

This project was initiated by Prof Khanindra Pathak and Shantanoo Bhattacharyya with Paul Truong as consultant



**IIT KHARAGPUR-TATA STEEL**

Joda East Iron Mine Experiment project

on

**EROSION PREVENTION AND SLOPE STABILIZATION**

**THROUGH VETIVER SYSTEM TECHNOLOGY**

**FIRST ATTEMPT IN INDIAN IRON ORE MINES**

Started on February 2012  
Total Area: 10,000 sq. m

**Growth of the Length of Root**



Number of days after plantation at site	Length of root, cm
10	50
25	80
40	120
55	130
70	150

PI: Prof. Khanindra Pathak  
Contact: 09800877877

10 10 2012

# **TATA STEEL**

## **JODA MINE, BENGAL, INDIA**

**A typical iron ore overburden or waste dump at this mine**





**An old waste dump**



**A new waste dump**



**Both old and new  
dumps are very  
unstable and highly  
erodible**





**Both old and new  
dumps are very  
unstable and highly  
erodible**





**Earth works  
needed to reduce  
slope gradient to  
about 30<sup>0</sup>-40<sup>0</sup>  
for planting**





**June 2012**

**Planting with good  
quality Vetiver slips**





**June 2012**  
**Planting with good  
quality Vetiver slips**







**Gradient 35°**

**Very good quality planting materials is required**



**Planting at VI  
between 1-1.5m,  
depending on  
slope gradients**



**Gradient 40°**

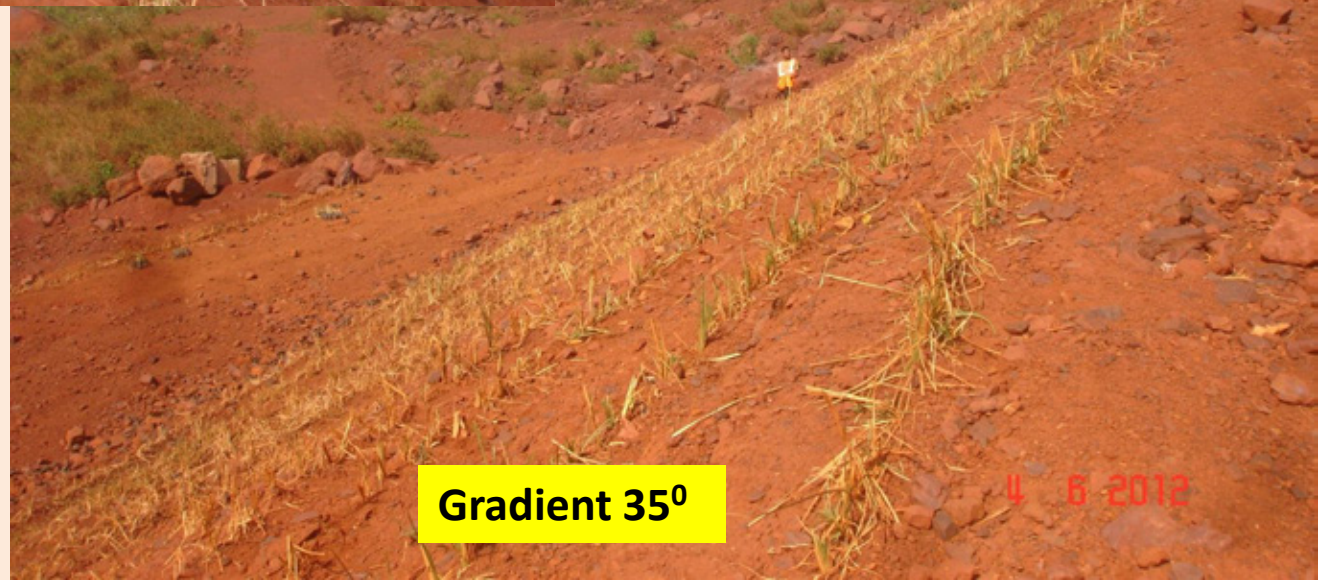
6 6 2012



**Gradient 40°**

6 6 2012

**Planting varies  
between VI of 1-1.5m,  
depending on slope  
gradients**





**Watering after  
planting each day**





**September  
2012**

**Excellent  
establishment and  
growth**



21 9 2012

**October 2012**

**Excellent  
establishment and  
growth**



**Excellent establishment and growth on this 40 degrees slope**





**On similar soil, root length  
reaching 60cm on an 20 day old  
plant**





**Once stabilised, the microenvironment created by vetiver hedges encouraged the return of native flora**



**And may be even the possibility for inter cropping between hedges in a land shortage like India**

