

VETIVER NEPAL

“An Initiative to conserve the Earth”

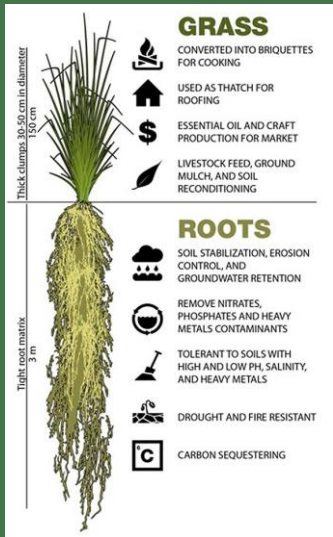


Use of Vetiver Systems covers all 17 of United Nation's SDGs.

What is Vetiver?

- Vetiver is a sterile tropical, non-invasive adaptable plant.
- Vetiver grows almost everywhere, and is native to South East Asia
- Used around the world to treat a myriad of environmental and soil bio engineering and water related problems
- Roots are fibrous, fast growing and can reach depths of 3 to 4 meters.
- Survive in extreme climatic conditions including prolonged drought, flood and temperatures of -15°C to $+55^{\circ}\text{C}$
- Grows in soils with high acidity, salinity and alkalinity

What is Vetiver?



Vetiver Applications

- 1) Agriculture
 - a) Water conservation in Farms
 - b) Erosion Control in Farms
 - c) Mulch
 - d) Forage
 - e) Pest Control
 - f) Soil Fertility Enhancement
 - g) Horticulture/Landscaping
- 2) Slope stabilization and erosion control
 - a) Rural/Farm Roads
 - b) Highways
 - c) Rail Roads
 - d) Bridges
- 3) Disaster Mitigation

Vetiver Applications

- 4) Stabilize roadside embankments
- 5) Protects infrastructure from slippage and erosion.
- 6) Protects river and stream embankments from erosion.
- 7) Phytoremediation – Method by which Vetiver can be used to clean up the earths hazardous contaminants.
 - a) Wastewater
 - b) Industrial Effluent
 - c) Landfill leachate
 - d) Tertiary treatment for septic systems
- 8) Treatment of contaminated water
- 9) Essential Oil and Handicrafts
- 10) Bio Mass/Carbon Sequestration



- Vetiver is a tool for poverty alleviation in Nepal.
- Vetiver provides an opportunity for communities in Nepal to earn an income and grow more crops.
- Farmers are able to save more by growing vetiver.
- Vetiver regenerates top soil, which allows communities to make a better use of their land.
- Using Vetiver Hedges to control runoff and conserve moisture, nutrients and soil in-situ, will produce crops more efficiently in Nepal

2 ZERO HUNGER



- Per capita arable land holding in Nepal is 0.08 hectares. Growing vetiver in wastelands, per capita farmed land will increase, this help farmers grow more crops.
- Vetiver improves soil and water quality and acts as a pest control to other crops. This helps farmers grow more crops for their communities.
- To regenerate 1cm top soil it takes hundreds of years, Vetiver is able to regenerate top soil in a matter of months.
- Vetiver helps with resilient agricultural practices through water conservation in farms, farmland degradation control, reclamation of degraded farm land, water shed protection. This helps farmer grow and earn more for their communities.

3 GOOD HEALTH AND WELL-BEING



- Vetiver helps in purifying land and water, which is essential for a healthy living.
- Vetiver roots are also used in ayurvedic medicines, oil aromatherapy and pharmaceuticals with helps with mental health and well being.
- When earnings increase, there is prosperity and therefore helps in well-being of the farmer.
- Inhaling vetiver oil improves alertness and brain function.
- Vetiver helps reducing deaths caused by hazardous chemicals and pollution in the environment as vetiver is a biological filter.

4 QUALITY EDUCATION



- With the help of Vetiver families are able grow a range of food that contribute to mental and cognitive development, thus promote learning.
- When there is prosperity and communities are able to earn, children in those communities get a chance to go to get quality education.
- Government schools in rural Nepal can use thatch roofs and vetiver as biomass, which can help children of Nepal get quality education.
- In Nepal hilly rural areas are prone to landslide and soil erosion. Vetiver helps to control this, making a safer environment for children.



- Skilled women can make handicrafts and other biodegradable products from vetiver leaves, also sell its roots for oil extraction give them independence and redress the imbalance in gender equality.
- Also, vetiver is used vastly in multilayer farming. This creates many jobs women in the farming society.



6 CLEAN WATER AND SANITATION



- Vetiver helps conserve soil moisture and cleans contaminated land and water improving sanitation for communities.
- Vetiver is a natural purifier of water.
- In NEPAL after the earthquake there is been a water issue all along, springs have dried up and they haven't provided water since. Vetiver helps villages in Nepal, revive any water source.
- Sanitation is a problem both in urban and non-urban areas of Nepal. Vetiver with the use of phytoremediation helps with landfill leachate control. Also, can be very useful in sanitation of rivers like Bagmati.

7 AFFORDABLE AND CLEAN ENERGY



- Vetiver helps provide reliable energy to the communities by using its leaves for high energy biomass.
- Perennial grasses like vetiver produce large and deep root system and are likely to contribute significantly to soil carbon.
- Vetiver can be used in for clean energy and biomass such as energy- briquet, charcoal, heating purpose, cooking purpose. All at a very affordable cost.

8 DECENT WORK AND ECONOMIC GROWTH



- There are many high risk communities in Nepal, vetiver helps prevent floods and landslides. Which in turn will help with sustainable development.
- Vetiver oil also has antifungal, antibacterial, anticancer, anti-inflammatory and antioxidant activities, with direct correlation to economic growth.
- Nepalese migrant labourers have to leave their families to work in the Gulf countries due to lack for decent work in Nepal. Use of Vetiver in agriculture, soil stabilization, oil, handicrafts, etc., can help avoid help these workers from travelling abroad and leaving their family behind.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



- Vetiver helps build and sustain the quality of roads, that helps with maintaining the infrastructure.
- Winding roads in the mountain areas of Nepal can be made resilient by planting vetiver for slope stabilisation, soil erosion control, landslide control, and control water runoff
- There are many industries and innovative development opportunity with vetiver, agri-business, handicrafts, biodegradable products to replace plastic products, mulch and vermicompost. Also importantly, vetiver secures disaster prone zones.



- Inequalities within and among NEPAL is a persistent cause for concern.
- In Nepal we want to adopt policies to ensure equal opportunity and reduce inequalities of outcome.
- Vetiver improves the economic well-being of all the people in the country. Its used for controlling pests in farm land, used as forage and used for conserving water, etc help people generate more income. Hence, reducing inequalities among people.



- Vetiver helps communities become more stable by helping with prevention of landslides, floods and erosion when implemented using Vetiver Systems.
- In Nepal rapid urbanisation and the waste management is a major problem in cities like Kathmandu, Pokhara and Dharan. Vetiver can solve these issues efficiently at a low cost.
- Phytoremediation with vetiver is a proven tool for urban waste water filtration, waterways such as rivers and ponds and lakes, industrial effluents, slope stabilisation and ground water recharge.



- In Nepal we want to substantially reduce waste generation through prevention, reduction, recycling and reuse.
- Vetiver helps improve agriculture production. It protects and aerates the soil and water, which results in high agricultural yield. Natural pest control which prevents the use of chemical pesticides. Vetiver is used to control stem borer which infects rice plantation in paddy fields. Also helps with conservation of water for agricultural purposes and protect and sustain watershed.
- Vetiver leaves are used as mulch, bio-fertilizer and vermicompost.

13 CLIMATE ACTION



- Nepal experiences drought, hail, frost, heavy rainfall that causes salinity intrusion, floods, landslides, damage to crops, reduced yields, and crop failure all resulting in heavy losses to farmers. Vetiver when grown effectively, it provides a life long security to disasters caused by climate change.
- Vetiver hugely contributes to carbon sequestration due to it being a C4 grass.
- Nepal uses firewood as energy source in rural areas. Vetiver can contribute vastly as an energy source which can be efficient and cost effective.



- In NEPAL we want to significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
- Vetiver helps purify contaminated water improving biodiversity of aquatic ecosystems.
- Nepal's rivers are highly contaminated. Bagmati, Manohara, Bishnumati, Dhobikhola, Tukuchha, etc can all be pollution free with the use Vetiver System.
- Fish in these rivers are a source of income and food. We can protect these rivers from being polluted by using vetiver.



- Nepal aims to significantly reduce the degradation of natural habitats, halt the loss of biodiversity. Vetiver protects and restores terrestrial ecosystems preventing land degradation and contamination.
- Proper use of Vetiver in Nepal with landfill and leachate can help with waste management in areas like Sisdol.
- Vetiver can help with reclamation of already degraded land, land washed away by floods and swelling of rivers.

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



- Use of vetiver with soil-bio engineering we can develop effective, accountable and transparent institutions at all levels.
- Vetiver sustains local communities giving economic power to develop inclusive societies.

17 PARTNERSHIPS FOR THE GOALS



- Vetiver NEPAL through its foundations plans to develop a national and global sustainable partnership.
- Vetiver Nepal plans to partner with all categories of experts from around the world who care for our communities and conserving the EARTH.
- Vetiver Nepal intends to partner internationally with TVNI, Veticon Consulting of Australia, Leachate Management Specialists of the USA and other donor and funding agencies.
- We share our knowledge, expertise and technology with the world so we can help conserve our wonderful earth using Vetiver.