

CSIR-NISTADS Mission Carbon

Carbon dioxide constitutes only about 0.04% (400 parts/million) of our atmosphere; however, CO₂ is a potent green house gas and plays a vital role in regulating earth's temperature. The Current episodes of global warming is generally attributed to increased emissions of CO₂ (and other green house gases) into the earth's atmosphere. The current CO₂ concentration may be the highest in the last 20 million years of earth's history and it is still rising.

The CO₂ Problem:

One of the priorities and the major challenges of the current era, therefore, is to reduce or stabilise atmospheric CO₂. While reduction of emission is one solution, one needs to explore other, non-disruptive and innovative solutions. One possible solution is to use certain plants to sequester carbon

The Bioengineering Solution :

All vegetation is good for air quality. However, efficiency of plant to sequester carbon varies with plant. A promising solution is to sequester atmospheric carbon using a special tropical aromatic plant, vetiver that our studies have shown to be a very efficient carbon sequester.



CSIR NISTADS has initiated a **Mission Carbon** programme to address some of the most challenging problems like air pollution through innovative techno-social solutions. One immediate goal is to reduce, and stabilize, CO₂ concentration through non-disruptive and sustainable means. CSIR has carried out extensive research to identify proper plant species for effective sequestration.

CSIR-NISTADS Innovation: The vetiver solution for Carbon sequestration

The vetiver is a small plant with a crop cycle of about 18 months; it is aromatic and thus enhances the overall air quality, while it sequesters carbon. It is highly tolerant, and can be planted on road sides and as intermediate crops in gardens etc. NISTADS plans to plant a significant number of vetiver throughout NCR for an effective reduction in atmospheric CO₂ over Delhi air basin. As the land use is not permanent, no long-term commitment is involved.

The CSIR-NISTADS project is based on selection of plant based on long term R & D.

The Project is implemented in two phases

- (A) R & D phase for calibration; small plantations to identify optimum conditions for vetiver growth.
- (B) Effective carbon sequestration: Plantation scale-up based on phase –I throughout Delhi NCR.

Benefits:

- (1) **Environmental Quality:** Vetiver is a green aromatic plant
- (2) **Income Generating:** Vetiver is a commercial crop
- (3) **Employment Generating:** Vetiver maintenance requires manpower deployment
- (4) **Carbon Credit:** 1000 Kg carbon/unit/year