

ENVIRONMENTAL ACCOUNTING OF ECO-TOURISM: A CASE STUDY OF MAHABALESWAR - PANCHGANI HILL STATION (MAHARASHTRA)

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ABSTRACT

Tourism improves the growth prospects of the developing countries. The local economy of the tourist places remains absolute as compared to other nearby markets. Travellers' visit to eco-spots is an extraordinary additional interest of the tourists. They visit the places for spending extravagantly, since it provides joy and recreation to them, but it renders threat to the local people. The tourists mainly visit to spend money. The market at such places becomes buyer's market. The tourists' market is not congenial to the local people. Strong sustainability (environmental considerations) may not be considered at this point, since the eco-tourism places can not remain non-used; the trade off with weak sustainability (economists' considerations) is needed with proper remedies. The fixed income earners or the salaried class is disinterested to settle or accommodate at such places. They prefer to accommodate in the nearby semi-urban or village areas.

Key words: *ecotourism, environment, eco-attraction, carrying capacity, conflagration, deforestation.*

JEL classification: *Q 56, Y 10, Y 20,*

INTRODUCTION

Industrialisation during the late Twenties stressed the workers and the entrepreneurs and brought in the tensions and troubles to them. Hurries and worries became the routine exercises. Consequently, comforts and leisure became the indispensable part of the usual life of the common people. Economics of comforts and leisure became the part of the routine life activities. Visits to an eco-tourism spots not only amuse the people, but helps to nurture the productivity and efficiency of the workers and the entrepreneurs along with the growth of the local and regional economies. Nature conserves its temperaments for the survival of the living organisms

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together with the human being. Nature provides greenery to the eyes of the bothered workers and entrepreneurs, clear air and water to all, agility to the minds of the aggrieved workers, poetic mind to the literary personalities, distinct happiness to the tired minds, and food and fuel to innumerable.

Tourism improves the growth prospects of the developing countries (www.iate2009.org/conference, 2009). The local economy of the tourist places remains absolute as compared to other nearby markets. Travellers' visit to eco-spots is an extraordinary additional interest of the tourists. They visit the places for spending extravagantly, since it provides joy and recreation to them, but it renders threat to the local people. Visitors make their mind to spend on leisure and the comforts at the tourist places. Expenditure of the tourists leads to greater demand for various local products through direct, indirect and induced effects including input-output areas and linkages, which leads the industries to produce those products sought after by the tourists. In order to comply with this, the producers employ more inputs of production. An exhaustive use of the local resources is generally observed at such places though, the rate of employment increases with extension of the tourist spots. The demand for the inputs of production leads to pay higher wages to make those inputs move between the industries. However, the carrying capacity of the spots should not surpass the limit. Otherwise tragedy of commons grows. Eco-tourism is a boon and bane to the local economies and the local environment.

It is assumed that the local people will get employment opportunities. Besides, the micro enterprises by way of self-employment will also go up, but the local economies experience a typical mode of transactions; which can not be observed in other general local markets. Leisure economics works better for the people who visit such places, but the non-business inhabitants or the residents experience varieties of threats and discomforts. To restore cost of the local distresses, some inhabitants may coerce to fall on money making business. They may be making a delightful business. The businessmen and entrepreneurial class will live to tell the tale at such places. The consumer market becomes costly to the populace, who have no relations with the trade or business relations at the tourist places. The tourists mainly visit to spend money. The market at such places becomes buyer's market. The tourists' market is not congenial to the local people. In fact, they try to make money irrationally, which is ethically not correct. Strong sustainability (environmental considerations) may not be considered at this point, since the eco-tourism places can not remain non-used; the trade off with weak sustainability (economists' considerations) is needed with proper remedies. (Prodyut Bhattacharya and Smriti Kumara, 2003) The ethical values in the local economies collapse. At the cost of distresses the residents started to make money. The family budgets and the family pleasures vanish. The fixed income earners or the salaried class is disinterested to settle or

accommodate at such places. They prefer to accommodate in the nearby semi-urban or village areas. A case study of Mahabaleshwar; a hill station in the Western Ghats in Maharashtra (India) was tested with this hypothesis. The environmental, ecological and resources degradations are also assessed.

OBJECTIVES OF THE STUDY

The study earmarks the following objectives;

1. To study the degree of threat to the local economies caused by tourism.
2. To study the environmental degradation caused by the tourism.
3. To study the economics of tourism.

ABOUT MAHABALESHWAR

The Maharashtra state in India is having more than 100 tourist spots. It includes eco-tourism spots and hill stations also. With the growing participation of the visitors, the ecological values of the spots are being mislaid due to the public interaction with the nature and the exploitative attitudes of the general masses. Such spots are under the grip of environmental degradation, un-cleanliness and all types of pollutions around it. (Mahabaleshwar Municipal Council, (MMC), 2006-07).

Mahabaleshwar is a beautiful lush green plateau cuddling in the midst of Sahyadri mountain ranges. It is settled at the height of 1372 meters in the Sahyadri mountain range, Mahabaleshwar is 120 km south of Pune in Maharashtra state. It is a hill station and would make a wonderful get away from the hustle and bustle of the urban life. There are many fascinating places to see in Mahabaleshwar. The drive through the mountain ranges is a breath taking experience. Mahabaleshwar has more than 30 sightseeing points, a sumptuous treat for tourist. Equipped with serene lakes, gurgling falls, high peaks, scenic rivers and green forests, the hill station of Mahabaleshwar let vacationer enjoy activities like fishing, nature viewing, nature photography and trekking at extreme. An average rainfall in the spot is around 1900mm for 120 days of rainy season. The maximum temperature of Mahabaleshwar remains at 23 °C and the minimum temperature are at 13 °C. The population as per 2001 is 14223. The number of bungalows and houses was 1540.

PLACES OF INTERESTS

Points of Mahabaleshwar: Several of the naturally beautiful points constitute the best attraction for nature lovers. Popular for being spectacular, points like Hunter Point, Kate's Point, Wilson Pint, Malcolm Point and Marjorie

Point are great place to enjoy nature viewing; nature photography and hanging out with close ones. (MMC, 20006-07).

Mumbai Point: Famous for horse riding and horse performance, visit to Mumbai Point is joy for children as well as adult. The panoramic view of sunset is must visit for nature lovers. Due to presenting amazing sunset beauty, the place is better called as Sunset Point.

Arthur's Seat: Named after the famous British actor Arthur Mallet, Arthur's Seat gives a very beautiful picturesque. The amusing fact behind it has that wind under the hill returns everything you fling. Better, you try yourself by flinging your hanky.

Venna Lake: The Lake is a very ideal place to spend your evening. Located on Mahabaleshwar-Panchgani Road, Venna Lake is crowded in the evening.

Mahabaleshwar Temple: The hill station derives its name from the Mahabaleshwar Temple's name. The Shivling of the temple is result of natural formation and is approx 500 years old. Hardly does any traveller wish to forget visiting this temple dedicated to lord Shiva.

Lakes of Lonavla: Considered to be the lake district of Western India, Lonavla has many of lakes which are tourist fascination. Though all these lakes are artificial but many of its like Tungarli Lake, Valvan Lake, Lonavla Lake, Monsoon Lake, and Pawna Lake are very pleasant for nature viewing and spending leisure.

Panchganga Mandir: Located on the confluence of five rivers-Krishna, Gayatri, Savitri, Koyna and Venna, Panchganga Mandir like Mahabaleshwar Temple calls most of the tourist.

ECO-ATTRACTION AND ECO-TOURISM

Being an egotistical part of Sahyadri range of hills, Mahabaleshwar is blessed with stunning natural beauty. It is being attracted for eco-tourism. Presence of many of its breathtaking points, rivers, lakes and falls and green forests are origin of many natural sightseeing places. Discovered as summer capital of Old Bombay Presidency, this hill station offers eco-travellers many excursion and eco-activities to indulge into. Popular points of Mahabaleshwar like Hunter Point, Kate's Point, Wilson Point, Malcolm Point and Marjorie Point present a stunning beauty of natural panorama. These points give a spectacular view of Pratapgad Fort and peak like Makrandgad Peak. Watching sunset at Mumbai Point, better called as Sunset Point is an unforgettable experience as the point portrays a very scenic beauty of sunset. Nature screening and taking a stroll with spouses near the lakes like Venna Lake, and waterfalls like Lingamala, Chinaman and Dhobi constitute the best moment of visit to this hill station. Mahabaleshwar has also a 9 hole golf course inviting golf lovers to try for

their hand. The famous Pratapgad Fort of the great Maratha warrior Shivaji is short drive from Mahabaleshwar.

Some of the spatial features of the eco-spot are given below (Govt of Maharashtra, Tourism and Entertainment, 2003).

A. Area of Mahabaleshwar-Panchagani Region	= 237.28 sq. kms
B. Of the above	
(1) Mahabaleshwar Municipal Area	= 19.55 sq. kms
(2) Panchagani Municipal Area	= 6.16 sq. kms
(3) Gaothans outside Municipal limits	= 0.95 sq. kms
C. Residential Zone outside Municipal limits	= 1.66 sq. kms
D. Forest Zone	= 123.96 sq. kms
E. Green Zone	= 83.72 sq. kms

The climate is not very scorching, and lingers pleasant throughout the year. Best time to visit this place is September-May. Mahabaleshwar is 250 km from Mumbai. Mahabaleshwar has a number of generously sized bungalows of the British era. Mahabaleshwar is a combination of eco-tourism, wildlife tourism and hill station. The jungle is thick and houses wild life like; foxes, jackals, deers, bisons and wild boars. The forest also contains priceless medicinal trees and plants. The air is pure and contains around 20% oxygen.

The hill station was established as health resort in the year 1829. It was also used to house the Chinese and Malay convicts. It was those convicts who started the cultivation of red potatoes, strawberries and other fruits. They also cultivated bamboos and introduced cane baskets. There are many recreational facilities available in Mahabaleshwar like; Sir B.D. Petit library, Hindu Gymkhana, Boating in Venna Lake, Bird watching, horse ridding and photography. The population of the city was 14737 during the 2001 Census. There is an addition of 300 every year, while the death rate is around 50 per year; so, there is a net increase of 250 every year. (GoI, 1998).

NUMBER OF VISITORS

The first European traveller visited the Mahabaleshwar in the summer of 1824. In 1828, the King of Satara left his command over the Mahabaleshwar and it was handed over to the East India Company established by the Britishers. It was engulfed with the Satara district since then. The Governor of Bombay Presidency introduced number of developments in the location. Under his rule, the Mahabaleshwar was developed as a hill station. Since then, it has been developed as a tourist place and as a hill station. Heavy rainfall during the season washes the surface soil heavily keeping the

mountainous peaks weak and sliding down later. The number of visitors during the season remained at around 9 to 10 lakhs. (See Table 1)

Table 1
Number. of Visitors during the peak period

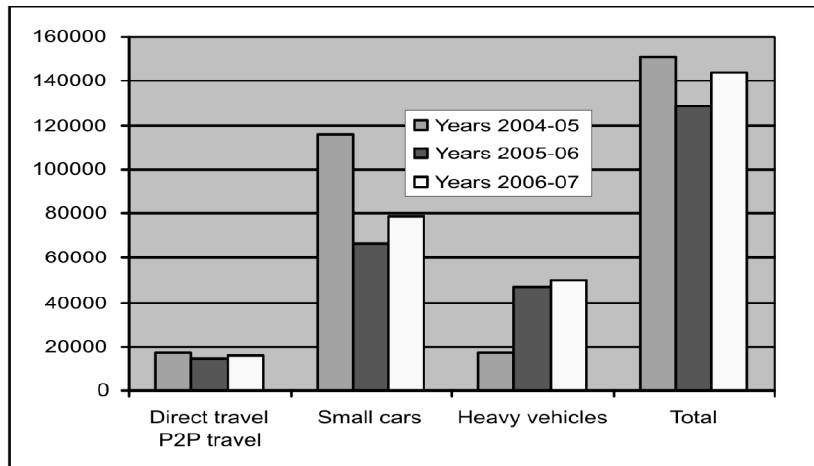
<i>Month</i>	<i>Year</i>		
	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>
March	60177	63775	53799
April	710089	701196	742022
May	140150	158129	109587
Total of peak period	910406	916500	965408

NUMBER OF VEHICLES

Mahabaleshwar is located at hill top of the Sahyadri mountain ranges. There are motorable roads developed by the Govt. Panchagani is another plateau nearby, where the educational institutions and other govt offices are located. The number of vehicles coming to the Mahabaleshwar during the peak period remained at around 1.5 lakhs every year. The number of small cars visited to the place is higher than the point to point vehicles used by the travellers. Heavy load vehicles are being used for public transport for passengers and the goods. (See Table 2).

Table 2 and Figure 1
Number of vehicles visited to the place

<i>Type of vehicles</i>	<i>Years</i>		
	<i>2004-05</i>	<i>2005-06</i>	<i>2006-07</i>
Direct travel P2P travel	17275	14753	15830
Small cars	116091	66636	78606
Heavy vehicles	17571	47015	49634
Total	150937	128404	144070



CARRYING CAPACITY

The sustainable per day carrying capacity of the visitors to Mahabaleshwar is from 5000 to 6000. The hotel accommodation has a capacity of 5000 per day and the private breakfast housing places (dormitories) accommodate around 10000 tourists. The carrying capacity is three times more than required. The full form days of the peak season are of 100 days, 165 days with an average response and rainy season days are 100 during which no tourist visit to the place. This period is also known as zero income days.

HOTEL AND PRIVATE ACCOMMODATION

The number of hotels in the city area is 120. There is one Govt guest house. The private breakfast accommodation centres (locally they are known as *Nyahari Nivas Kendra*) are around 10000. The daily carrying capacity is approximately estimated to 15000 tourists. It is three times more than required accommodation.

LOCAL EMPLOYMENT

The gainers of the employment opportunity are the taxi drivers, tourist guides, self employment or micro enterprises, hotels and other accommodation services, horse riders, retail sellers of farm produce like strawberry and ear of corn of maize etc. the taxi drivers earn the net income of Rs. 1500 (\$30) to Rs. 2000 (\$40) per day. The horse riders also earn the same amount of gross income. It is gross because they have to make provision of for their horse maintenances. The hotel boys and waiters earn Rs. 4000 (\$80) to 5000 (\$100) per month, in which the tips accounts to Rs. 1000 and the employers pay ranges from Rs. 3000 (\$60) to 4000 (\$80) per month. Free lodging and boarding facilities are provided to the hotel workers. Large number of inhabitants is illiterate. These people are employed in the strawberry farms and the contract workers in the residential bungalows and seasonal work of putting a bamboo or straw covers or sack mats around the hotels and bungalows so as to protect the residences from heavy rains. But farming is not the main activity due to mountainous topography. The farm community sell the bundles of faggot fuel wood to the hotels and the individual bungalows during the rainy season. More than 3 to 4 per cent of the total population of Mahabaleshwar is engaged in running the pretty retail shops.

INCOME OF THE TOURIST SPOT

The Mahabaleshwar hill station is having a tourist economy. Almost the ninety per cent standard of living of the inhabitants is dependent on tourists' visit to the spot. On an average each tourist spends Rs. 1000 (\$20) every day during their visit. If the number of visitors ranges from 5000 to 6000

during the peak period; then the income of the spot during the peak season remains at Rs. 50.00 (\$1.00) to Rs. 60.00 (\$1.20) lakhs per day. The number of full form days during the peak season is aggregately estimated to 100; then the income for the period goes to Rs. 50.00 (\$1.00) crores for the peak period, while the average days of the season is estimated to around 165 days; during which, the level of income ranges from Rs.20 to 25 crores (\$ 0.4 to 0.5).

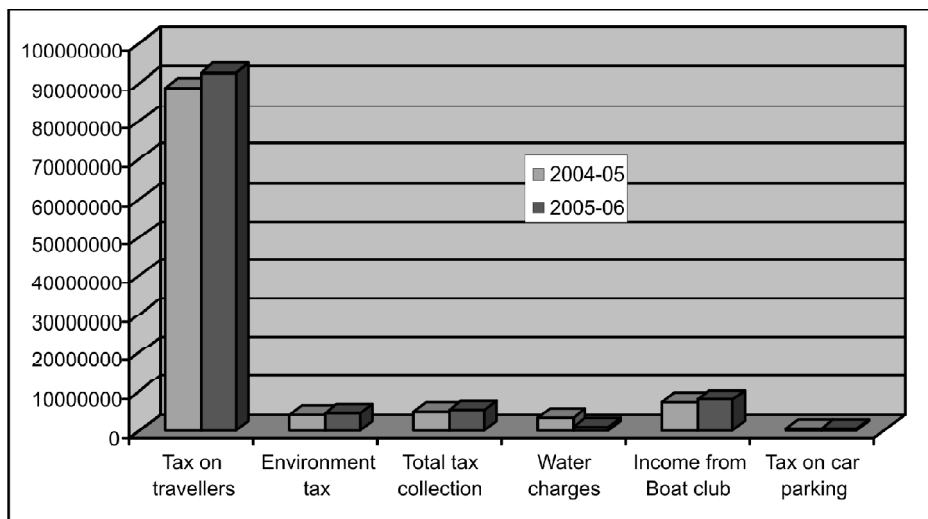
INCOME OF THE MAHABALESHWAR MC

The main income source of the Mahabaleshwar Municipal Council consists of tax on the travellers, environment tax, water charges, income from the boat club and the toll from the car parking etc. Table 3 illustrates the details of income. The income level of the MC is growing with number of visitors.

Table 3 and Figure 2
Income sources of Mahabaleshwar MC

	2004-05	2005-06	Net increase
Tax on travellers	89027010	92513245	3486235 (3.91%)
Environment tax	4113180	4495105	381925 (9.28%)
Total tax collection	4937508	5494987	561479 (11.37%)
Water charges	3473856	743323	3959267 (113.97%)
Income from Boat club	7327890	8001120	673230 (9.18%)
Tax on car parking	381243	486140	104897

Source: Annual Report, Mahabaleshwar Giristhan Nagarparishad, 2006-07.



COMPARATIVE PRICES

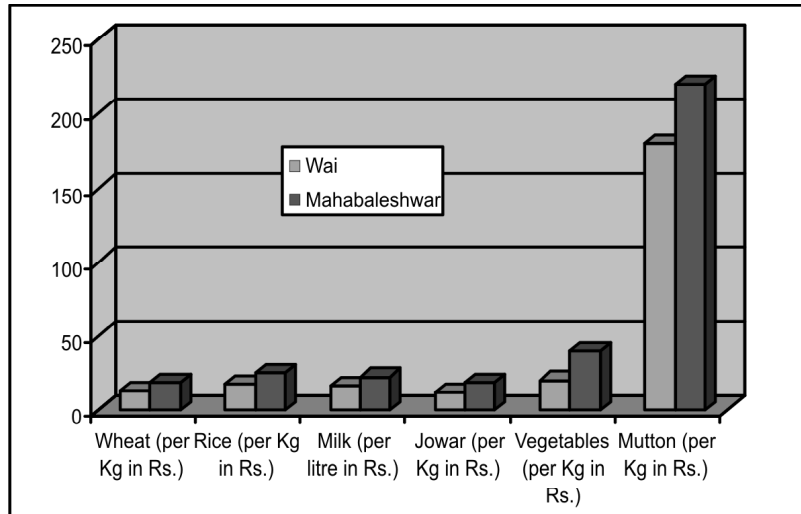
Market is the main centre of transaction in Mahabaleshwar. Every body enjoys the local market. Lavish expenditure of the travellers, obviously, subject to their income levels is higher in the place, because people visit the spot to enjoy; and enjoyment has no limit for spending. An average spending at the spot is around Rs. 1000 per day per person. The comforts and the consumables are the main products sold in the markets. The comparative prices of the products remained at the higher side. The threat to the inhabitants is the differences in the prices of essentials as compared to the nearby markets. (See Table 4). The non-business inhabitants may not encounter these prices. They normally borrow their essentials from the nearby markets like Wai, Satara and weekly markets in the villages. The business people have an opportunity to compensate such higher prices since they are taking the benefit of higher prices. The Govt and semi-govt servants do not stay at the hill station. They stay in the nearby places like, Wai, Panchagani, Satara and the village areas.

The economies of the tourist places are having sellers' and the buyers' markets. Obviously, the transaction takes place speedily. But the local residents have are not satisfied with higher prices for their daily consumptions. When we compared the prices of the selected essential commodities to that of the nearby Wai city market, we observed the difference of Rs. 5 to 6 per kilogram of the vegetables and the other consumables. (See Table - 4) The higher prices are nourishable due higher income earnings. The local people in needy occasions go for the local markets; otherwise they prefer to go to nearby market places for their essentials or for bulk purchases. Every habitat can not go for commercial activities. Obviously, such people suffer due to higher prices in the tourist places. Commercial activities are naturally levied on the settlers. The workers in various tertiary sectors entertain to settle by rent or settle permanently in the nearby semi-urban areas of Mahabaleshwar.

Table 4 and Figure 3
Comparative prices of selected essential commodities in

Mahabaleshwar and Wai markets

<i>Main consumption Items</i>	<i>Wai (semi -urban)</i>	<i>Mahabaleshwar Hill station</i>
Wheat (per Kg in Rs.)	13	18
Rice (per Kg in Rs.)	17	25
Milk (per litre in Rs.)	16	22
Jowar (per Kg in Rs.)	12	18
Vegetables (per Kg in Rs.)	20	40
Mutton (per Kg in Rs.)	180	220



MUNICIPAL WATER RATES

The municipal water rates (drinking water) also differ from the district place Satara city. Satara is bigger city as compared to Mahabaleshwar. Mahabaleshwar is having access of huge rain water during the Mansoon. However, there is an additional burden on the residents of the hill station. Table 5 illustrates the comparative water charges in hill station (Panchagani and Mahabaleshwar) and Satara city. Satara is a district place and the hill station is a commercial place. Consequently, the water charges remain higher at commercial places. It is a kind of income earning strategy of the water suppliers. There is an increase of 11.16% (Rs. 1.25) higher water charges than the charges being paid by the households in Satara city. This increase is Rs 1.90 in the case of higher users of water in the same category, which is again higher by Rs. 3.25 to the higher user of more than 2500 litres per month. There is a progressive increase in the rates for Hill station. The residents have to pay these rates even during the off season of tourist industry. The commercial rates are tremendously higher than the Satara city. This is, obviously, due to the tourist place. But, the hotels and other commercial service providers shift this burden to the service users. The original residents have been compelled to practice the tourism activities so as to comply and sustain the comparative higher prices for their day to day consumption. Consequently, they entertain purchasing from the out side markets or near by markets.

The former household rates were Rs. 10.20 in Satara and Rs. 11.30 in hill station for the first lot of water supply. The commercial rates were 46.20 in Satara and Rs. 50.50 in hill station. The commercial rates have been modernised with stratification into A, B, and C.

Table 5
Water charges in Satara and Hill station (as on 18 July, 2011)

Water use (in litres)	Water charges for household use		Commercial use			Institutional use		
	Satara city	Hill station	A, B, C rates are for Hill station and Bulk rates are for Satara (Rs.)			Satara city	Hill station	
	(Rs.)	A	B	C	Bulk	(Rs.)	(Rs.)	
First 500	11.20	12.45	95.60	76.20	64.10	50.80	21.60	21.60
10501 to 20000	16.80	18.70	143.40	114.30	96.15	76.20	32.40	32.40
20001 to 25000	22.40	25.0	191.0	152.40	128.20	100.0	52.0	52.0
More than 25000	28.0	31.25	239.0	190.0	160.25	125.0	62.0	62.80

Source: Daily Sakal, 18 July, 2011

WATERSHED FUNCTION

The Mahabaleshwar and Panchagani area has a large number of reservoirs like Koyna, Kanher and Dhom. The agriculture in the down Stream of Krishna River depends upon these reservoirs. Koyna project produces electricity also. Hence, the significance of this area as an ecotourism spot is growing. The allotropic form of the ecotourism spots in the region has to be conserved and developed for the interests of the visitors. There are nearby eco-spots which attract the travellers, but it needs to be developed. The load on the Mahabaleshwar can be diverted towards these spots. (Save-Mahabaleshwar Panchagani Association, 2003).

NEED OF EXTENSION

There are two parallels with tourism; firstly, if natural resource extraction leads to low GDP growth levels, does tourism also lead to low levels of growth? As on today the situation in Mahabaleshwar are quite congenial. No decelerating trends are observed. But the quality of comforts and the leisure is slowly coming down. The visitors are worried of this trend in future. Does tourism have something in common with natural resource extraction that also leads to low growth levels? The rate of deforestation is growing. Consequently, the quality of the eco-system is disturbing. The evidence here is to the contrary; none of the really poor performing regions have relied on tourism. Secondly, does tourism partly explain the natural resource curse? Yes, deforestation and the sense of environmental awareness by the localities' are diverted towards the ecological and environmental decay. The temperature has increased by 2-3 °celcius as compared to 1999 temperature. What we don't know and what is something for tourism economics to discover in the future, is: (a) do tourism destinations become tourism destinations

partly because they have no natural resources, and therefore are they part of the solution to the natural resource puzzle? (b) Does tourism increase economic growth, and does it do so more than other industries; and (c) what conditions are necessary for tourism to contribute more to growth than other activities.

The Govt of Maharashtra has perspective planned for the development of the spot. The command area of the spot has been proposed to extend to River Koyana. People are always being attracted by other eco-spots. In that perspective, the Govt has planned to develop the hill station. The New Mahabaleshwar Hill Station (NMHS) development consists of the Govt of Maharashtra's proposed plan to develop the region from Mahabaleshwar to Koyna backwaters / Patan as New Mahabaleshwar Hill Station. (Govt of Maharashtra, 2003) The cost of the project is Rs. 6800.0 million rupees (\$ 139.0 million) as per the base year of 2003. The proposed hill station will be located at 3 hours' drive from Pune airport. Government of Maharashtra has identified the valley comprising of the Sahyadri range as the ridge on the western side and the national highway number 4, as the eastern boundary to be developed as the Lake District of Maharashtra.

The climatic conditions in this region are moderate and pleasant throughout the year. As a part of the phased development of Western Ghats, it has a plethora of historical places, forts and pilgrim centres; MSRDC has initiated the development of the region from Mahabaleshwar to Koyna backwaters / Patan as New Mahabaleshwar Hill Station. The region has been identified so as to cover the most beautiful natural scenic locations, important historic places and thick green plantations. The climate in the region is pleasant throughout the year with the temperature of the area in the range of 15.8 degree centigrade to 31.8 degree centigrade. The main advantage of this region is the proximity to metro centres such as Mumbai and Pune. The gestation period of the project is proposed to be implemented in phases over a period of 20 years. The main source of revenue generation is through sale of land. Other sources of revenue generation are proposed as follows:

1. Water source development and augmentation charges.
2. Drainage connection charges.
3. Out right sale of reservation plots/urbanisable lands.
4. Road connectivity charges.
5. The entry tax for tourists.
6. Development charges etc.

The revenue from all sources except from land sale is proposed to be utilized by the SPC towards operation and maintenance expenditure,

whereas land sale is the major source of revenue for capital expenditure. Pre-feasibility report is ready and is available with MSRDC. The project benefits are estimated below;

1. Impetus to the tourism activity in the state.
2. Generation of additional revenues for the Government.
3. Socio-economic development of Western Ghats of Maharashtra.
4. Enhancement of the living standards of the people in the region.
5. Effective use of the land and natural scenic attractions for the purpose of revenue generation.

Similarly, the tourism and entertainment development plan are proposed. The area near Koyna backwaters is being developed as NMHS. The hill station will be located at about 3600 sq.ft (1200 meters) from MSL. The total area proposed for the hill station is 37263.0 hectares. The identified area is located between Mumbai-Bangalore National highway No. 4 and Mumbai-Goa National Highway No 17. The New Mahabaleshwar is connected to Mahabaleshwar on north and Patan on south. The area has picturesque view and back waters. The landscapes are eye catching and the unique feature of this area is presence of a large number of wind mills on hill tops. Development of eight nodes including a central node with a theme as per predominant land use pattern has been proposed. As per a preliminary market survey carried out through discussions with leaders in tourism industry, architects, planners and policy makers. The entrepreneurs will be interested in investing in tourist activities once the region is developed. On the basis of the market survey, following tourist spots are proposed in the region.(Govt of India, 2001)

1. "Kas - Blanca" Lake Resort
2. "Nisarg" Ecotels
3. "Durva"- 18 hole Golf Course
4. "Tropicana"- Theme Forest
5. "Upchar"-Naturopathy and Healing Centre
6. "Laguna" Beach Resort
7. "Vele" – Theme park
8. "Na'Qua"- Water Park
9. "Star city" – Safari/Jungle Eco tourism
10. "Vidya"- Educational Enclave
11. "Victory" – Sports Enclave
12. "Satfal"- Religious Centre

13. Crafts / Artists' Village along the spine

14. Botanical gardens/ Bio Tech Park

As per traffic studies carried out for the region, the peak tourist traffic at Mahabaleshwar is 25, 000 per day. On the basis of the survey findings it is estimated that there will be peak tourist traffic of 5, 000 tourist per day at each node. Based on this, the estimated peak tourist traffic will be 40, 000 per day.

While doing so we must not forget the following things for future plans.

1. Grazing pressure may go up
2. Demand for fuel wood also may go up
3. Demand for small timber also increase
4. Fear of fire, especially when recurrent
5. Demand for green manure may go up
6. Encroachment cannot be stopped
7. Demand for non-timber forest produce will increase
8. Poaching and smuggling will spread
9. Development projects have to be implemented
10. Land use practices will change
11. Pesticides use will go up
12. Soil erosion and water logging will increase
13. Increase in population density may become a grave problem
14. Pilgrimage may increase
15. Mining and quarrying will gear up

But these discrepancies can be removed through Govt interaction.

A number of programmes are currently being implemented for conservation and sustainable utilization of biodiversity in the Western Ghats. These include survey and inventorisation, *in-situ* conservation through protected area network, and *ex-situ* conservation. In addition, the Government also supports biodiversity-related research in these areas. A brief account of these efforts is given below; (Govt of India, 2002)

- (a) Location of industries is designated as industrial areas or estates as per guidelines drawn up by the Government of Maharashtra as well as the guidelines issued the Ministry of Environment and Forests.
- (b) The non-polluting, non hazardous service industries, units making footwear from processed and ready made leather, floriculture,

horticulture based or agro based industries producing products from indigenous goods from the Eco Sensitive Zone are permitted in this zone provided that these do not result in polluting effluent, emission or impact.

- (c) Quarrying and Mining activities are banned in this area.
- (d) Tourism activities are developed as per a Tourism Master Plan prepared by the Department of Tourism of the State Government in consultation with the Ministry of Tourism of Government of India and approved by the Ministry of Environment and Forests.
- (e) The Tourism Master Plan is based on a detailed carrying capacity study of the Eco-Sensitive Zone, which is carried out by the State Government and the Ministry of Environment and Forests. All new tourism activities, developments for tourism or expansion of existing tourism activities are permitted only within the parameters of this tourism plan or carrying capacity study.
- (f) The local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components. The biodegradable material may be recycled preferably through composting or vermiculture; the inorganic material may be disposed of at environmentally acceptable locations. It is clarified that the term solid wastes include domestic, industrial, commercial and garden wastes.

DEFORESTATION

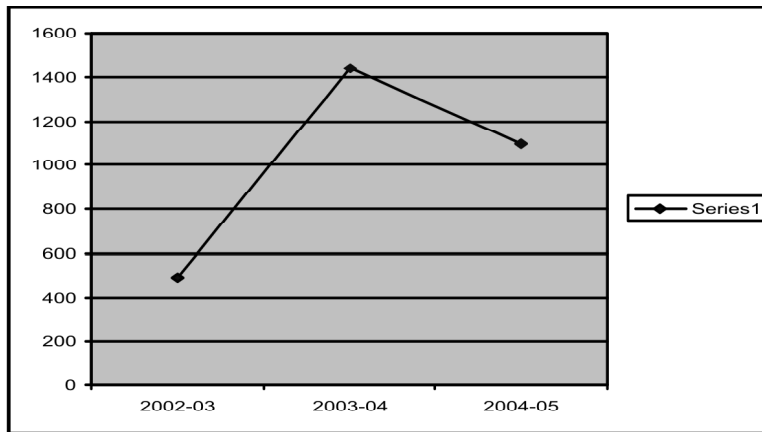
Prior to a couple of years the Mahabaleshwar and Panchagani tourism did not induced to harm environment. The forestry was maintained and survived properly. It was considered as a 'green pocket' of the state. In the last few years over-crowding and over-exploitation have been seriously damaging the ecology and environment that draws the crowds. Most of the public interests and efforts go into making people indulge themselves and spend their money with little thought on environmental protection. Hotels, shops and retail shops are growing to attract the visitors, but the environmental efforts are not visualised in a serious manner. The forests and honey museums have not been publicised effectively. The govt and the public efforts do little to encourage any interest in the environment and ecological. Consequently, the ecological and environmental degradation is on the go. The tourist attraction at the place is environment and the property of the hill station, which should be protected at any cost; otherwise the value of the spot will be lost. Similarly, the interests of the tourists have to be protected. Both these counts have been miserably failed on the part of all institutional set up in the locality. More than 24, 514.01 hectares of land area is degraded and deforestation is seen in around 12, 578.44 hectares.

The Western Ghats is having a very famous ayurveda and medicinal plants. Deforestation has caused to damage all such precious medicinal plants. Sandalwood trees are cut and smuggled by the chain of smugglers.

The Office of Forest Ministry surveys the bottom cut trees every year. The bottom cut stem of the trees are painted by different colours; so as to avoid double counts. The number of such illegal cutting of trees is increasing every year. (See Table 6).

Table 6 and Figure 4
Survey of cut trees

2002-03	2003-04	2004-05
489	1440	1097



The major cause of deforestation is shifting cultivation, in which huge areas of lands are burned down for a miserable kilo of the hill millets, absurdly a meagre return from the millet, of which the value is comparatively less than the loss of timber and biodiversity. The hotel owners in Mahabaleshwar, on 29th March, 1981 have collectively decided to purchase the coal wood from the Govt depots. The people involved in this activity should be awakened for the loss of biodiversity. The necessities of their life should be supplied regularly through collective and institutional efforts. The forests can be saved from these disasters. Because, of the deforestation, the Koyna Lake is silting up much faster than the anticipated; its life is being shortened by this human interaction. The life of the natural assets has to be extended by other measures. The long term investments are essential for protecting this.

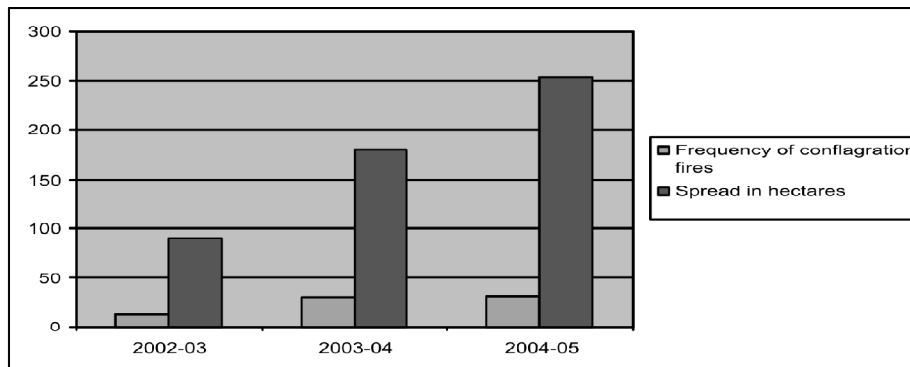
CONFLAGRATION OF FIRE

The number conflagration fires in the Mahabaleshwar and Panchagani area is a routine incident and is growing with the number of visitors. Such bush

fires are ignited by the habituated inhabitants so as to obtain coal from it, which is being sold to the hotels and the individual bungalows for maintaining the rooms warm during the rainy season. The habituated inhabitants are non-workers; who did obtain any work at the spot. The conflagration fires are growing every year creating worries to the institutional organisations. The area under conflagration fires is also increasing. On an average more than 250 hectares of forest land is being burnt every year. (See Table 7) The ecological loss is innumerable. The rare species are totally lost since a decade ago. Satara; the district place of the Mahabaleshwar was very famous for its ayurvedic medicines; but at present the city has lost its heritage in the ayurveda science.

Table 7 and Figure 5
Number conflagration fires

<i>Years</i>	<i>Frequency of conflagration fires</i>	<i>Spread in hectares</i>
2002-03	12	89
2003-04	29	180
2004-05	31	254



The Mahabaleshwar forests are deteriorating steadily due to persistent cutting of branches and young trees by the local inhabitants. Despite all the public excitement of the past few years, the cutting goes on unabated and the local authorities are unable to do anything about it under present Govt policy and the current administrative system.

CRIMES AND ANTI-SOCIAL ELEMENTS

Out of the total crimes more than 80% of crimes are exposed and properly investigated; since, the police know who the criminals are. Out of these, 50% are minor offences. Minor fighting are recorded at the rate of 5 to 10% of the total crimes, 5 to 7% are the theft cases and no killing and rape cases were recorded during the last few years.

WASTE AND GARBAGE

The loss of aesthetic values of the spot is damaged due to waste and unmanaged garbage. The mis-behaviour of the visitors in this regard is the only cause of degradation. The waste collection of the water bottles, tins, liquor bottles and other plastic wrappers constitute to 2.50 – 3.50 tonnes per month during the peak period.

The growth of India's consumer class, combined with increasing access to private and public transport, has led to damaging new tourist developments. Problems include the clearance of natural vegetation for hotels and facilities, the cutting of trees for fuel wood, increased pressure on water and electricity resources, pollution from vehicles, overcrowding and litter. These are serious concerns, due to the fragility and ecological importance of the forest and scrubland in the region. The character of Mahabaleshwar in particular has also changed, from a tranquil place for relaxing and appreciating nature to a busy commercialised resort. (T. Woods, 2005)

ROLE OF THE GOVT

A comprehensive plan for the development of Western Ghats is made by the Govt of Maharashtra. The State has formulated an integrated plan, in which there is a plan of developing the Mahabaleshwar-Koyna region. For the effective implementation of it we intended to suggest that;

1. There should be a Special Officer on duty to develop the reforestation and protection plan and its implementation, which can also look into the ecological and environmental development of the region along with watershed development function. Co-ordination of work at all infrastructural levels can be done this officer on duty. The initiation of the private institutions and the NGOs may be promoted for this work.
2. New species of plants suitable for the ecology can be developed through R & D programmes. The universities and the collages may be encouraged to undertake such research works. Similarly, the social scientists may be involved in the awareness programmes.
3. Use of wood and wood products should be banned. The enforcement of the existing forest laws should be implemented seriously. The concerned institutions and the organisations are required to be empowered and supported by the community and the commons. The required wood and coal can be supplied through fair price shops. No private sale of such things should be permitted.
4. The hill stations and the reserved forests should have a watching and supervising mechanism developed carefully. The extension plan for its development can be done on the priority basis.

5. The tourist information centres and the guides working in the field may be encouraged to create awareness and appreciation programmes to comfy environment and ecology of the hill station.
6. Environmental showrooms and museums can be established at the prominent places, so that a good number of tourists will get attracted towards the eco- spots.

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