its biodiversity and support the livelihoods of its inhabitants.

In 2023, 9791 farmers were trained in different project on techniques of sustainable farming. 7961 of them changed to sustainable agriculture.

4 seed-banks, preserving each

117 - 200 rice varieties

2 - 16 pulse varieties

vegetable seeds and/or spices, flowers and oil seeds

Sustainable Agriculture

Insights from the field

Women's Farmers for Climate Resilience

In the face of climate change, the women farmers of the Sundarbans and their families are leading the way towards resilience and sustainability in a project by Sign of Hope. Through comprehensive training in sustainable and agro-ecological practices, they are mitigating the impacts of climate change and securing their livelihoods.

These women have embraced organic farming, utilizing climate-adaptive methods such as raised beds, land shaping, salt-tolerant indigenous seeds, mulching, and the application of manure and compost. These techniques ensure that the soil remains healthy and fertile, enabling the cultivation of crops and vegetables even under adverse weather conditions. To further bolster their resilience, the farmers are exploring alternative livelihood opportunities such as backyard poultry, crab fattening, dumpling making, and nursery management.

Diversifying their income sources has proven to be an effective strategy for reducing vulnerability to climate change. By having access to multiple income streams, the farmers and their families are better equipped to adapt to environmental challenges. A key component of their resilience strategy is the planting and restoration of mangroves, alongside practicing social forestry. Mangroves are crucial in coastal areas, as they mitigate the long-term effects of climate change and provide both direct and indirect environ-mental benefits.

Picture: Sign of Hope

New ways to improve resilience

The female farmers are also adopting **alternative energy sources** such as biogas, improved stoves, and smokeless chulas. Transitioning from traditional mud chulas to these cleaner options has significantly reduced the demand for wood, thereby curbing deforestation. Biogas, derived from abundant cow dung, offers a sustainable and climate-resilient energy alternative.
This practice not only reduces reliance on fossil fuels but also provides **natural fertilizer**, enhancing soil fertility. In addition, the implementation of indigenous paddy cultivation using the Single Stick method has shown remarkable results. This technique, utilizing area-specific indigenous varieties, is more resistant to natural calamities like storms and insect infestations. Moreover, these varieties do not require chemical inputs, making the process more cost-effective and environmentally friendly. The higher yields and the use of residual straw for domestic purposes and animal fodder further enhance sustainability. Through these innovative practices, women farmers in the Sundarbans are adapting to climate change and demonstrating how sustainable agriculture can strengthen community resilience.

Picture: Sign of Hope

Water

Climate change has led to more frequent and intense natural disasters in the Sundarbans. Stronger and more frequent cyclones cause widespread flooding, damaging homes, infrastructure and agricultural land. Rising temperatures contribute to longer periods of drought, which further strain water resources and agricultural productivity. In addition, changing monsoon patterns are disrupting traditional cropping patterns and reducing yields, directly impacting the livelihoods of local communities.

The region also faces critical freshwater shortages as groundwater levels continue to decline. This issue combined with inadequate infrastructure means that many communities do not have reliable sources of clean water.
To solve these problems, strategies must be implemented to ensure access to safe drinking water and improve community preparedness for natural disasters.

In addition, it is crucial to support agriculture in a way that it can withstand the increasing frequency of cyclones and other developments associated with climate change. This can include promoting climate resilient crops, training farmers in sustainable practices and developing early warning systems for natural disasters.

Our work in 2023

40.500 people reached

with education (e.g. awareness on hand washing, drinking water, safe cooking habits, menstrual health, water conservation, use of latrine, prevention of water borne diseases)

3.530 households

benefited from small water treatment plants and tap water supply

10.050 people reached

with WASH-advocacy, addressing communities, institutions and politicians

Water

Insights from the field

WASH Education and Advocacy

Through a series of strategic measures and the involvement of the population, German Doctors and its partner Dearah Association for Social and Humanitarian Action (ASHA) have made significant progress in ensuring access to safe drinking water and improved sanitation facilities.

A group of trained community members was formed to serve as animators, mobilizing their community to take collective action. Local clubs brought attention to the scarcity of safe drinking water by creating paintings and posters displayed during Durga Puja and Kali Puja. This grassroots advocacy led to widespread support in the community: It resulted in a mass petition signed by 1,571 people and presented to the Gram Panchayat to address the water crisis.

The street play as a tool for mobilization and advocacy was used for bringing a visible impression in the targeted villages of ten blocks reaching some 40.000 people by the end of 2023. The community ownership is greatly sensed when it was performed by the common villagers who themselves were suffering from the issue. They also obtained a professional training to add perfection to the performance. The Gram Panchayat Development Plan for the fiscal year 2023-2024 was approved across 21 Gram Panchayats, facilitating the repair of damaged tube wells, construction of water treatment plants, installation of pipeline connections, and provision of water testing kits.

Besides that, major political parties included the issue of water scarcity in their manifestos during the 2023 West Bengal Panchayat Election.

There were also further developments in various regions: In the villages of Bena and Ardharchak, the government built community toilets, significantly improving sanitation facilities. At Mahishpukur High School in Hasnabad block, the practice of using pond water for cooking Mid-Day Meals was discontinued, and the school now utilizes water from improved sources.

Picture: Dearah Association for Social and Humanitarian Action (ASHA NGO), German Doctors

Tribal Communities

Sign of Hope conducted an ethnographic and participatory planning study to address the vulnerabilities faced by tribal communities. The research, involving 800 households from eight project villages in the Hingalganj, Sandeshkhali I, Kakdwip, and Kultali CD blocks, utilized Participatory Rural Appraisal tools and a Needs Assessment Survey to gather comprehensive data.

The primary goal was to assess the relative vulnerability and sensitivity of these communities to climate change, aiming to enhance their adaptive capacity. The findings revealed significant insights into the impact of climate change on tribal communities, highlighting their ongoing struggle to adapt to an increasingly unpredictable environment.
In addition to environmental vulnerabilities, the study also explored mental health and well-being among the tribal population. It found that eco-anxiety, driven by the constant threat of ecological disasters, is a pervasive issue. The migration of male members for work exacerbates emotional stress and worry within these communities. Furthermore, the return migration induced by the Covid-19 pandemic has led to traumatic experiences and uncertainty, deepening the sense of anxiety. Substance abuse, including alcoholism and tobacco smoking, is prevalent and often linked to unemployment, poor mental health, peer pressure, and the use of alcohol as a way to recover from tough manual labor. Domestic violence against women and children is also common. The study was conducted together with the Development Research Communication and Services Centre, the Lokamata Rani Rashmoni Mission and Jadavpur University.

Picture: Sign of Hope

Mangrove Restoration

The objective of Soceo's study is to observe whether mangrove species diversity can be restored or improved naturally through washed-in fruits or propagules brought in during tides. The mangrove ecosystem of the Sundarbans faces mounting threats – unsustainable fishing practices, shrimp farming, grazing, urban-industrial pollution, oil spills, erosion caused by tidal effects and periodic cyclonic disturbances, among other things. Environmental restoration often entails the planting of trees as a standard practice. But the artificial introduction of non-native mangrove species into an ecosystem can disrupt its balance and result in the loss of native biodiversity.

From November 2023 to March 2024, an area of 1.08 hectares of healthy mangrove ecosystem (marked as natural regeneration site) was monitored in the Sundarbans together with the University of Calcutta and compared against a control area designated as plantation site. The findings revealed that Excoecaria agallocha (blind-your-eye mangrove) exhibited the highest density and frequency of species, and number of individuals, closely followed by Bruguiera gymnorrhiza (large-leafed orange mangrove). In total, thirteen distinct species were identified across the varied zones.

While species diversity was notably higher in the study site, seedling height and basal diameter tended to be greater in the control site, with a few exceptions. Seedling mortality rates varied between species across both sites, with Avicennia alba and Rhizophora apiculata (tall-stilt mangrove) exhibiting higher mortality in the control site, contrasting with Bruguiera gymnorrhiza and Sonneratia apetala (mangrove apple) in the study site.

These findings underscore the complex interplay between ecological processes and human interventions, highlighting the need for nuanced conservation strategies.

Pictures: Soceo

Outlook

We look forward to continuing to share ideas, pool resources and create synergies as part of the Regenerate Sundarbans network. On a regular basis, we host online meetings where the organizations present their projects and we evaluate how we can work together on our goals in the different thematic areas.
This report will be published annually to share the progress and impact of the initiative and provide valuable and comparable insights into the work being done in the Sundarbans.

Sundarbans Summit

The network also plans to host the Sundarbans Summit in October 2024 – an online summit open to interested organizations and donors. It will serve as a platform for local organizations to present their project ideas. These projects will include a range of initiatives, always focusing on the core themes of Regenerate Sundarbans:

- Climate Change,
- Plastic Waste,
- Agriculture and
- Water.

The aim is to foster partnerships and collaborations that can bring technical expertise, financial resources and innovative solutions to the challenges facing the Sundarbans.

Join our effort!

We are happy to hear from organizations that share our goals and are active in the Sundarbans in India or Bangladesh.
If you are interested in joining Regenerate Sundarbans, please get in touch with us:

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Learn more on:
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