



K.R. MANGALAM UNIVERSITY
THE COMPLETE WORLD OF EDUCATION

Project Report submitted

On

Wastewater Management by Save Aravali Trust in Faridabad



Submitted in collaboration with MoU partner

Save Aravali Trust,

Faridabad, Haryana

Project Coordinators

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School of Education

and

Ms. Meenakshi Sharma, Partnerships Manager and Coordinator,

Save Aravali Trust

K.R. Mangalam University, Gurgaon, Haryana

Academic Year - 2023-24

DECLARATION

We undersigned hereby declare that the project report on *Wastewater Management by Save Aravali trust in Faridabad* represents work carried out by us. We also declare that we have adhered to all the principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any source in our submission. We understand that any violation of the above will lead to disciplinary action by the Institute. The findings in this report are based on the primary information during the project observation held on 5th March to 30th May, 2024 in collaboration with Save Aravali Trust, Faridabad under the guidance of Mr. Saket Bihari & Ms. Shalvi Kumari, Assistant Professor, School of Education, K.R. Mangalam University, Gurgaon, Haryana and Ms. Meenakshi Sharma, Partnerships Manager and Coordinator, Save Aravali Trust.

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Date: 20th June 2024

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Acknowledgement

We express our deepest gratitude to the Dean of the School of Education at K.R. Mangalam University, Prof. (Dr.) Tania Gupta for their unwavering support and encouragement throughout the project. Their vision and guidance were instrumental in shaping this initiative and enabling us to pursue our goals in environmental conservation and sustainable development. We extend our heartfelt thanks to Save Aravali Trust, whose commitment to environmental preservation and innovative wastewater management methods have inspired and empowered us. Specially, our Project Coordinator, Ms. Meenakshi Sharma, Partnerships Manager and Coordinator, Save Aravali Trust. Apart from her, Ms. Samvedna, Ms. Krishan Rawat and Mr. Yash Bhadana, volunteers of Save Aravali Trust for their unconditional support and motivation throughout the project work.

Their dedication to using 100% natural methods for water purification has provided invaluable learning experiences and set a benchmark for sustainable practices.

Our sincere appreciation goes to the management of KRMU for their continuous support and facilitation of this collaborative project. Their provision of resources and logistical assistance has been crucial in the successful execution of our fieldwork and research activities.

This project report on Wastewater Management by Save Aravali Trust in Faridabad is the culmination of the collective efforts of many individuals and our MoU partner Save Aravali Trust. It would not have been possible without the cooperation, dedication, and hard work of everyone involved. We are grateful for the opportunity to contribute to such a meaningful and impactful cause.

Last but not least we are also thankful to our Project Coordinators Ms. Shalvi Kumari and Mr. Saket Bihari, Assistant Professor, SOED for their motivation and guidance thorough out the Project Work.

Anjali, Arisha, Vedant, Amisha and Aditi

(B.El.Ed. VIII Semester)

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About the SAVE ARAVALI TRUST (MoU Partner)

Save Aravali Trust, located in Faridabad Sector 12, Delhi, is a prominent environmental NGO dedicated to the conservation and preservation of the Aravali Range, a vital natural resource in the region. Here are some facts about

the trust:

Mission: Save Aravali is committed to protecting the ecological integrity of the Aravali Range through advocacy, awareness- rising, and on-the-ground conservation efforts. Their mission revolves around safeguarding the biodiversity, water resources, and overall environmental health of the Aravali region.

Advocacy and Awareness: The trust engages in advocacy campaigns to raise awareness about the importance of the Aravali Range and the threats it faces from urbanization, industrialization, mining, and illegal encroachments. They work to mobilize public support and influence policymakers to prioritize conservation measures.

Conservation Initiatives: Save Aravali implements various conservation projects aimed at restoring and preserving the natural habitats within the Aravali Range. This may include afforestation programs, habitat restoration, and biodiversity conservation efforts to protect endangered flora and fauna species.

Community Engagement: The trust actively involves local communities, residents, and stakeholders in their conservation initiatives. They promote community participation through education, capacity-building workshops, and collaborative projects, recognizing the importance of grassroots involvement in sustaining conservation efforts.

Legal Advocacy: Save Aravali may engage in legal advocacy to address environmental violations and protect the Aravali Range from illegal encroachments, deforestation, and mining activities. They may collaborate with legal experts and environmental organizations to pursue legal recourse against environmental offenders.

Research and Monitoring: The trust may conduct research studies and environmental monitoring programs to assess the ecological health of the Aravali Range, identify conservation priorities, and measure the effectiveness of their interventions over time.

Partnerships and Collaborations: Save Aravali collaborates with governmental agencies, other NGOs, academic institutions, corporate entities, and international organizations to leverage resources, expertise, and networks in advancing their conservation goals.

Introduction

Water is the most important natural resource needed to sustain life on this planet. In terms of Sustainable Development Goals (SDGs), water as a resource and access to clean water is a central theme to most SDGs, e.g. out of 17 SDGs at least 7 SDGs is directly linked to clean water and 5 are indirectly linked to water. India, still an agrarian nation with high water demand for agriculture, is also marching towards its goal to become a world leader in sustainable development, for which sustainable water use is key.

Management of Wastewater is a significant problem in India that affects the economy and the ecology. According to study findings that were just published in Environmental Toxicology and Chemistry, pharmaceutical pollution is a global issue that is most likely affecting the quality of the world's waterways. Water pollution affects people, and they can contract illnesses like hepatitis from faces in water sources. Poor drinking water treatment and inappropriate water can always be the cause of the spread of infectious diseases like cholera and others. The regular processing of wastewater and its application in irrigation negatively impacts the soil and crops. Chemicals harmful to crops may find their way into the soil as a result of improper wastewater management. These pollutants will cause the soil to produce fewer crops at a slower rate. Keep in mind that humans will eventually consume these crops, which could be hazardous. Impacts on water bodies and aquatic life: The area's most vulnerable to the harmful effects of wastewater are usually aquatic bodies. Toxic materials in wastewater damage aquatic environments.

A huge amount of biodegradable materials that have entered the water start to be broken down by organisms, which necessitates a high concentration of dissolved oxygen. Dissolved oxygen is necessary for marine life to flourish, and fish may be seriously threatened if its levels fall.

Furthermore, eutrophication in aquatic bodies and a gradual deterioration in water quality are caused by the excess nutrients in wastewater. Wastewater may contain grease and oil, which are harder to break down and can sit on the water's surface.

While urban India generates 72,368 million litres (MLD) of sewage every day, only 28% is treated and reused. The remaining untreated wastewater is allowed to freely flow into groundwater, rivers and lakes where it pollutes, spreads diseases and harms wildlife.

Now, a new report by the Council on Energy, Environment and Water (CEEW), states that 80% of wastewater generated by urban India has the potential to be treated and reused for non-potable purposes like irrigation, which can relieve the immense pressure on water bodies, lower pollution levels and provide water security in the face of climate crisis-induced weather events that can render water bodies unreliable.

Challenges in Wastewater Management

- Effective wastewater management requires a proper infrastructure for wastewater treatment. There is a critical lack of this infrastructure in India. The Central Pollution Control Board recently assessed that India's current capacity for treating water is only 27.3%.
- Many of India's existing garbage treatment facilities are not even operational. They either require urgent maintenance and repairs, or they never took off.
- Water is designated as a State topic in Schedule 7 of the Indian Constitution, but it is expressly bound by the rules listed in the Union List.
- It gives the Parliament the ability to pass laws governing the development and regulation of interstate waters in the wider public interest. While the State still has the authority to create its own rules governing how water is used in the State, including for irrigation, drainage, embankments, water storage, and water supply.
- Due to the power disparities between the Center and the States caused by these constitutional procedures, there is uncertainty regarding federal jurisdiction.
- The absence of duties and responsibilities for all parties involved that are clearly defined leads to either duplication of effort or truancy.
- According to the 73rd and 74th Constitutional Amendment Acts, local, rural and urban levels of water resource control are increasingly fragmented.
- Water governance must be recognised at all levels for the effective operation of policies and the general development of water bodies, even though a decentralised approach is required for better assessment and resolution of wastewater concerns.

- Given the severity of the issue, wastewater treatment in India cannot be left solely in the hands of the government. The reality is that the government lacks the means to satisfy the enormous demand. Finding private-public cooperation is the obvious approach. But even this falls short of the necessary capacity.

Objectives of Project Work

The project work is organised with the following key objectives: It enable the student-teachers to:

- Undertake project work
- Prepare project report and receive gainful certification
- **Cultural Appreciation:** Students will have the opportunity to learn about the cultural heritage and indigenous practices associated with the Aravali Range, fostering a deeper appreciation for the interconnectedness of culture and environment.
- **Advocacy Skills:** Through workshops and discussions on environmental policy, advocacy, and activism, students will develop skills in advocating for environmental causes and promoting sustainable practices within their communities.
- **Research Opportunities:** The visit may provide students with opportunities to conduct field research or participate in on-going research projects related to biodiversity, ecology, or environmental sustainability in the Aravali region.
- **Reflection and Critical Thinking:** Guided reflection sessions will encourage students to critically analyse their own attitudes and behaviours towards the environment, leading to personal growth and a commitment to adopting more sustainable lifestyles.
- **Leadership Development:** Engaging in group activities and collaborative projects will help students develop leadership skills, teamwork, and effective communication, which are essential for driving positive change in environmental conservation efforts.
- **Empowerment of Local Communities:** Students will learn about initiatives aimed at empowering local communities living in and around the Aravali Range, promoting sustainable livelihoods and fostering a sense of ownership and stewardship towards their natural surroundings. Long-term Impact
- **Assessment:** The visit will also include discussions on the long-term impact of conservation efforts, including monitoring and evaluation strategies to assess the effectiveness and sustainability of interventions over time.

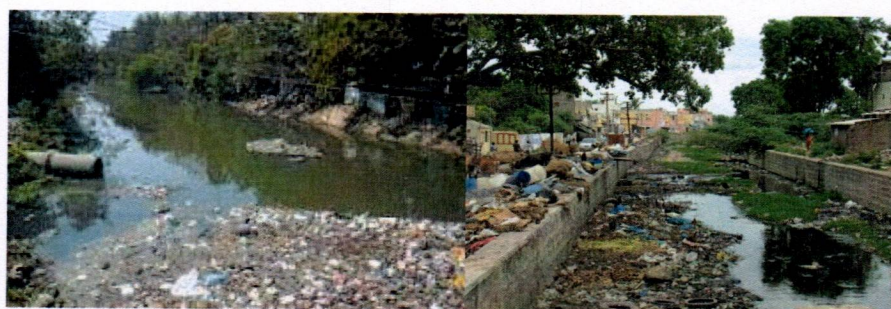
An Initiative by Save Aravali Trust: Treating Water using 100% natural methods

In the timeless wisdom of "*Dharmo Rakshati Rakshita*" – righteousness protects those who protect it – lies a profound truth that resonates deeply with our role as custodians of the environment. Each action we take, every decision we make, echoes through the interconnected web of life, shaping the destiny of our planet and its inhabitants. Consider the unsegregated waste we thoughtlessly discard. In neglecting our responsibility to care for the environment, we forget that it is our duty to safeguard the very ecosystems that sustain us. This negligence comes full circle, as the toxic leachate it generates returns to haunt us, polluting our air, water, and soil. The potential to enlarge the areas for afforestation or reforestation operations will increase, and the sewage treatment facility built using natural ways can eliminate our need on water while also bringing cost savings.

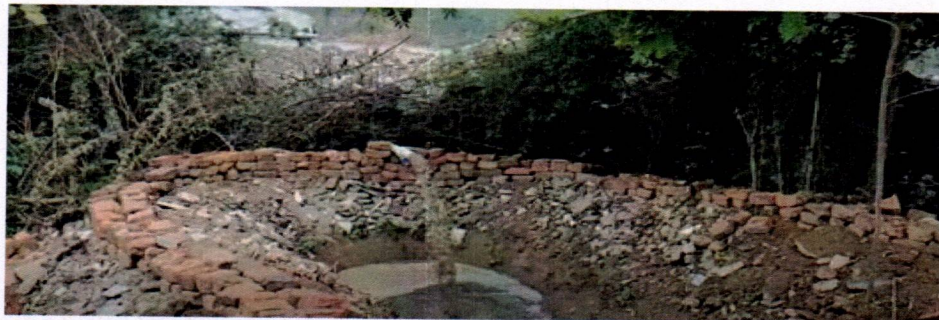
Save Aravali Trust, a volunteer-driven organization, is committed to environmental conservation in the Aravali's, the oldest mountain range in India. They focus on afforestation, water conservation, wildlife protection, and recycling. One of their notable projects includes treating sewage water using 100% natural methods, such as bio-filters and constructed wetlands, to purify water without harmful chemicals. This initiative not only aims to restore water bodies but also promotes sustainable and eco-friendly water management practices.

Save Aravali Trust purifies water using 100% natural methods. Our efforts mainly involve the use of bio-filters and constructed wetlands.

Bio-filters: These natural filters absorb the harmful elements present in the water and provide clean water. The process is completely chemical-free and is safe for the environment.



Waste water sources from sewage near Faridabad



Water is sent for process of filtration at Save Aravali Trust



Waste material from water is absorbing by soil and Charcoal



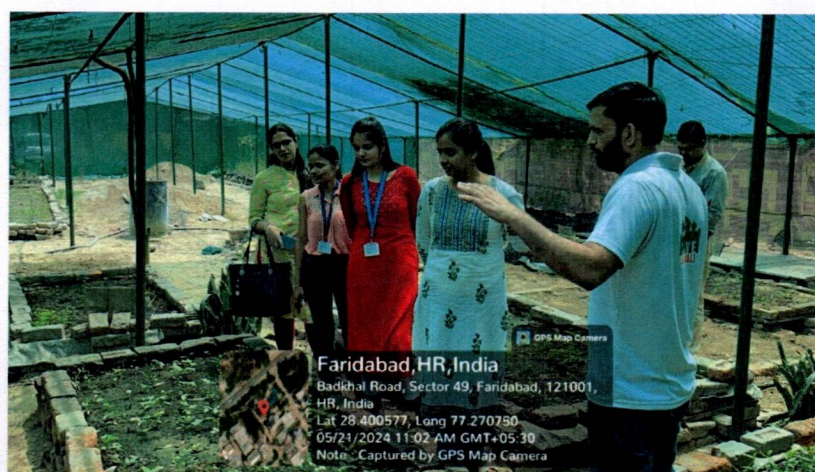
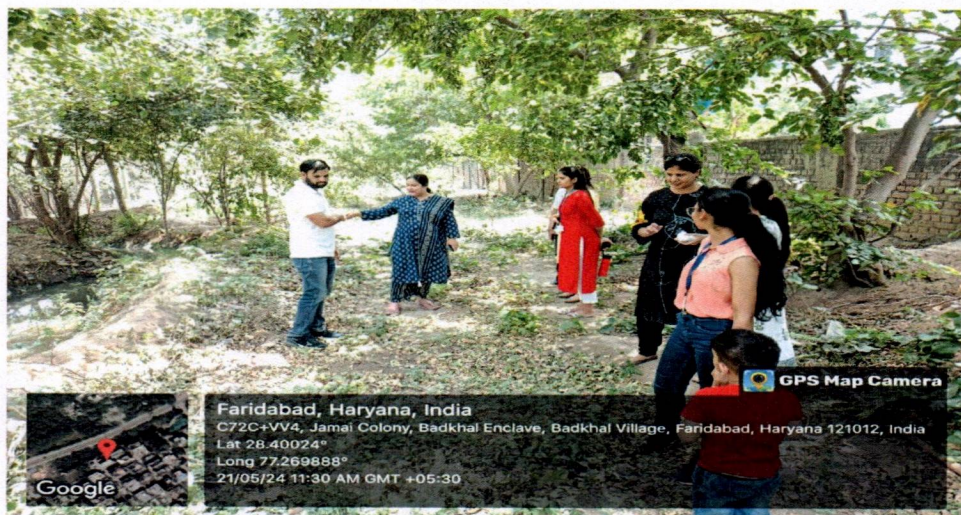
Volunteers are working on the process of preparing water absorption





Volunteers of Save Aravali Trust demonstrating the process of filtration





Ms. Meenakshi Sharma, Partnerships Manager and Coordinator, Save Aravali Trust.
explaining the procedure of plantation through filtered waste water



Student observing water tanker used to filter water from polluted water for plantation

Thus, Save Aravali Trust uses completely natural and eco-friendly methods to purify and clean water. This initiative not only protects water resources but also provides clean water to local communities.

Outcomes of the Project

The collaboration between the students from the School of Education at K.R. Mangalam University and Save Aravali Trust in the wastewater management project has yielded several valuable outcomes for the students involved:

Active Contribution to SDG 13: Climate Action

- ✚ **Mitigation of Climate Change Effects:** By understanding the ecological significance of the Aravali Range and participating in conservation initiatives, students actively contributed to mitigating the effects of climate change, such as deforestation, soil degradation, and water scarcity.
- ✚ **Promotion of Sustainable Practices:** Students raised awareness about climate change and promoted sustainable practices, playing a crucial role in building resilience to climate-related hazards and fostering a more sustainable and climate-resilient future for the region and beyond.

Promotion of Sustainable Development (SDG 15: Life on Land)

- ✚ **Protection of Terrestrial Ecosystems:** By engaging in environmental conservation efforts, students contributed to protecting, restoring, and promoting the sustainable use of terrestrial ecosystems, including forests.
- ✚ **Combatting Desertification and Land Degradation:** Their efforts helped combat desertification, halt and reverse land degradation, and halt biodiversity loss.
- ✚ **Safeguarding Biodiversity:** Participation in conservation initiatives played a role in safeguarding the Aravali Range's biodiversity and ecosystem services, contributing to global efforts to preserve terrestrial ecosystems for present and future generations.

Environmental Awareness

- ✚ **Deeper Ecological Understanding:** Students gained a deeper understanding of the ecological significance of the Aravali Range and the importance of its conservation.

Conservation Skills

- ✚ **Practical Skills Development:** Through hands-on activities such as tree plantation, waste management, and water conservation efforts, students developed practical skills related to environmental conservation.

Community Engagement

- ✚ **Socio-Economic Understanding:** Interaction with local communities and stakeholders helped students understand the socio-economic aspects of environmental issues and the importance of community involvement in conservation initiatives.

Interdisciplinary Learning

- ✚ **Integration of Knowledge:** Students had the opportunity to integrate knowledge from various disciplines such as biology, geography, sociology, and education to understand the complex interplay between humans and the environment.

Personal Growth

Fostering Responsibility and Empathy: The experience of working towards a common cause of environmental conservation fostered personal growth, empathy, and a sense of responsibility towards nature and society.

Actionable Insights

Practical Strategies: Students gained insights into practical strategies and initiatives that can be implemented in their own communities or educational institutions to promote environmental sustainability.

Networking and Collaboration

- ✚ **Networking Opportunities:** The project facilitated networking opportunities with professionals, activists, and organizations working in the field of environmental conservation, potentially leading to future collaborations and projects.

Certification

- ✚ **Recognition of Contribution:** Upon successful completion of the project work, students received certification recognizing their contribution to environmental conservation and their dedication to learning and implementing sustainable practices.

Career Preparedness

- ✚ **Future Career Opportunities:** The experience prepared students for future careers in environmental science, public health, sustainable development, and related fields, enhancing their resumes and providing valuable discussion points for job interviews.

Project Outcomes Summary

The project with Save Aravali Trust provided students with comprehensive educational and practical experiences in environmental conservation, contributing to their academic and professional development. It instilled a lifelong commitment to environmental sustainability, enhanced their practical skills, and offered significant opportunities for personal and professional growth.

Conclusion

Thus, Save Aravali Trust uses completely natural and eco-friendly methods to purify and clean water. This initiative not only protects water resources but also provides clean water to local communities.

The critical importance of wastewater management in India cannot be overstated. With rapid urbanization and industrialization, the challenge of managing and treating wastewater effectively has become more pressing than ever. The environmental and health impacts of untreated wastewater are severe, affecting both terrestrial and aquatic ecosystems, as well as human populations.

Save Aravali Trust's initiative to treat wastewater using 100% natural methods in Faridabad represents a significant and innovative step towards sustainable water management. By employing bio-filters and constructed wetlands, the Trust not only reduces the dependency on conventional and often harmful chemical treatments but also promotes the restoration of natural water bodies. This approach is in alignment with several Sustainable Development Goals (SDGs), particularly those related to clean water and sanitation, sustainable cities and communities, and life below water. The Trust's efforts demonstrate that with the right methods and community involvement, it is possible to address the complex challenges of wastewater management. Their work underscores the need for robust infrastructure, clear governance, and active participation from both public and private sectors. Furthermore, the success of these natural methods in treating wastewater highlights the potential for wider application across India and other regions facing similar challenges.

In conclusion, Save Aravali Trust's project on wastewater management serves as a model of ecological stewardship and innovation. It emphasizes the necessity of integrating sustainable practices into environmental management strategies to ensure the health and prosperity of both natural ecosystems and human communities. The Trust's commitment to using eco-friendly methods offers hope and a practical pathway toward a cleaner, safer, and more sustainable future.

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Volunteers for Environment



July 12, 2024

To Whomsoever It May Concern

This is to certify that **Aditi**, a student of the **B.El.Ed. VIII Semester** from **School of Education, K.R. Mangalam University, Gurugram** has successfully completed her Project Work with **Save Aravli Trust** from **4th March, 2024 to 30th May, 2024** under the supervision of **Ms. Meenakshi Sharma, Partnerships Manager and Coordinator**.

She completed her Project Work entitled **“Waste Water Management by Save Aravali Trust in Faridabad.”**

We commend **Aditi** for her hard work during her Project Work and wish her all the best for her future.

Regards,

Kailash Bidhuri
Save Aravali Trust

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July 12, 2024

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This is to certify that **Vedant**, a student of the **B.El.Ed. VIII Semester** from **School of Education, K.R. Mangalam University, Gurugram** has successfully completed his Project Work with **Save Aravali Trust** from **4th March, 2024 to 30th May, 2024** under the supervision of **Ms. Meenakshi Sharma, Partnerships Manager and Coordinator**.

He completed his Project Work entitled **“Waste Water Management by Save Aravali Trust in Faridabad.”**

We commend **Vedant** for his hard work during his Project Work and wish his all the best for his future.

Regards,

Kailash Bidhuri
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July 12, 2024

To Whomsoever It May Concern

This is to certify that **Amisha**, a student of the **B.El.Ed. VIII Semester** from **School of Education, K.R. Mangalam University, Gurugram** has successfully completed her Project Work with **Save Aravali Trust** from **4th March, 2024 to 30th May, 2024** under the supervision of **Ms. Meenakshi Sharma, Partnerships Manager and Coordinator**.

She completed her Project Work entitled **“Waste Water Management by Save Aravali Trust in Faridabad.”**

We commend **Amisha** for her hard work during her Project Work and wish her all the best for her future.

Regards,

Kailash Bidhuri
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To Whomsoever It May Concern

This is to certify that **Arisha**, a student of the **B.El.Ed. VIII Semester** from **School of Education, K.R. Mangalam University, Gurugram** has successfully completed her Project Work with **Save Aravli Trust** from **4th March, 2024 to 30th May, 2024** under the supervision of **Ms. Meenakshi Sharma, Partnerships Manager and Coordinator**.

She completed her Project Work entitled **“Waste Water Management by Save Aravali Trust in Faridabad.”**

We commend **Arisha** for her hard work during her Project Work and wish her all the best for her future.

Regards,

Kailash Bidhuri
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July 12, 2024

To Whomsoever It May Concern

This is to certify that **Anjali**, a student of the **B.El.Ed. VIII Semester** from **School of Education, K.R. Mangalam University, Gurugram** has successfully completed her Project Work with **Save Aravali Trust** from **4th March, 2024 to 30th May, 2024** under the supervision of **Ms. Meenakshi Sharma, Partnerships Manager and Coordinator**.

She completed her Project Work entitled **“Waste Water Management by Save Aravali Trust in Faridabad.”**

We commend **Anjali** for her hard work during her Project Work and wish her all the best for her future.

Regards,

Kailash Bidhuri
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