

# TRAFFIC SHEMES FOR THE UNIQUE ECO-SENSITIVE HILLSTATION MATHERAN IN INDIA

By Dr. Frank Wingler, Matheran, November 2017



Animation of an envisaged People Mover Rope-Way

## RESUMEE:

The following points are of paramount importance for the socio-economic well-being and development of the unique eco-sensitive Hill-Station Matheran in India:

- ◆ The provision of an all-season stable, well drained and smooth access-road from Neral to the entry-point Dasturi,
- ◆ a proper car-park at the entry-point,
- ◆ a smooth dust-free and all-season stable well paved supply cart-road from Dasturi to Matheran Market,
- ◆ and a dedicated horse-trail from Dasturi to Matheran.
- ◆ Pedestrians and horses should be prohibited to use the rail-track as a trail.

The author suggest since years an electric operated and battery energy stored 2 ½ ft NG shuttle-service light weight rail-car with a middle traction module on a dual-gauge 2ft/21/2ft gauntlet track between Matheran and Aman Lodge. On the down-gradient run the energy can be recuperated to charge the batteries. This state-to-the art technology is nowadays available from Stadler, Switzerland, for modern eco-friendly transport environment.

The envisaged **“PEOPLE MOVER”** with a capacity to carry per hour up-to 600 visitors by a two-stage **ROPE-WAY** from Bhutivali/Bhivpuri near Neral with a relay interchange or stop-over station on the lower Garbut-Rim Plateau and further with the Commanding-Valley Crossing to Madhavji Point, and as well the envisaged entertainment facilities will bring additional load onto the already overstrained ecological sensitive zone.

## **I. ACCESS BY ROAD**

Matheran Hill station has been declared as an ecological-sensitive zone. There is no vehicular traffic allowed leaving tourists with limited means of transportation to access to the Matheran Hills. The tourists can travel through road up to Dasturi through vehicles and can

continue the onward journey of 3 km to the hills, by foot, horseback, man pulled cart or by the Mini-Train Shuttle Service. The other alternative is the toy train from Neral via Aman Lodge to Matheran, which is having limited capacity, and for safety reason does not run during monsoon period.

For the social-economic wellbeing of the unique ecological hill-station **MATHERAN** the proper road access up to Dasturi is essential. The Neral-Matheran road access with the risky, steep and curvy section between Jummapatti and the point of entrance to the municipal at Dasturi is mostly in a deplorable state-of-affairs.

There is no proper car-park for the numerous taxis and frequent visitors coming by their own road vehicles, neither at Neral nor at Dasturi. Cars are parked at Dasturi in the forest and even on the trail to Panorama Point; at Neral the Taxis block the roads:



**Risky Road Access to Matheran; mostly in a deplorable State-of-Affairs**



**Visitors parking their Cars in the Forest on the Trail to Panorama Point**



Most urgent are a proper all-season-stable well drained and safe tar-road access, as well as a proper car-park at Dasturi, even if for a proper and stable infrastructure a small part of the forest has to be sacrificed.

Between Dasturi and Matheran-Market there is a steep unfortified cart-road, which turns during rainy season in a mud path and during dry season in a rough and stony dust-fuming trail. Coolies have to take unbearable pain to push up heavy load on their hand-carts:



**Coolies with Hand-Cart and Carrier-Horses on unfortified Cart-Road in deplorable state of affairs**



**Arduous Work for Hand pulled Rickshaw Coolis on rough Cart-Road**

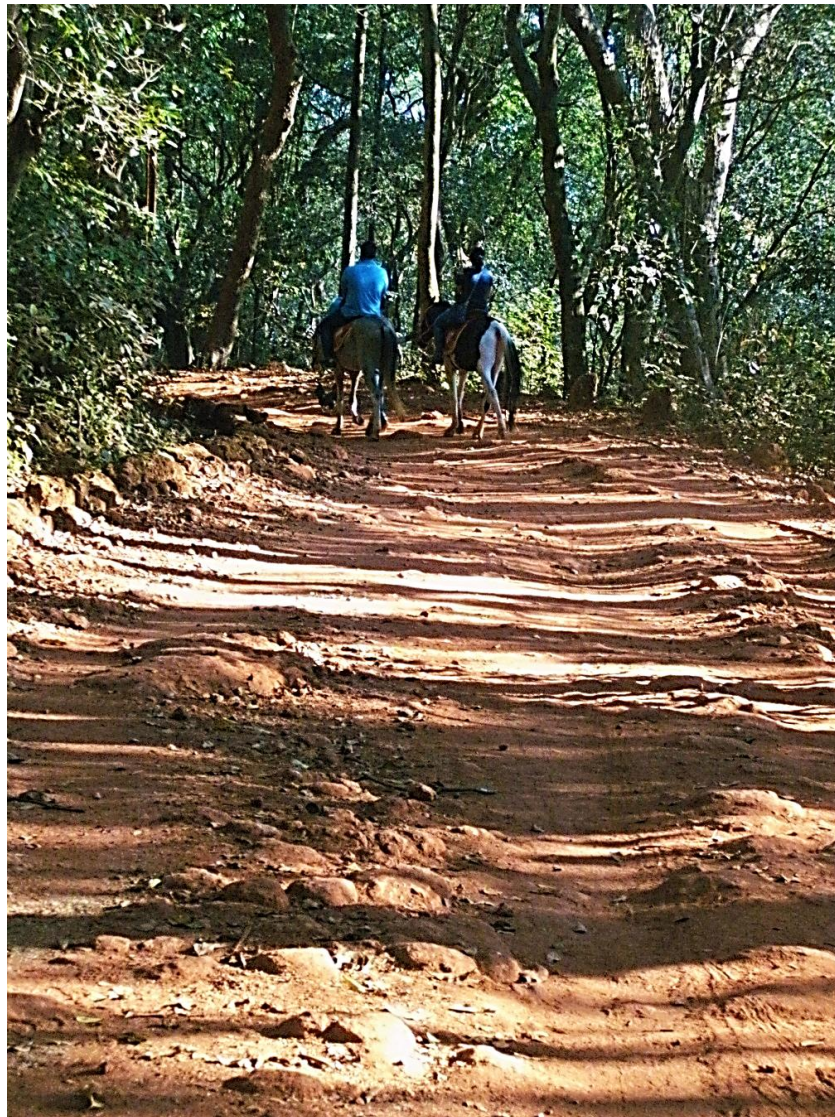
A road stabilisation, which would provide a sturdy pavement resisting the climate situations and enabling an all-season smooth and easy movement of the delivery hand-carts and customer rickshaws should be of upmost priority. Such a stable road could also be used by



pedestrians, who nowadays take their footway from Dasturi to the Market over the rail-track trampling down the ballast and formation and ruining the embankment:



**Pedestrians using the Rail Track along the Abyss as a Trail to Matheran. With Pedestrians walking on the Track it will not be possible to maintain a clean and unfouled Ballast Cushion**



**Unfortified Supply Cart-Road in a deplorable State-of-Affairs**

The horses should be banned from a revamped cart supply road, and an separate dedicated horse trail should be provided up to the Matheran Railway Station. The horse route has to be segregated from the hand-cart and rickshaw route, because the horses will ruin any stable and smooth cart-road pavement.



## II. TRAIN SHUTTLE SERVICE



**2 ft Narrow Gauge Shuttle-Service  
chuckling from Matheran to  
Aman Lodge**



**2ft cum 2 ½ ft Narrow Gauge Gauntlet Track**

Locals of Matheran are of the jugglery opinion, that the shuttle-service with two Diesel Locomotives at the front and rear is profitable for Central Railway. But if one calculates the economy of this enterprise in a professional manner taking in account the investment costs, the annual return of investments, the overall operational cost over the year for rolling stocks, repairs, maintenance of track and rolling stocks, infrastructure and manpower ect. one can easily find out that this shuttle service operates with a big financial loss for Central Railway. The levelled fare of 45 Rupees for one second class shuttle run is far too cheap and is not covering the expenses.

Few years back the author, a frequent visitor of Matheran since 28 years, has suggested to provide an exhaustion and noise free ecological rail shuttle-service with a higher transport capacity on broader 2 ½ ft Narrow Gauge through by means of an electric operated and battery stored energy traction. The broader gauge will be necessary for electric axle-hung traction motors. The Traction module should be arranged in the middle of the train-set with front and rear driver`s cabins of the relevant coaches as the author had designed for the Sri Lanka Econo Rail Project. The retarder energy during down-gradient run can be recuperated to recharge the batteries. The batteries could be recharged in the nights, and if there will by power-failure, through a generator-set. From Aman-Lodge up to Matheran Hill Station the track could be provided as a mixed 2ft and 2 ½ ft gauge gauntlet track. There is only one tight curve below Way-Side Inn, which for the broader gauge and longer coach length could be eased by a bridge over the gorge.

On the so-called modular middle traction **“WINK-Platform”** from Stadler, Switzerland, this state-to-the art battery stored electric traction technology is nowadays available for modern eco-friendly transport environment.



**1 in 87 scale Model of a Light Weight Rail Car designed for the Sri Lanka “Econo Rail Project” with Middle Traction Module**



### III. MATHERAN ROPE-WAY PROJECT

#### - THE UNDERTAKING TO COMMERCIALIZE THE ECO-SENSITIVE BEAUTY OF THE MATHERAN HILLS

Instead to control the ecological tolerable inflow of tourists in order to protect India`s unique ecological sensitive zone, the State Maharashtra plans to get up to 600 passengers per hour to be transported from Bhutivali at Bhivpuri near Neral over the lower Garbut-Rim Plateau directly to the Matheran hill station at Madhavji Point by means of an 21 Mio US \$ investment in the Matheran Rope-Way Project, initiated by the 2012 established Matheran Rope-Way Private Limited Company (MRPL):



**View of lower Garbut-Rim Plateau from Commanding-Valley West Side**



**Ongoing Soil Drilling by FUGRO at MADHAVJI Point**

When realised, with envisaged 200 people carrying Cabins and a length of 1.7 km valley crossing over the Commanding-Valley from the lower Garbut-Rim Plateau to the entry of the Matheran Hill Station at Madhavji Point, the rope-way will become one of the largest rope-way **PEOPLE MOVER** around the globe. The overall vertical rise of Rope-way will be 750 metres from the bottom station level.

Mr. Vinaychand Kothari is the chief promoter of MRPL. Mr. Dilip V Kothari and Mr. Mehernoz Dangore are the Directors of the company and are involved in the execution this project. Mr. Vinay Kothari is also chief promoter of Best Eastern Hotels Ltd. owning the luxury resort: **Usha Ascot** at Matheran. Mr. Kothari has been traveling to Matheran on regular basis for last 25 years, and it was out of his personal experience of last more than two decades, when he visualized the hardship being faced by tourists and local population visiting Matheran. And the idea to provide an alternate mean of transport for Matheran was conceived in the form of a rope-way, which will be noiseless and convenient, even if far more expensive than the travel in a share taxi or by the joy-train.

It is worth noting that this kind of rope-way consists of two types of cable cars being installed first time in India.

The said rope-way would be divided into two sections, which would allow tourists to enjoy two types of cable cars at one place. The first section will be having continuous running service by Mono Cable Gondola's for a length of 2900 m approx. to carry the passengers from the near-by main-line Bhivpuri railway station at the Base Station at Bhutivali Village and further up to the Plateau of the lower Garbut-Rim with an intermediate relay interchange or stop-over station at 545 m above sea level.



**Public Gondola Transport Service; Las Paz, Bolivia**

At the lower Garbut-Rim Plateau stop-over relay-station the visitors will have to change over to the second section to continue the journey crossing the Commanding Valley to the top station at Madhavji Point (approx. 800 m above sea level) by a reversible Jig back rope-way with two large cabins and a length of about 1700 meter.

The Company intends to develop in future the base station at Bhutival Village providing lot of tourists attractions, which includes amusement park, resort, children play area, food court, coffee shop etc.

Once the rope-way will be in service, at Matheran Hills-Station evening and night shows are planned to entertain visitors before travelling late night down.

This is expected to be one of the **“hot”** tourist's destinations for the State of Maharashtra and especially for the population of the city of Mumbai and Pune due to its convenient location.



With its 160 people cabin the Ahorn Rope-way at Mayrhofen, Austria, is presently the rope-way with the largest **People Mover** capacity around the globe, engineered by the Doppelmayr Graventa Group, Austria-Switzerland, the world`s largest and leading rope-way manufacturer with the longest experience.



**Dimensions of the Ahorn Ropeway Hill-Station, 160 ATW, Austria, with a People Mover Capacity of 160 Passengers per Cabin**

For the interchange of stop-over relay-station on the plateau of the lower Garbut-Rim, passenger facilities with reliable water and electricity supply plus an eco-friendly sewage system has to be provided.

A geological survey and a feasibility study will have to give evidence, if the ground of Madhavji Point will be suitable and big enough to cater the Hill-Terminal Station with its rope counter-weights and infrastructures. Several over 100 years old trees have to be sacrificed for this project. **FUGRO**, a renowned global offshore & onshore geotechnical and survey service, specialised in characterisation to manage project risks, which are performed in challenging areas, is undertaking presently the geotechnical ground investigation by taking drilling cores. They found under a 10 meter strata of **LATERITE** layers of **GRANITE**:



**Matheran Laterite**

The Matheran Hills are predominantly covered by Laterite. **Laterite** is a soil and rock type, rich in iron and aluminium, and is commonly considered to have formed in hot and wet tropical areas. Nearly all laterites are of rusty-red coloration, because of high iron oxide content. They develop by intensive and long-lasting weathering of the underlying parent rock. Tropical weathering (laterization) is a prolonged process of chemical weathering which produces a wide variety in thickness, grade, chemistry and ore mineralogy of the resulting

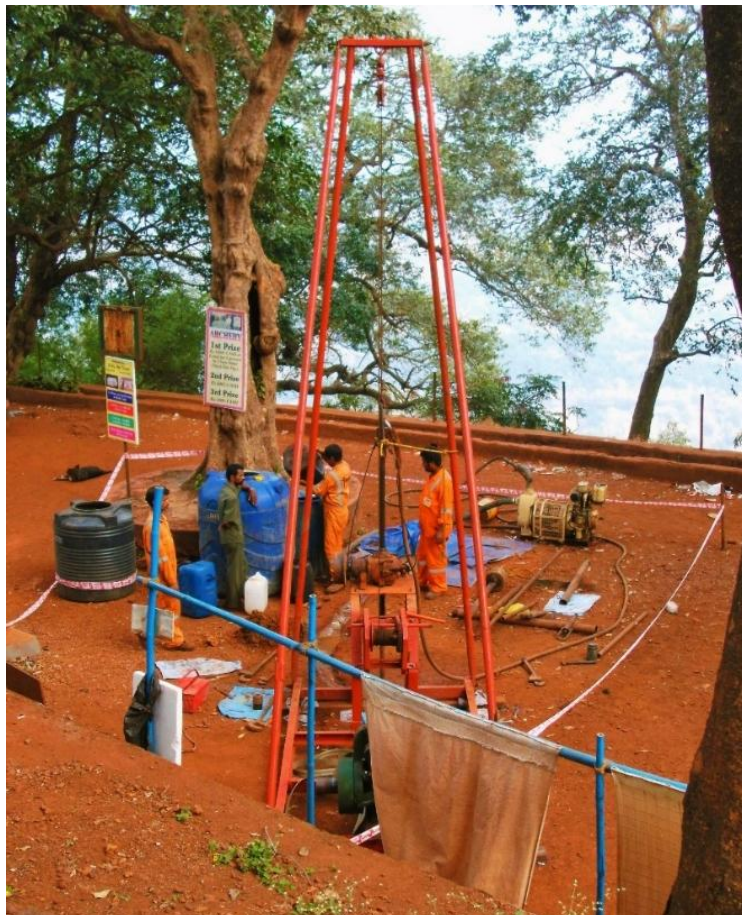


soils. Over millions of years minerals have been washed out leaving a soft, easily to ax porous stone, which is used as building material, so also at Matheran. The Laterite formation retains water supplying the roots of the lush green forest on Matheran Hills with water all over the 9 month dry period. Deep growing roots make the laterite-formation brittle, leading during heavy rain periods to land-, hill-, mud and rock slides. By such slides, in 2004 the village Matheran and the Matheran railway-track faced one of the biggest devastations in recent history.

**Granite** is a common type of felsic intrusive igneous rock that is granular and phaneritic in texture. Granites can be predominantly white, pink, or gray in color, depending on their mineralogy. The word "granite" comes from the Latin *granum*, a grain, in reference to the coarse-grained structure of such a holocrystalline rock. Strictly speaking, granite is an igneous rock with between 20% and 60% quartz by volume, and at least 35% of the total feldspar consists of alkali feldspar, although commonly the term "granite" is used to refer to a wider range of coarse grained igneous rocks containing quartz and feldspar.



**Granite Layer Samples drilled from 10 meter depth; at MADHAVJI Point**



**Geotechnical Ground Survey; Drilling of Rock Samples**



The envisaged rope-way **PEOPLE MOVER** with a capacity to bring 500 to 600 tourists per hour to the narrow Matheran Garden at Madhavji Point will overstrain the present infrastructure. It will have a high impact on the ecological sensitive zone. With difficulties the municipal manages to clean-up daily the garbage and litter thrown all over and around by the daily visitors, not used to keep India clean and having no sense for a clean eco-sensitive nature:



**Garbage thrown by Matheran Visitors at Khandala Point**



**Garbage left by Matheran-Visitors on the Trail to Panorama Point**

Matheran has no proper waste recycling system or safe garbage dumping area. There is no organized sewage system. The big hotels are used to discard their sewage untreated into the valley. Water and electricity supply is a severe problem. The menace of the stray dog population, fed by visitors, is not under control. The project will lead to a **COMMERCIALIZATION** of the eco-sensitive beauty of the Matheran Hills and disturb the calm atmosphere.

The spate of horses at Matheran has already a devastating ecological effect. The horse-urine let trees to wither. In a wide areas around Matheran villagers increase the grass



production for horse food by burning scrub jungle and bushes. This problem will increase with the realization of the people mover.



**Villagers carrying grass for horses from down the Valley up to Matheran**

During dry period from mid of October to June, the numerous horses stir up the eroded laterite dust from the cart-roads and trails polluting severely the air in this eco-sensitive zone. Even in a distance of 50 meters from the trails and cart-roads leading to the points, foliage are stained with the red dust. The red dust penetrates into the clothing's of the visitors and into their respiratory organs. Hotels and shops have to clean regularly their premises from this stirred-up red dust:



**Foliage stained with red Laterite Dust stirred-up by Horses**



During the construction period of the **ROPE-WAY PEOPLE MOVER** severe disturbance has to be expected. Construction materials and equipment's have to be transported by **HELICOPTERS**. On the Garbut Plateau there is NILL Infrastructure and NO road access. This point can be reached only over a tight foot trail.

Compare: **ENVIRONMENT IMPACT ASSESSMENT REPORT FOR “MATHERAN PASSENGER ROPE-WAY”** AT Village – Bhutivali, Tehsil: Karjat, District – Raigad, Maharashtra. Prepared By: M/S PERFECT ENVIRO SOLUTIONS PVT. LTD. NABET Registered Vide List of accredited Consultants organization/ Rev 54/5th June 2017 at S.No.- 113) 5th Floor, NN Mall, Manglam Place Sector 3, Rohini, New Delhi Email: info@perfectgroup.com; Phone: 011- 47528467.