



AN ECOLOGICAL CRITIC OF THE DEVELOPMENT PARADIGM AS MANIFESTED IN RAJAN COMMITTEE'S COMPOSITE DEVELOPMENT INDEXING AND SOME RECENT RELEVANT DEVELOPMENTALIST LITERATURE

Sandeep Banerjee

sandeepbanerjee00@gmail.com

ABSTRACT

Nowadays, policy makers swear by “Sustainable Development” and air that development must go hand in hand with environmental conservation. But when it comes to development discourse and policy making, environmental considerations, often, do take backseat; rather their absence can be felt. In September 2013 the report of the Raghuram Rajan Committee was tabled. This committee suggested indicators of the relative backwardness of the States for equitable allocation of Central funds. If that “composite development index” and its methodology are examined it can be seen that ‘development’, as depicted there, does not take into cognizance the environmental degradation and the

consequent looming crisis. Then, in the draft proposal for the imminent tax regime in India, the GST, the theme ‘Environmental Degradation’ and Pigouvian taxes to confront that were conspicuously absent. The same is true for the development roadmap prepared by Mc Kinsey for India. Those literatures depicted ‘development’ in a way that is tantamount to environmental degradation. Consequently, such ‘development’ leads to jeopardise the very existence of those for whom ‘development’ is supposedly planned. Therefore, it is necessary to develop an alternate development index with ecological footprint embedded in it; moreover, environmental ethics education for our future economists is of paramount importance.

INTRODUCTION

Ruining ecosphere and Nature by economic developmental processes was vividly positing themselves in the second half of twentieth century when economic affluence was also flamboyantly flaunting itself in the post-war boom phase. This grave contradiction was behind the creation of the Club of Rome and its activities, the chalking out of Our Common Future and the formation of UNEP in the late 1960s and early 1970s. Sustainable Development has since then become a catchword.

India took a memorable role in the first ever international conference regarding environment and development. And since then Indian

statesmen and particularly the Heads of the State repeatedly reminded the policy framers their role in safeguarding the narrow space called ecosphere where all life-forms inhabit. In the turn of this century, H.E. K R Narayanan warned in his 2001 Republic Day Speech, “Let it not be said of India that this great Republic in a hurry to develop itself is devastating the green mother earth and uprooting our tribal populations.”[1] And this year, H.E. the President addressed joint session of both houses of the parliament saying, “While putting the country on a high growth path, my government will keep sustainability at the core of our planning process.”[2]

It is not that our eminent economists, development planners and policymakers in



LAKE 2014: *Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats*

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

general do not know the necessity of 'sustainable development' or 'conservation of nature' or it is not that they are unaware of the severe environmental degradation, which each day is becoming severer. But when they take up planning process or themes that can indirectly affect environment and/or Nature, surprisingly, many a time, they exclude this yardstick, which in turn, indirectly, fuel a public discourse on development that is oblivious of this vital perspective.

This paper wants to examine in brief a few development discourses and/or embedded viewpoints, which, we want or not, are going to exert much influence on our lives and on Nature in near future. In a bit detail the Composite Development Indexing system of the panel led by RBI Governor Raghuram Rajan will be examined vis-à-vis effects of this 'development' on human beings and Nature. Then, the Mc Kinsey blueprint for development of India will be taken up for a very brief critical study. Lastly the issue of non-inclusion of much-talked-about Polluters Pay Principle or Pigouvian taxes in the draft proposal for the upcoming Goods and Service Tax (GST) regime will be raised. Before that, here is a brief introduction for the abovementioned three literatures.

It can be assumed that Rajan's Index will be a guideline for the union government for allocating central funds to states for 'development'. Previously, development or underdevelopment was measured monochromatically or based on a single economic measure – GDP. How much is the GDP and what is the quantity of GDP per person gave idea as to how much progress had been made or how much to strive for a 'better future'. In the second half of the past century, when 'inequality' became a vibrant issue in academic discourse, GDP, GDP per capita etc were supplemented with inequality measures in income and wealth (like Gini coefficient). Later, the concept of 'Human Development' came to

limelight, where issue like health and education were also taken into consideration, not just 'income' alone. Side by side, the gender question was also acknowledged institutionally and Gender Inequality Index was also developed. In their report: "Report of the Committee for Evolving a Composite Development Index of States" submitted in September 2, 2013 [3], the Rajan Panel tried to present an integrated or composite whole of social parameters in development indexing which includes Quantum of Backward Population (like Scheduled-Castes/Scheduled-Tribes), Infant Mortality, Female Literacy Rate, % of household with Amenities (like drinking water connection at home, electricity, sanitation, banking facility, etc), Connectivity (different types of roads & railway), Urbanisation etc. This way, it developed a composite development measure with several parameters connected with the lives of citizens. It may naturally be argued that in the view of the members of the committee this list of parameters chosen is exhaustive. Now, the nature and relation of these development parameters with parameters of degradation of Nature needs to be examined.

Mc Kinsey, as their website says, is "the trusted advisor and counsellor to many of the world's most influential businesses and institutions". They advise many First-World governments including that of the United States of America, and the Left led Govt of WB (1977-2011) also appointed them as a permanent counsellor for industrialisation in 1999. They develop development policies, business policies etc for their client governments. In February 2014 they published "From poverty to empowerment: India's imperative for jobs, growth, and effective basic services" [4]. They introduced a program that would purportedly help India accelerate her performance now, after two decades of liberalisation. Citizens of India may thank them for contra-posing "Empowerment Line" vis-à-vis the "Poverty Line" which (the



LAKE 2014: *Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats*

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

latter) only shows abject poverty or survival-minimum and not what a citizen needs for a decent life in this twenty-first century. They boldly stated, “The Empowerment Line reveals that 56 percent of India’s population lacks the means for a minimum acceptable standard of living” and calculated, in “business-as-usual” scenario, “some 470 million people, or 36 percent of India’s population, would remain below the Empowerment Line in 2022 and as much as 12 percent would remain below the official poverty line”. They prescribe a higher GDP growth rate, almost 85% higher than what they term, ‘stalled reform’ phase, that is present phase. But how that development envisioned by them is related to Nature is a question that naturally is very crucial for everybody.

The GST regime is waiting in the wings for some 5 years. In 2009, the then Finance

METHOD

Data used by Rajan Committee could be available, thanks to Prof Bharat Ramaswami for making public the dataset [6]. Other data regarding it could be availed by the Finance Ministry website [7]. Related economic and environmental datasets were acquired from the World Bank resource [8]. Data regarding

RESULTS & DISCUSSION

The overt and also unsaid rush for growth and resulting environmental degradation was the central theme of the now famous publication for the Club of Rome: Limits to Growth [16]. There they repeatedly highlighted the ‘exponential’ nature of growth and the resultant dilapidation. They suggested conscious de-growth as the necessary step. Though the authoring group and the name of the publication became a commonplace jargon, what was said by the celebrated Club remained obscure in man development treatises of economists today. Sustainable development was pledged, we got development as 1 to 1 correlated with

Minister, who happens to be the President of India now, announced in the parliament that a single and simple tax system GST would be introduced and would be placed for the discussion soon. GST will replace the VAT. The designated committee placed the first draft of it for discussion in 2009 [5]. As India did not have any comprehensive Environmental Tax system, positive or negative, apart from in a round-about or unsaid ways like coal tax, quicker depreciation rate for greening or greener technologies etc, it would not perhaps be a great expectation to see environmental taxes incorporated or embedded into the GST frame. These three discourses are very important as these will influence, in one way or other, the Natural scenario and life in India.

environmental and other effects were acquired from accredited academic sources and peer reviewed journals apart from resource base of international institutions [10-15]. Simple and standard statistical calculations that can easily be done in spreadsheet were used for the sake of simplicity and brevity of this treatise.

degradation, and the exponential growth is still threatening in many aspects.

We have seen the Gross Domestic Product (or Gross National Income) centric approach and the Human Development approach of development measurers and planners. If GDP or GNI per capita in PPP (purchasing power parity) dollars is plotted against tons of CO₂ emitted per person, then the straight line trend is obvious. This is shown in Figure 1. As Figure 1 reveals, the rate of increase of per capita CO₂ emission with respect to rising income is slowing down only very marginally over years; the change in post Kyoto decade, that is 1999 –



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

2009 is visible in Figure 1. (Rate roughly decreased from 0.000385 ton/ppp\$/person to 0.000278 ton/ppp\$/person, i.e. roughly 27% in that decade; but as income and also population are increasing the net load is actually increasing.) But, as HDI, by definition, is related to logarithmic value of Per Capita Gross National Income [see Figure 2A], so the linear

increasing relation between per capita income (or 'development') and per capita CO₂ emission appears not that menacing, looks gentler, if CO₂ emission is plotted against HDI as shown in Figure 2B. In every graph showing some trend the correlation co-efficient modulus value R, i.e. |R| is given.

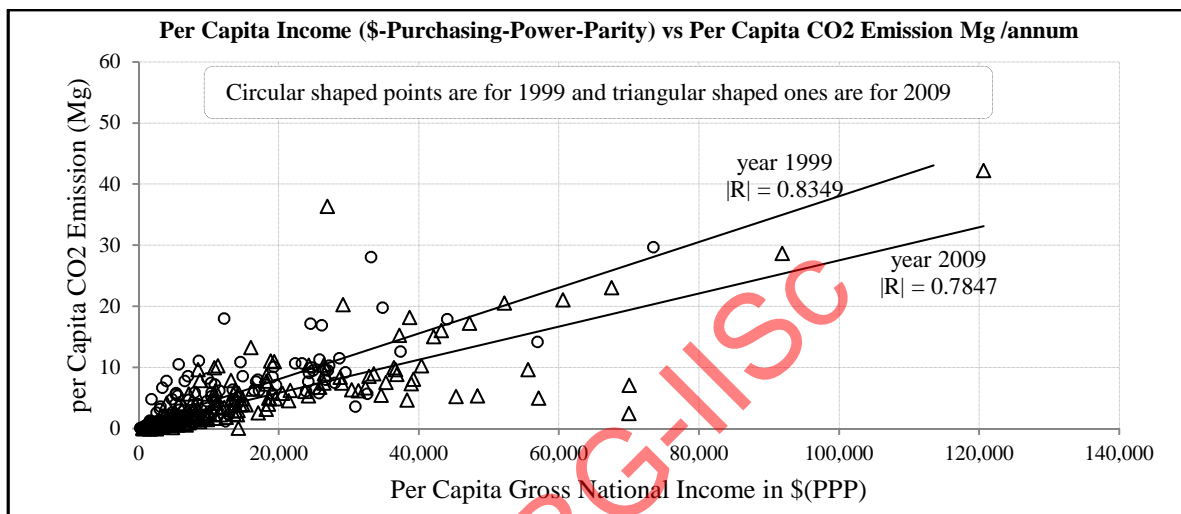


Figure 1

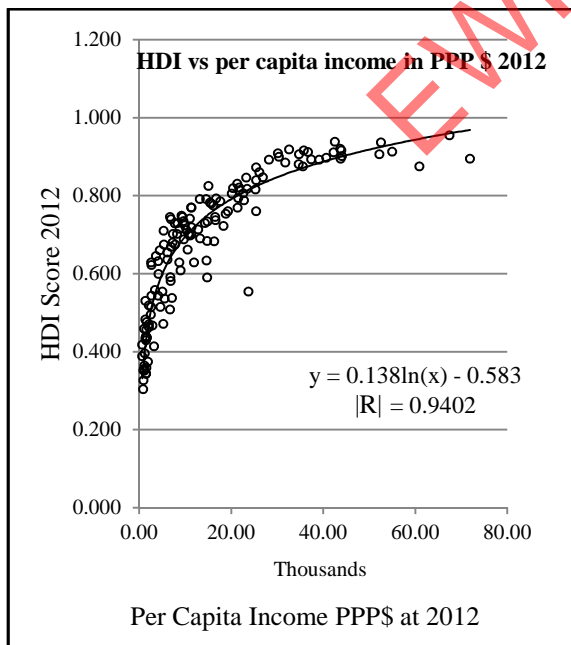


Figure 2A

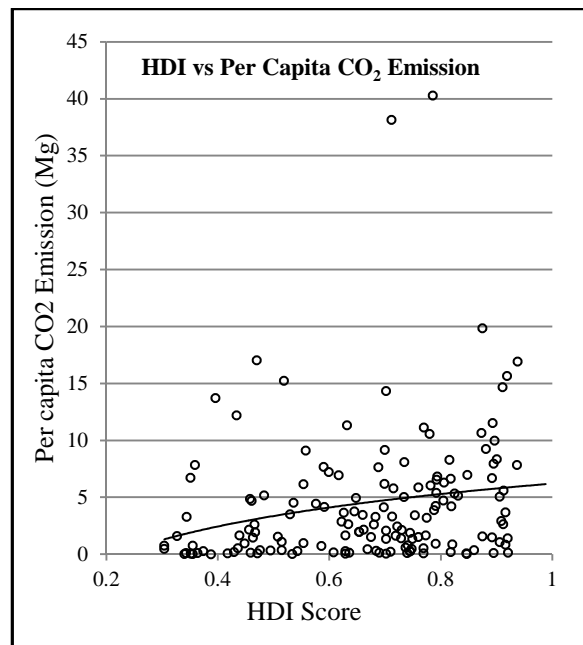


Figure 2B

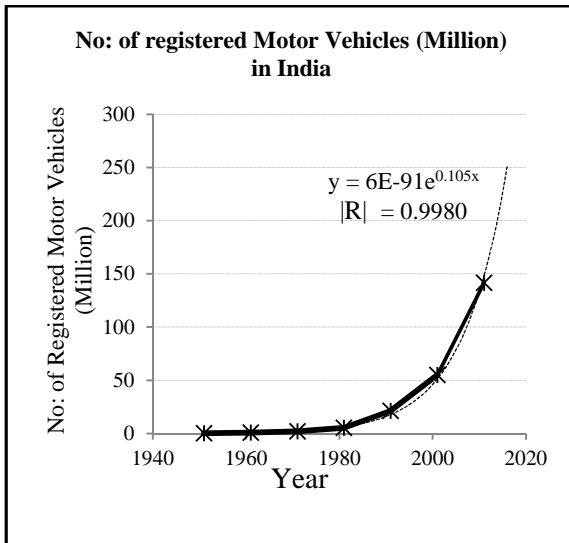


Figure 3A

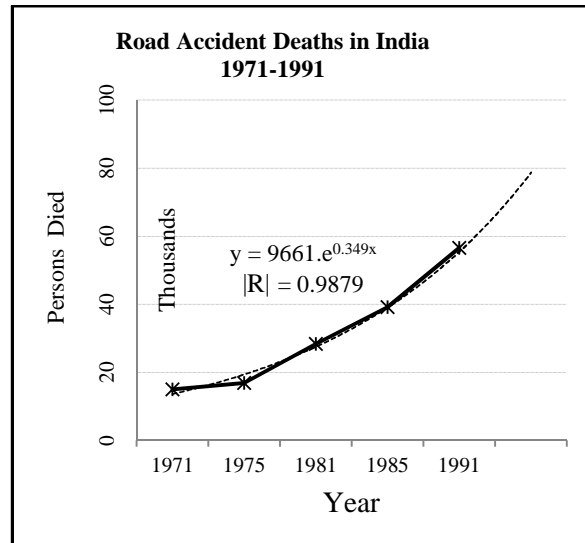


Figure 3B

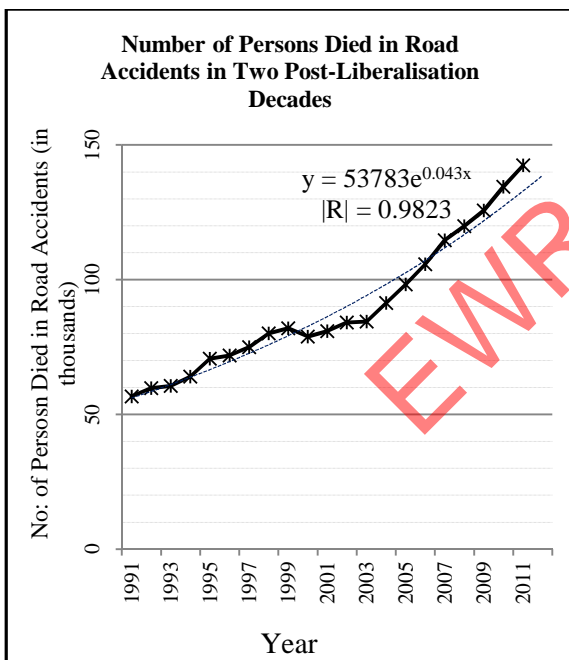


Figure 3C

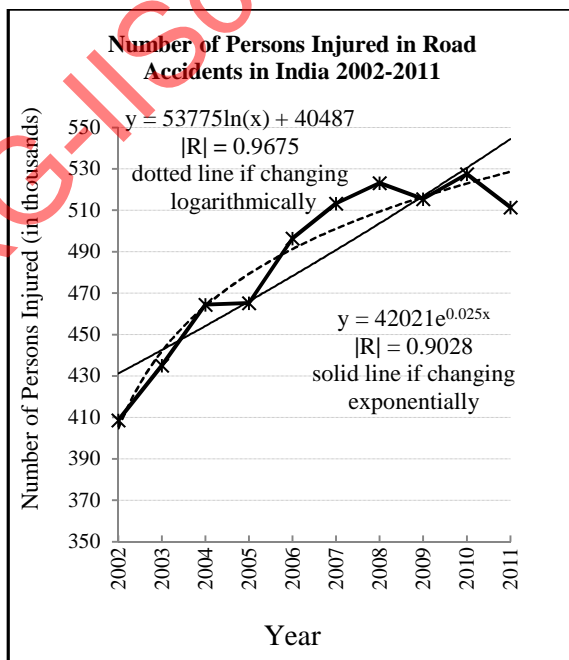


Figure 3D

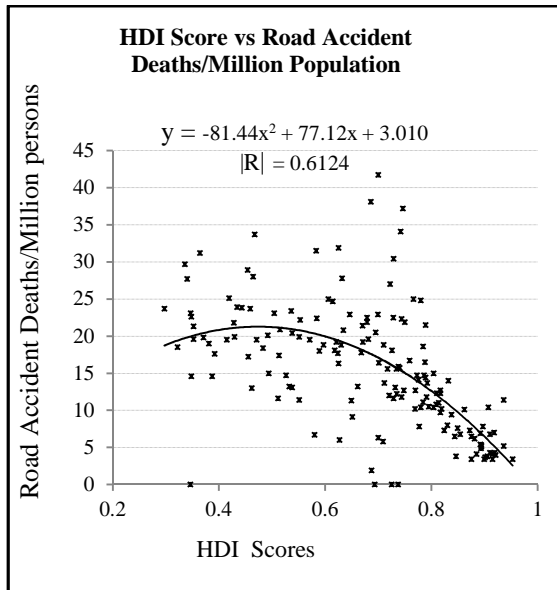


Figure 4A

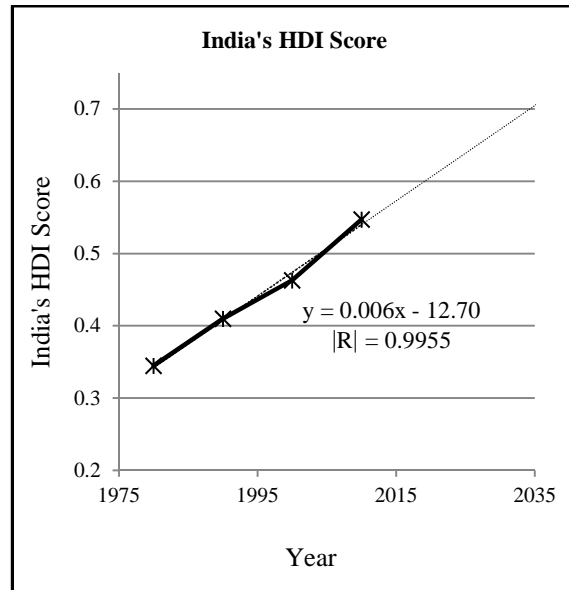


Figure 4B

Exponential growth can be seen if number of registered motor vehicles is plotted against time and so also numbers is the next plot – number of persons died due to road transport accidents with respect to time in different time intervals and number of persons injured in between 2002 and 2011; these are presented in figure 3A, 3B, 3C and 3D.

This may appear like a ‘childish’ presentation, because in the ‘developed’ world accident death and injury could be checked and now those figures are declining slowly showing an inverse U-shaped Kujnets relation as shown in Figure 4A; but India will need to change traffic scenario (including fleets, roads) drastically, and still, that will happen after a good dose of ‘development’ as can be seen by comparing Figures 4A with 4B, the rate of India’s ‘development’ in HDI score. Although, how the developed world could check road-traffic accidents is matter of a separate discussion. Nonetheless, the rising trend of ‘motorisation’ is an international phenomenon as the World Report of Accident Injury Prevention report of the WHO showed and as much as WHO could conjecture, accident impact of humans would increase in ‘developing’ and underdeveloped’ countries at least till 2020.

It is also worthwhile to see what else the effects of ‘development’ on humans are. The Rajan Panel has calculated Development Index, or better to say, underdevelopment index for each state of India. By that Composite Development Index they quantified ‘development’ level of each state based on 10 different criteria like % population belonging to scheduled castes and scheduled tribes, % of household getting different amenities, female literacy level, infant mortality level, connectivity, urbanisation and etc. And each of those may have single or multiple sub-criteria like for ‘connectivity’ there are kilometres of national highway, state highway, other roads and railway per 100 km² of the state. In a very prudent exercise they also calculated a ‘performance’ index for which there are lesser number of criteria, as, for example, building of new length and/or lane of national highway is central government’s prerogative and increase in that cannot be included in state’s performance, then,



percentage of persons belonging to SC and ST categories is not a function of development works of the state, and etcetera. But this newly developed indexing system was seen to disregard environmental parameters as far as development and/or deterioration of conditions of life of human beings are concerned. As for Rajan's Index = 0 we get highest possible 'development' and for Rajan's Index = 1 we get lowest possible 'development', for the sake of convenience 1 - Rajan's Index (1 minus Rajan's Index) was plotted against pollution generated from one of the 10 criteria considered by Rajan's panel, i.e. Connectivity by surface transport, for the states. Figures 5A to 5D present the conditions. It can be seen that the

more a state 'develops' and gain more by Rajan's Index Score (developed means nearer to zero), the more number of registered motor vehicles it will likely have, a move more towards private transport, and which will, in all likelihood, increase pollution loads of different kinds - main greenhouse gas, CO₂, Particulate Matters (PM10, PM2.5), Noxious gases (like carbon monoxide or CO, nitrogen oxides or NOX, sulphur oxides or SOX, hydrocarbons) and etc. Thus development will lead to deterioration of environment and increased sufferings of humans, even if we do not reckon other life-forms.

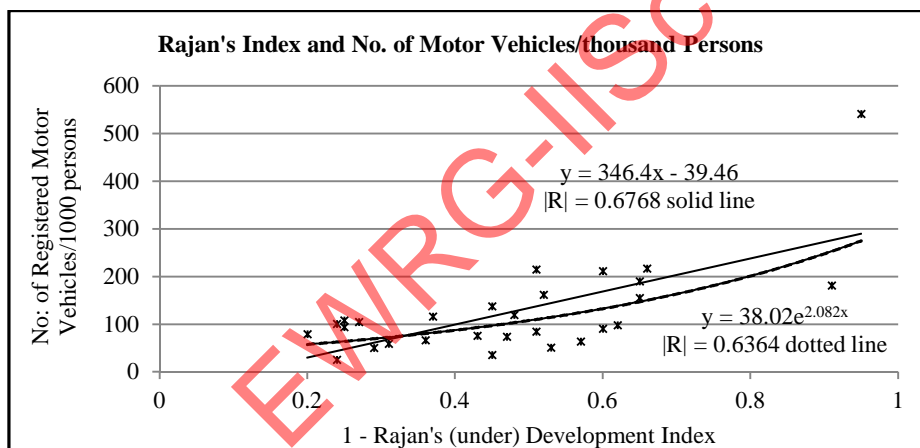


Figure 5A

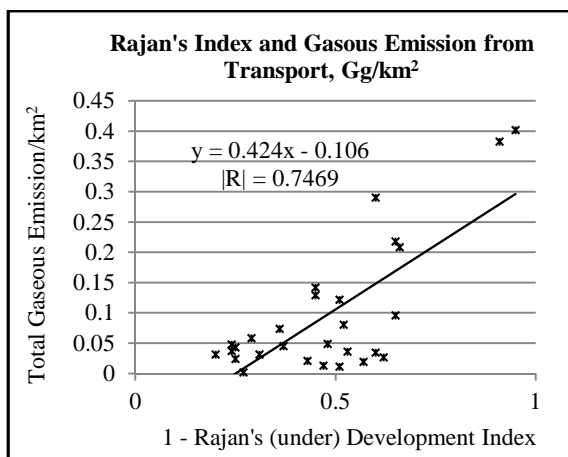


Figure 5B

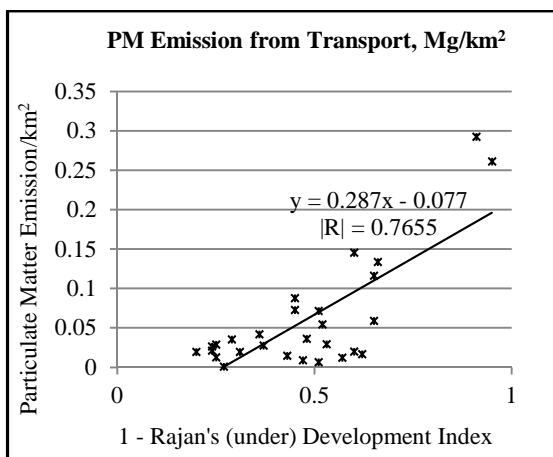


Figure 5C

Incidentally, it can be seen that the new Rajan's Indices have a striking correlation with the old

HDI counts of states as shown in the Figure 6, and HDI score doesn't depend on a country's



pollution load generation. There is an interesting point to note – the second most ‘developed’ state by Rajan’s Index is Goa. Though number of registered vehicles per 1000 persons is much less in Goa than in the ‘most developed’ state, that is Kerala, Goa generates nearly same or in some case more pollution loads (per km²) of different kinds if compared with Kerala – and what is of most concern – both these states lie in the ecologically very precious and also very precarious landform: the Western Ghats!. Rajan’s Index also correlates strongly with urbanisation as shown in figure 7, and urbanisation, again, is closely linked with more detrimental pressure on natural

environment. Naturally, if Urbanisation is plotted against pollution loads of different kinds, the graphs will show good correlation between urbanisation and environmental degradation. Arguments may be given that some developed western countries have shown a totally different development trajectory if the recent past or a century at maximum is analysed. But in that case it should be remembered that India has far more population density than any other country and the carrying capacity and assimilative capacities of India and any developed western country should have to be considered in such comparisons.

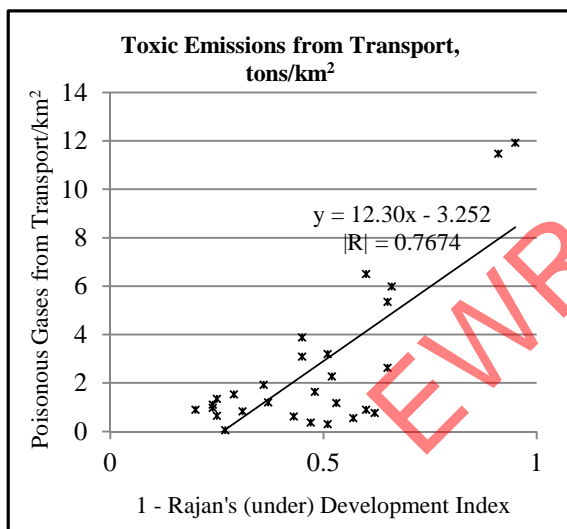


Figure 5

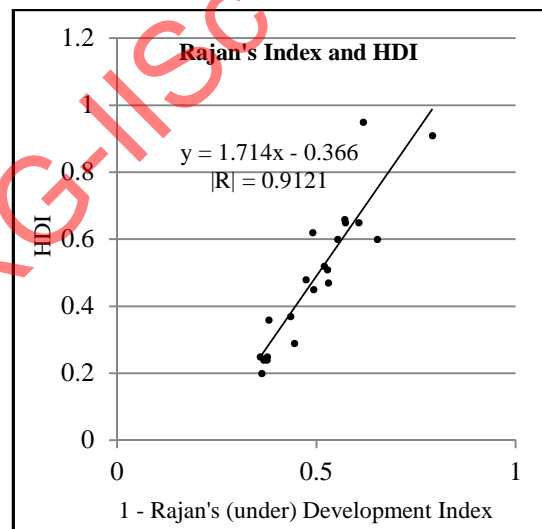


Figure 6

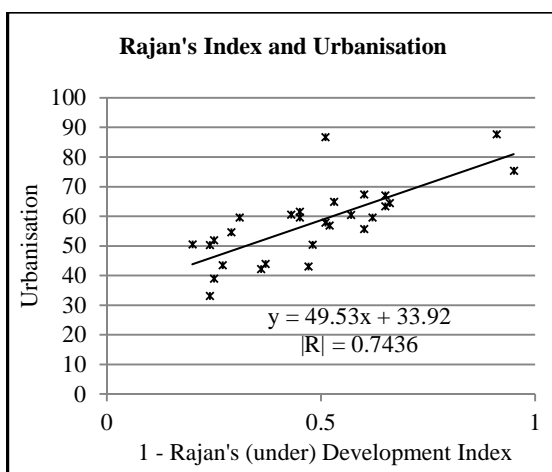


Figure 7

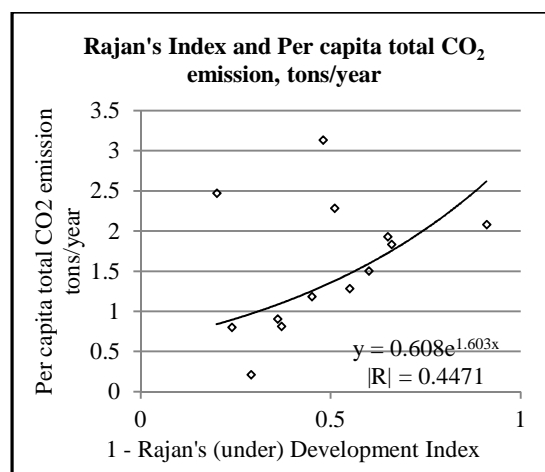


Figure 8



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

As Rajan's Index has two parameters, 'Connectivity' and 'Urbanisation', and both of which directly imply surface transport, it may seem obvious that Rajan's Index would have correlation with surface transport driven pollution. But what about pollutions which are arising from other economic activities? Rashmi Arora of Bradford University in her recent publication presented per capita carbon emission from economic activities (not only transport) of most of the Indian states [17] and if the emission figures of the states for the latest available year there is compared with Rajan's index of states then a disquieting picture, that of exponentially increasing emission trend vis-à-vis 'development', emerges, as presented in Figure 8, albeit with somewhat 'weak correlation', with $|R| < 0.5$.

McKinsey Global Institute, in February 2014 published their India report titled: "From poverty to empowerment: India's imperative for jobs, growth, and effective basic services". Its executive summary may attract attention by its pronounced bold departure from the concept of 'Poverty Line', saying that this poverty is abject poverty, just 'living' with this or that much 'calorie', as if to drag an inhuman existence, and it is not acceptable to shrink the target of development to improve this much only. Rather for a minimum humane existence another target level was fixed by Mc Kinsey team – the Empowerment Line – where people will be able to avail "basic services". They highlighted huge investment drive in infrastructures related to roads, ports, railway, electricity and irrigation. But in that very executive summary they separated themselves from what is believed to be a cornerstone of ecological economics, that smaller is better in terms of scale. In p6, they characterise Indian economy as one operating with sub-optimal scale. To picturize, they gave number of Indian firms with less than 50 employees, which turned out to be 84% of the firms, where the

same figure for China is 25%, for Indonesia it is 65% etc. Their envisaged higher investment → higher growth → higher revenue → higher investment ... cycle will 'empower' India as the report said. This growth-ist model banks on leadership given by industry, which may break-apart India's vicious cycle by creating more jobs in construction and manufacturing. As they emphatically stood against 'small-scale', it might be inferred that what their report suggested was large-scale construction and manufacturing. But construction, manufacturing etc. are material dependent and therefore the this model takes for granted more steel, more cement, and etc. which again in turn means more and more 'harvest' of natural resources including mineral deposits and energy.

It sounds very reasonable and humane when they mention: "A slum dweller ...if she could afford it, she could move into a pucca building with water supply and toilet ...a rural farmer could improve ...upgrading from mud and thatch to cement and bricks; he could also install a personal tube well ...". But such discourses, simultaneously, do not warn readers and persons who could manage straw-roofed home for another decade or so that even if waste-energy utilisation, less energy consuming techniques etc are adopted, 1 ton cement will mean 1 ton CO₂ and 1.6 tons limestone, which, if procured from limestone quarries from Gujarat, may mean moving 0.95 m³ earth, and if procured from Meghalaya or some other hilly state, may require digging some 1.6-1.8 m³ earth, a process which is already threatening devastation in the ecologically fragile and a 'biodiversity hotspot' Eastern Himalaya. In some NE states mineral extraction is also giving rise to AMD (acid mine drainage) which is threatening water and soil health in many NE states and even poisoning water of many tributaries in the states of North East India[18-19]. However, the Mc



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

Kinsey report did not ponder such natural effects of growth.

It may also be noted that the words ‘emission’, ‘pollution’, did not occur at all in the Mc Kinsey report. The word ‘nature’ appeared only to mean ‘sort of’ or ‘kind of’ things; ‘environment’ is used generally to mean work environment, though twice this word appeared for raising the question of environmental-‘clearance’ – once for complaining the delay etc in clearance and once again to formulate the task of high power SPVs or Special Purpose Vehicles: “The SPV would be responsible for developing a master plan for the zone, engaging

a developer, obtaining environmental clearances, promoting investment, ...”. Moreover, a map of Industrial Clusters is presented in page 146 of their publication and the map envisions 7 such clusters in the North East and quite a lot of such clusters in the South West of India dotting through the Western Ghats states. The report suggests, “Targeted government investment in high-quality transportation and power infrastructure, as well as social infrastructure, could accelerate their development.” Therefore, for growth, for development, for empowerment and such lofty goals, the Mc Kinsey report stresses on such an environment.

Table – 1

States and % of different types of Pollution Load in India generated there				
State	Water	Air	Toxic	Metal
Andhra Pradesh	7.0	8.9	5.8	5.8
Bihar	17.1	8.6	8.4	15.1
Gujarat	4.2	9.3	15.2	4.2
Madhya Pradesh	12.9	11.2	7.0	12.1
Maharashtra	12.5	15.0	15.9	14.2
Odisha	10.9	6.6	6.2	12.1
West Bengal	6.9	7.3	5.4	7.4
Tamilnadu	4.5	7.9	8.4	4.1
Karnataka	3.1	4.3	2	2.9
Total of these 11 States	79.1	79.1	74.3	77.9

The researchers of the Madras School of Economics shared their environmental concern by proposing adaptation of Pigouvian taxes, i.e. adapting Polluters Pay Principle in our tax regime and integrating this PPP with the imminent tax regime GST [20-22]. However, factors or even words like environmental degradation by development-activities, pollution load, polluters pay principle etc could not be found in a Christian Aid sponsored study on GST by the Centre for Budget and Governance Accountability [23]. In their literatures the MSE economists highlighted the tremendous pollution load that is already there in heavy industrial and mineral-extraction-dependent states, a part of it is presented in Table

1. This table shows that more than three quarter of different types of pollution load in India is generated in these 11 states. However, it may be guessed that in the past 5 years situations worsened further. Right from 2009, the MSE economists have been publishing their researches and views regarding pollution load acceleration and pleading for applying Polluters Pay Principle by integrating Environmental taxes in our Tax Regime. They have shown that India can learn from international experiences regarding imposition of Pigouvian taxes and successes achieved by such method in curbing pollution load in advanced or developed countries of the west so far. The MSE economists raised the



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

matters and discussed with the appropriate authorities, however any changed/revised version of discussion papers on GST was not seen to be published by the finance ministry. Therefore, it is not clear whether the govt has taken up the issue of taxing environmentally non-benign or malignant economic activities.

In this case, however, there may appear a rider regarding applying PPP for the farmers as because conversion to green revolution measures of intensive cultivation and consequent application of high doses of chemicals and extraction of ground water and etc which engendered extreme environmental load, was not a free-choice of the farmers; rather the agricultural extension policies of the government lured the farmers to that path.

From the discussion so far on Rajan Panel's report, the Mc Kinsey report and the GST

CONCLUSION

1 litre of petrol or diesel use in cars gives the environment more than 2.5 kg CO₂, 16 g CO etc and add more than 9000 kcal heat in the surroundings. A single 1 ton AC machine, besides contributing greenhouse gas emission at the power-plant, rewards >3000 calories every hour to the environment outside the cooled room. This list can be lengthened by pages. It doesn't matter. Mumbai spends more than a third of its electricity just for cooling. That also doesn't matter. This is development, and growth is measured in terms of growth in volume sales of personal cars, ACs and etc. Even if that means contributing massive heat in the surrounding atmosphere, which is not owned by the user, giving rise to 'urban heat islands' in cities and affecting millions outside, besides increasing GHG load. What is more, there are technical advancements; ostensibly 'green' hydrogen driven cars are coming, and developmentalists do not bother that if hydrogen comes from natural gas where will the carbon go and how much

proposal for discussion, it may not be an aspersion if from the report given by the Rajan Committee, the Mc Kinsey report and the GST proposal submitted by appropriate committee of the finance ministry it is inferred that in general development-centric or growth-centric economists of top echelon cannot be expected to be sensitive to environmental degradation caused by economic activities, at least when they design their development course, which are very important and influential document for the fate of billions, although, they may of course express their environmental concern in different discourses for different target audiences. On the other hand, economists like those of the MSE are keen to curb environmental loading as much as mainstream economics can permit them to do so with the aid of environmental economics inside the arena of economics and policy making.

energy will be consumed. If opposed, it will be said that persons using these are taking informed-decision, moreover, the omnipotent invisible hand of the market is taking care and society cannot and should not go backward. As if the USA of Robert Frost and John Steinbeck was worse off.

Ecologists need to 'develop' a new development index that will incorporate and give due weight to the deterioration caused by anthropogenic nature-degrading activities. There is a measure – Environmental Performance Index, which was developed by Yale University. But clearly that system is biased towards high income countries [24] a fact that puts to question its credibility. The Environmental Sustainability Index developed in India by IFMR [25] is not yet foolproof, as some higher polluting states may get some cushioning, but that is another subject. To develop a development index with ecological footprint embedded in it is no doubt an interesting project.



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

Ecological Footprint computation [26] might be an appropriate point to start. Here the question of 'value education' comes. Economics, as much as the mainstream 'economics' curriculum is concerned, do not deal with ethics; rather take free market 'rationality' as the guiding principle. And essentially it opposes any 'restriction' or 'control' imposed on market as imperfection. Hence Ecological Ethics need to be separately studied. Paul Sweezy and Paul Baran in their discussion on Monopoly Capital expressed the view that "automobiles are the most irrational means of transport" [27]. These US professors might have a specific political orientation, but revered Japanese religious thinker Daisaku Ikeda and celebrated historian Arnold Toynbee also opined for public transport, preferably running on electricity and restricting smaller vehicles only for urgent cases like ambulance and fire-fighting [28]; though they did not share Baran and Sweezy's ideology. These varied individuals converged to a same point because of one

common perception, a perception of man as a social animal and human as a part of nature. Nature is not just an 'object' external to us to work upon to produce utilities and get raw materials; Nature is not a just space to situate firms and farms. 'Valuating' nature and 'ability' of economics to put price tags on objects of nature give a false impression that environmental 'wrongs' can be compensated monetarily. "Right to pollute" can be bought and sold! If the concepts of ecological ethics that humanity developed through centuries can properly be transmitted to the future generation through education, then only perhaps future economists will see development differently. If our future economists consider how much ecological footprint every step of 'development' is implying and how much is there to spare (which is presently negative) then it can be said that our education system had done a great job.

ACKNOWLEDGEMENT:

Author is indebted to Shwetmala of CES IISc (Bangalore) for sharing data on surface transport generated pollution [10]. Author

would like to thank Sujay Singh, Secretary, Naihati Prolife for resources and support.

REFERENCES

1. President K R Narayanan's Speech on 25/01/2001 available at <http://mea.gov.in/>
2. Speech of President Pranab Mukherjee available at <http://presidentofindia.nic.in/pdfs/sp090614.pdf>
3. Raghuram Rajan, Tuhin Pandey, Niraja G Jayal, Bharat Ramaswami and Shaibal Gupta (2013) "Report of the Committee for Evolving a Composite Development Index of States", Ministry of Finance, GOI,
4. Rajat Gupta, Shirish Sankhe, Richard Dobbs, Jonathan Woetzel, Anu Madgavkar and Ashwin Hasyagar (2014), "From poverty to empowerment: India's imperative for jobs, growth, and effective basic services", Mc Kinsey Global Institute
5. First Discussion Paper On Goods and Services Tax In India – The Empowered Committee Of State Finance Minister, <http://finmin.nic.in/gst/Empowered%20Committee%20of%20SFM%20%20First%20Discussion%20paper.pdf>
6. Bharat Ramaswami (2014) "Composite Development Index: An Explanatory Note", Yojana, May 2014
7. Open Government Data Platform, India, <http://data.gov.in/>
8. World Bank data, available at (<http://data.worldbank.org/>).
9. Motor Vehicle Writeup (), Ministry of Statistics & PI, GOI available at <http://mospi.nic.in/>
10. T.V. Ramachandra and Shwetmala (2009) "Emissions from India's transport sector: Statewise synthesis" doi:10.1016/j.atmosenv.2009.07.01, pp1-8



LAKE 2014: Conference on Conservation and Sustainable Management of Wetland Ecosystems in Western Ghats

Date: 13th -15th November 2014

Symposium Web: <http://ces.iisc.ernet.in/energy>

11. Mary Tahir, Tahir Hussain and Mushir Ali (2013) "Road Transport and Environmental Deterioration in India" *International Journal of Environmental Sciences*, 2(1), pp1-11
12. Manisha Ruikar (2013), "National statistics of road traffic accidents in India", *Journal of Orthopaedics, Traumatology and Rehabilitation*, 6(1), pp 1-6
13. Dinesh Mohan, "Traffic Safety and Health in Indian Cities", p82, IIT-Delhi publication, available at <http://tripp.iitd.ernet.in/publications/paper/safety/aitd02.PDF>
14. Dinesh Mohan (2009) "Road Accident in India", *IATSS Research*, 33(1), pp 75-79
15. Dinesh Mohan (2004) "The Road Ahead Traffic Injuries and Fatalities in India", *Transportation Research and Injury Prevention Programme*, IIT Delhi
16. Donella H. Meadows, Dennis L. Meadows, J rgen Randers and William W. Behrens II (1972), "The Limits To Growth - A Report for the Club of Rome's Project on the Predicament of Mankind", Potomac Associates, Washington
17. Rashmi Umesh Arora (2014) "Inequality in Carbon Emissions at Sub-National Level in India", *The Journal of Developing Areas* Volume 48(2)
18. Sumarlin Swer and O.P. Singh (2008), "Coal Mining Impacting Water Quality and Aquatic Biodiversity in Jaintia Hills District of Meghalaya", *ENVIS Bulletin*, 11(2) : Himalayan Ecology, pp1-8
19. Lamare R. Eugene and Singh O.P. (2014), "Degradation in Water Quality due to Limestone Mining in East Jaintia Hills, Meghalaya, India", *International Research Journal of Environment Sciences*, 3(5), pp13-20
20. U Sankar (2009), "Ecology, Environment and Sustainable Development in Indian Fiscal Federalism", *Madras School Of Economics*, Chennai
21. D K Srivastava, K S Kavi Kumar, C Bhujanga Rao, Brijesh C Purohit and Bodhisattva Sengupta (2010), "Integrating Pollution-abating Economic Instruments in Goods and Service Tax (GST) regime", *Madras School of Economics*, Chennai
22. D K Srivastava and C Bhujanga Rao (2010), "Reforming Indirect Taxes in India: Role of Environmental Taxes", *Madras School Of Economics*, Chennai
23. Sankhanath Bandyopadhyay (2011), "A Primer on Goods and Services Tax in India", *Centre for Budget and Governance Accountability*, New Delhi
24. Environmental Performance Index <http://epi.yale.edu/>, and <http://epi.yale.edu/epi>, retrieved 12:40 17/06/2014
25. <http://www.greenindiastandards.com/index.php>
26. *Ecological Footprint Network* (<http://www.footprintnetwork.org/en/index.php/GFN/>) and then, *WWF* (http://wwf.panda.org/about_our_earth/teacher_resources/webfieldtrips/ecological_balance/eco_footprint/)
27. Paul Baran & Paul Sweezy (1966) "Monopoly Capital: An Essay on American Economic and Social Order", MR Books, NY
28. Daisaku Ikeda and Arnold Toynbee (1976) "Choose Life: A Dialogue", I. B. Tauris, London