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India 2050: Can We Celebrate the Centenary of the Republic as a Developed Country?

Ramgopal Agarwala*

Almost exactly a hundred years ago, King George V visited India and he was received with great pomp and ceremony. Even our great poet Rabindra Nath Tagore composed and sang a song to welcome the Emperor. At that time, the Empire seemed to be forever and it might have seemed delusional to think of the end of Empire in not only India but also the world over. However, forces of political freedom were operating in that direction and there were noble and patriotic souls in India prepared to work for and fight for the end of colonialism. And it did happen. With India leading the path, colonialism was ended by the close of the century and the twentieth century can well be regarded as century of political liberation. In political terms, different nations achieved parity that was unthinkable a hundred years ago.

Today, we have a great disparity of incomes between developed and developing countries perhaps partly as a legacy of the colonial period. According to the World Bank figures, in 2009, per capita income of developing countries in terms of dollars adjusted for purchasing power parity (in 2005 prices) was about \$5000, only 15 per cent of that of the developed countries. It may seem delusional to think that developing countries can catch up with the developed countries in terms of per capita income. In fact, only thirty years ago, as eminent a person as Robert S. McNamara, then President of the World Bank, sought to demonstrate with some convincing numbers that ‘catching up’ was not a plausible goal. He

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noted¹ that during 1951-1975, relative income gap between developing and developed countries widened instead of narrowing. He concluded: “Given the immense differences in the capital and technological base of the industrialized nations as compared with that of the developing countries, it (“closing the gap”) was simply not a feasible goal... For the developing nations to make closing the gap their primary development objective is simply a prescription for needless frustration.” (p).13

However, things are different now. During the first ten years of the 21st century, per capita income of developing countries has been growing at about 4.7 per cent per year, 3.8 per cent points more than that of the developed countries. Relative income gap of the developing countries which was 10.8 per cent in 2000 was 15.1 per cent in 2009 with the gap closing at the rate of 3.8 per cent per year. If this differential rate persists, the income gap will be closed in 51 years, that is by 2060. With economic malaise continuing in the developed countries, it is quite possible that the rate of growth of per capita incomes in the developed countries will be negligible for quite some time and the catching up process may be accelerated. It is interesting to note that G-20, now widely regarded as the premier institution for global economic management, called for acceleration in the process of income convergence between developed and developing countries in its communiqué in Pittsburgh Summit of 2009. In my opinion, the 21st century could be and should be one of income convergence just as the 20th century was one of political convergence. And India has an important role to play in this process.

One reason for accelerated process of income convergence in this century will be the working of factor price equalisation theorem, facilitated by trade liberalisation and by ICT. Factor price equalisation theorem has, we all know, many prior conditions for its effective operation. However, in spite of these limitations, the income convergence process has been working with considerable effectiveness in the western

world during the second half of the twentieth century. In 1950 per capita income of countries such as Ireland, Spain, Portugal were 36 per cent, 22 per cent and 25 per cent of that of the US. By 2008 this differential has been corrected to a great degree and Ireland's per capita income was 91 per cent of that of the US, Portugal's, 48 per cent and Spain's 65 per cent. In the present century, ICT combined with trade liberalisation is increasing the possibilities of trade in services in addition to that in goods and the theorem on factor price equalisation is working with greater force. Not only it is difficult now to maintain the income differential between developed and developing countries with respect to blue-collar workers but also with white-collar workers, who now form the bulk of labour force in developed countries.

The issue I would like to examine is: What will it take for India to achieve by 2050 when it celebrates the centenary of its Republic, a developed country status, which I define as per capita income in PPP terms of developed countries in 2010?

The question may be raised: Why is it important to achieve high per capita income? In my opinion, there are three good reasons why that is a worthwhile objective, comparable to the objective of political freedom in the last century.

- First, as is evident from UNDP data on Human Development Index (HDI), if we achieve per capita income of the developed countries today (about \$38000), it is highly probable that we will also achieve high level of human development. However, this does not mean that we can neglect inclusiveness of growth. In fact, as will be evident from analysis below, inclusiveness is a necessary condition for sustained high growth. In India, sustained growth will be led by knowledge economy and since knowledge acquisition has to be a dispersed activity (unlike physical capital acquisition), we can achieve high-income level only if we have broad-based human development.

- Second, we will not lose our inferiority complex with respect to the developed countries if our per capita income remains significantly below that of the developed countries. If our professor in Indian university can increase his income 5-10 times by moving to the western university, he will keep looking for openings there and adjust his research to meet the western requirements. Our youth will continue to ape unhealthy and unsustainable western lifestyle. As Macaulay wished, a tiny minority at the top will continue to identify itself with and copy the West (now mostly America) and distance itself from the masses. In that atmosphere, our creativity will not be unleashed and our real identification with India and its masses will not be possible.
- Thirdly, we have in our neighborhood a rising China, which is likely to catch up with the developed countries in the next forty years or so. If we are stuck in middle income level, we will be overshadowed by China in our own region and our difficult neighborhood will become dangerous for our peace, stability, integrity and independence. Even without any explicit programme of dominance by China, our freedom will be compromised.

For all these reasons, I believe we must make all the efforts and short-term sacrifices if necessary, to achieve our goal of affluence by 2050. Our strategies could be mostly win-win strategies and our sacrifices, if any, will be sectional and small in comparison with what our forefathers did in the last century for getting independence for us. Their dreams will not be fully realised and may, in fact, be compromised if we are not strong economically in comparison with the developed countries and our great neighbors in East Asia.

How difficult will it be to achieve high income for India by 2050? There are some analysts (mostly foreigners) who make it look like easy.

Starting with the famous piece by Goldman Sachs, where they presented the results of their analysis of growth prospects of BRIC (Brazil, Russia, India and China), there have been any number of analysts projecting high incomes for selected developing countries including India. The latest one by Citibank² presents the picture of China becoming no.1 by 2020 and India by 2050. However, while useful as a starting point, these exercises need to be deepened, by taking into account not only the availability of factors of production and their so-called “productivity co-efficient” (which is actually a “co-efficient of ignorance”) but also (a) availability of effective demand to provide employment to the growing labour force, (b) availability of the natural resources, which will be necessary to realize these income goals and (c) availability of the institutional framework, strong enough to deliver on sustained high growth. In our research, we try to assess the availability of these broader factors behind growth. We also adopt a different technique from the conventional forecasting approach. We take what has been called a ‘backcasting’ approach where we define a goal and work back to what is needed in the near-and long-term to achieve these goals. We then try to identify areas where the current trends are broadly right and where they need to be bent. What we find, as reported below, is that there are many areas where our current trends are not conducive to achieving our goal of developed country status by 2050 and these trends will have to be bent in major ways to achieve our income goals. What will actually happen is of course anybody’s guess. But we believe that it is well within our collective capacity to bend these trends as needed but though it will, of course, not be a cake-walk. Tremendous concerted national efforts comparable to those of the days of fight for independence will be needed, though, as noted above, these efforts will not involve sacrifices of the type that our freedom fighters had to make. Any complacency inspired by our recent good growth performance will be entirely misplaced. The alternative is a middle-income trap and compromise on our Independence.

Before getting into analysis of the future, it may be useful to review briefly what has been our performance during the years since Independence

Growth performance since Independence

At the time of establishment of the Republic of India in 1950, India was not only a poor country but also the poorest of the poor with one exception, China. According to data prepared by Angus Maddison³, India's per capita income in 1990 international \$ was \$ 619 in 1950 whereas that of Africa was \$ 852, Latin America \$ 2554, and Asia minus India, China and Japan \$ 924. China's position, however, was even worse than India's, with per capita income of \$ 439.

This was in sharp contrast with situation that prevailed about a thousand years ago when the Muslim rule was being consolidated or in 1820 when the British rule was being consolidated. In 1000, per capita income of India and China was about \$ 450 (in 1990 international \$) somewhat higher than the world average of \$435 and India accounted for 28.9 per cent of the world economy somewhat higher than China's 22.7 per cent and close to that of Europe, America and Africa combined (29.7 per cent). By 1820, India had been surpassed by China with share of the world GDP only 16 per cent (as against China's 32.9 per cent) and per capita GDP at \$ 533 as against China's \$ 600 and world average of \$ 667. And in 1950 after more than a century of the British rule, India's share of the world GDP had shrunk to 4.2 per cent (as against China's 4.5 per cent) and its per capita GDP was \$ 619 as against the world average of \$ 2114. What lay behind India's decline is a worthy subject of historical analysis but the rule of an externally oriented minority might have been one factor behind it.

With Independence and rule of the majority, India was ready to redeem its 'tryst with destiny' and its leaders set about in earnest to

achieve rapid income growth. The broad framework for economy was provided by a doctrine of mixed economy where both public and private sector had an important part to play. However, the top leadership was enamoured of Soviet success in planning and rapid industrialisation and policy atmosphere was characterised by glorification of central planning and public sector and suspicion of the private sector. This atmosphere of a mixed economy with suspicion of the private sector continued with some occasional adjustments mostly in favour of public sector for about 30 years. The growth performance of the economy during 1950-80 was lackluster with annual growth rate of GDP at 3.5 per cent and that of per capita income, 1.4 per cent. This performance was below the average performance of other developing regions with possible exception of China. According to the World Bank figures, during 1960-80 GDP in constant 2000\$ in India grew at 3.5 per cent per year as against that of East Asia and Pacific minus China at 6.2 per cent per year, Latin America and Caribbean at 5.5 per cent , Middle-East and North Africa at 6 per cent per year. Even Sub-Saharan Africa and South Asia minus India did better than India, with GDP of both growing at about 4 per cent per year. Due to Cultural Revolution and other disruptive phenomena in China during this period, the GDP data may be unreliable. However, according to World Bank estimates of per capita income, by 1980, China's per capita income relative to India's had declined further from its 1950 level and it is reasonable to presume that China's growth performance during 1950-80 was even worse than India's.

In 1980, India's per capita income in international \$ (2005 constant dollars) was \$ 895.4, much lower than that in Sub-Saharan Africa, in East Asia and Pacific minus China, in Middle East and in Latin America. It was, however, substantially (71 per cent) higher than China's (\$ 524) which was just beginning to recover from the disasters of Great Leap Forward in the sixties and Cultural Revolution in the seventies. In India and abroad, social scientists began to search for fundamental

socio-economic factors, which may be behind India's continued poor performance. Perhaps the silliest of them was what talked of "the Hindu Rate of Growth" implying that India's chronic poor performance was somehow connected with India's Hinduism, even though the author, an otherwise eminent economist, did not find it necessary to indicate what specific characteristics of Hinduism might have been responsible for the poor performance. Other theoreticians talked of fundamental socio-political factors such as entrenched upper class power groups (in agricultural as well as industrial sectors), License-Permit Raj or soft state as causes accounting for India's long-term underperformance.

Yet, just as pessimism about India was getting widespread, India was getting ready to surprise the skeptics.

Beginning with 1980 in the wake of the Thatcher-Reagan revolution in favour of free market economy, India's policy stance also began to change. With the return of Indira Gandhi to power in 1980, anti-private sector approach was gradually corrected with greater interest in use of market and trade for accelerating growth. Emphasis on technological modernisation was increased with focus on "taking India into the 21st century" as the new young Prime Minister Rajiv Gandhi put it. This tendency received a great boost in 1991 when in the wake of a severe balance of payments crisis, India had to seek financial assistance from IMF and the World Bank who were promoting what is often called 'Washington Consensus' with emphasis on privatisation, liberalisation of trade and finance, and deregulation. Fortunately, given the nature of democracy with checks and balances, India did not go headlong into liberalisations of the type practiced around that time in Latin America, Sub-Saharan Africa, Middle East and some countries in East Asia (such as the Philippines). The broad framework remained one of mixed economy but without the earlier deep anti-private sector and anti-market bias. This new balance found favour with most of the large political parties

in India and with some twists and turns, this policy regime continued for about 30 years.

The results in terms of growth have been spectacular. During 1980-2009, Indian economy grew faster than any other group of a billion people with one exception, China. During this period, India's GDP grew by 6.1 per cent per year while that of Latin America by 2.5 per cent, of Sub-Saharan Africa by 3 per cent, South Asia minus India by 4.9 per cent, East Asia and Pacific minus China by 5.2 per cent, and Middle-East by 3.7 per cent. In a strange turn of events, India and China, for long the epitome of poverty, became within just 30 years, most rapidly growing economies with a promise to play a significant role in the world economy in the decades to come.

India's income performance in the first decade of the new century (2000-2009) was even more impressive with an annual growth of GDP of 7.5 per cent. This was, however, dominated by five exceptionally good years of 2003-2007 when the economy grew by 8.3 per cent per year. The factors behind this spurt are not clear. There were no major new policy reforms during this period nor any major internal change. So what was behind this spurt? One possibility is that this spurt (which had its counterpart in China too) was induced by external factors: the burst of increased external demand, easy external capital inflows and business confidence inspired by the bubble in the US economy and its contagion in the rest of the world.⁴ If correct, this analysis may have some major implications for the income growth prospects in India in the medium term. This may imply that as the spurt in the US and the EU subsides, India may settle back to growth trajectory it had before the spurt. That will imply a trend growth rate of 6-7 per cent per year rather than 8-9 per cent. In fact, if the developed countries face a prolonged slow-down or a "lost decade" or two as is highly likely, India's growth rate may also slow down even further. Thus, 9 per cent annual growth rate of GDP envisaged in the forthcoming Twelfth Plan of India (2012-17) may be a serious overestimate unless corrective policy measures are taken.

In any case, the growth performance during the last thirty years has been impressive and this experience should put to rest the fundamentalist theories about India's backwardness. Neither our religion, nor our climate, nor our soft state and not even our class relations have proved to be an insuperable barrier to improving our growth performance. While avoiding complacency we should have full confidence in our ability to achieve high growth.

What will it take to achieve our income target?

On the basis of this performance, how realistic is it for us to expect to achieve by 2050 per capita income level of the developed countries today?

Let us first do some 'backcasting' on GDP growth. In 2010 India's per capita income in PPP terms was about \$ 3600 and that of the developed countries \$ 37600. Income parity is achieved if India's per capita income can grow at 6 per cent per year during 2010-2050. With projected population growth rate of 1 per cent per year, the required growth rate of turns out to be 7 per cent per year, slightly higher than what we achieved in the last 30 years. How plausible is achievement of such growth rates?

The simplest approach is to examine the potential in terms of saving and investment. In the typical growth analysis of the fifties and sixties, saving and investment rates were seen as crucial determinants of growth. Subsequent growth analysis bringing in human capital formation, technological changes and policy reforms as major determinants does make the old saving-investment approach look somewhat simplistic. However, so far, this approach has shown remarkable robustness in India. During the decades since 1960, the relationship between investment rate and growth has remained close with incremental capital-output ratio more or less stable at around 4 with the exception of the troubled decade of 1970s when oil crisis and political turmoil affected growth

performance adversely. Both theoretical analysis and experience of many countries (for example, Korea and Japan) show that this ratio can change dramatically making investment rate alone as an unreliable guide to growth potential. However, as of now, the investment ratio and ICOR remain important instruments for growth analysis.

India's saving performance has been improving steadily from 12.4 per cent of GDP in 1960 to 32 per cent in 2009. Many factors have contributed to this increase among which are: declining ratio of dependents as percent of working age population (from about 77.8 per cent in 1960 to about 56.5 per cent by 2009), rapid growth in per capita incomes and rising share of profits in GDP. Poor performance of public sector in savings has been a drag but that has been more than counterbalanced by rise in private savings.

Good performance on saving has been combined with increased inflow of foreign capital including foreign direct investment which in terms of net inflows rose from about 0.04 per cent of GDP in 1980 to 3.40 per cent in 2008 and 2.51 per cent in 2009. Net inflows of FDI in India during 2000-09 was 1.6 per cent of GDP, only 1.5 per cent points less than that in China during this period and significantly more than that in star performers of East Asia such as Japan and South Korea in recent years as well as in their years of spectacular growth.

The period 2003-07 was marked by a particularly impressive performance on saving and investment. Savings ratio rose from 30 per cent of GDP in 2003-04 to 37.9 per cent in 2007-08 and investment rate from 27.8 per cent to 39.3 per cent. However, when we look as components of this high performance we find that the rise was largely due to rise in private corporate performance. Between 2003-04 and 2007-08, saving rate of private corporate sector rose from 4.6 per cent of GDP to 8.9 per cent and accounted for 54 per cent of the rise in national saving rate. For investment rate, the rise in private corporate sector was even

more spectacular: from 6.9 per cent of GDP to 16 per cent accounting for 79 per cent of the increase. This spectacular performance of private corporate sector was in turn probably connected with cheap credit from the US and other developed countries during this period and high profits of the corporate sector connected with increased demand in the developed countries and the overall high spirits in the corporate world. The saving and investment rates of the household sector were largely stagnant at around 13 per cent and 24 per cent, respectively, and that of the public sector registered only a mild increase by 3.4 per cent points of GDP for savings and 2.7 per cent points for investment.

Thus, we cannot presume to achieve in the medium term the investment rates of over 38 per cent of GDP. However, saving-investment rates of 30-35 per cent of GDP seem reasonable over the long-term period of 2010-2050 and with incremental capital-output ratio of about 4-5, GDP growth rate of about 7 per cent per year during 2010-2050 will seem plausible.

Similarly, plausible is the outlook on growth based on availability of factors of production and total factor productivity growth. It is such analysis by Goldman Sachs that dramatized the prospects of rise of Indian along with Brazil, China and Russia (the famous BRIC group). Several subsequent analyses along these lines have confirmed the possibility of sustained rise of India though the specifics vary. The most optimistic projection along these lines is the one recently made by Citibank, according to which India may well become the largest economy by 2050, surpassing both China and the US.

These projection exercises depend to a considerable extent on the famous demographic dividend in India. It is indeed true that during the next 40 years India's youthful population will grow at a healthy rate while that of China will decline. In addition, India has enormous opportunities

for increasing labour force participation by bringing female labour force in paid employment sector and also for increasing quality of labour force by eliminating illiteracy and increasing human capital formation. However, these forecasting exercises do not make clear where the burgeoning labour force will find employment and what needs to be done to increase quality of labour for decent wages in high-income economy.

Centrality of broad-based education for generating well-paid jobs

The task before us begins to look more difficult when we consider the employment avenues for our labour force. Agriculture at present provides employment to about 50 per cent of the labour force. But the relative and absolute income level of workers in agriculture is low and a large percentage of the current work force (particularly among the youth) is naturally looking for exit from agricultural sector. Going forward for an affluent India in 2050, agriculture will account for hardly 5 per cent of GDP and can absorb at most 10 per cent of labour force. Labour intensive manufacturing has often been the absorber of labour at initial stages of growth in most high income countries. But the performance of manufacturing in India has been poor with the ratio of manufacturing to GDP stuck at about 15 per cent for the last three decades. The recently proclaimed New Manufacturing Policy has been widely and rightly criticized as unrealistic. This leaves service sector as the main source of employment creation. The performance of service sector has been impressive over the last three decades and it is plausible to assume that this sector will absorb most of the incremental labour force in India over the next forty years. However, if these jobs are to pay well, the expansion must occur in modern services, even though not just in IT and IT-E services. That in turn will be possible only if we can increase the knowledge content of our labour force and move toward a know-based economy meeting the demand for knowledge products not only in the country but also in external markets.

We believe that there are several reasons why India has a comparative advantage in becoming a knowledge economy, particularly in relation to its chief comparator, China. Among these are: (a) a youthful population, the seed-bed for knowledge development; (b) hunger for betterment; (c) argumentative tradition of the nation; (d) an open democratic society conducive to creativity; (e) low-cost of production of human resource development; (f) scope for use of Indian Diaspora; (g) facility in English; (h) non-threatening posture of India in international relations which may facilitate sharing of knowledge by developed countries in sensitive sectors; and (i) greater malleability of design of our knowledge sector because most of our growth in education sector lies in the future and with the advantage of latecomer we can incorporate the latest and the best in our education system.

However, despite India's apparent comparative advantage in the knowledge sector, India's performance in this sector has been poor though there are some bright spots. At present there is a tendency to limit quality education to a tiny minority at the top. If this tendency continues and the bulk of India's labour force remains poorly educated, our growth prospects will be dim over the long-term. Only about 15-20 per cent of the population would have good quality education and would have caught up in incomes with the average of the developed countries. With 80 or more of labour force with low equality education, our overall income level will remain low and we may well end up in what has been called 'middle-income trap'.

There are recent initiatives that aim at improving India's performance in this area. The most important of these initiatives is Right to Education Act. If it can be implemented in letter and spirit, it can open the way for mass participation in education, going up to higher education.

There are at present large supply deficits in simple skills such as those of electricians, masons, carpenters, plumbers, etc. and unlike

industrial goods these supply deficits cannot be easily met through imports. Vocational training for these skills should be a priority for those youths who are unable and unwilling to proceed to higher education as well as labour force in these activities with inadequate skills.

Higher education system of course must be liberated from colonial tradition and must become much more oriented towards exploiting the opportunities created by knowledge economy. In particular, we must increase the links between knowledge-imparting institutions and know-marketing institutions. Medical colleges should be linked, through students as well as faculty, with medical hospitals, engineering colleges with engineering firms and IT companies, law colleges with law firms, commerce colleges with accountancy firms, science colleges with research laboratories, arts colleges with consultancy firms and so on. These knowledge-based institutions would spearhead our drive for export-oriented service sector, the scope for which has been immensely increased due to improved communication technology.

Designing decentralized knowledge-based cities

Knowledge economy will also require rapid urbanisation. With agriculture absorbing only about 10 per cent of labour force, nearly 80 per cent of population may well be in urban areas by 2050. But are our urban areas prepared to receive such migration? Not on present trends. We have been in largely a denial mode about the inevitability of urbanisation and our cities are generally in a deplorable state with poor infrastructure, high level of congestion and pollution. The recent efforts for urban renewal have achieved modest success and unless we correct the recent trends, we may well end up with urban ghettos with low income, deprivation and violence as it has happened in many Latin American and African countries.

The task before us is to plan for healthy urbanisation both through renewal of existing urban areas and, more importantly, through planning

for new decentralized knowledge-based cities, perhaps around one for each district capital.

Our cities, old or new, cannot afford to be replicas of the existing cities in the developed countries. We just do not have land space, carbon space and natural resource base required for replicating the pattern of the western world in this respect. There are now many efforts in developed countries, particularly in Germany and Nordic countries to design eco-friendly cities and they may contain many useful lessons for us. In these matters we should aim at not where the developed countries are and have been but where the wisest of them are trying to go.

Changing definition of good life and making affluence sustainable

This leads me to review the constraint on our growth potential that will be imposed by natural resource constraint⁵, an issue that is largely absent in the typical growth analysis. By and large, in India today, we define good life as what obtains in developed countries, in particular the US. But the question we have to ask is whether this lifestyle is replicable for 1.7 billion people that India will have by 2050. In our research work, we examined this issue with respect to three items: food consumption, transport and energy usage and our conclusions were as follows:

- First, it is clearly impossible for India to replicate in 2050 the lifestyles of today's western world. We just do not have the land, water, fuel or carbon space for doing that.
- Secondly and fortunately, the western world realises the unsustainability of its production and consumption pattern and is seriously trying to reduce energy and carbon emission its system involves. We should, at the very least, aim at where the more ecologically smart developed countries are trying to go rather than where they are or have been. Hopefully exploiting the advantage of being latecomers, we will reach

there before they do and even design lifestyle healthier and more sustainable than what they are trying to do.

- Thirdly, the desired changes in production/consumption patterns are by no means easy. They involve major changes in pricing of resources, regulations to reduce resource consumption, investment in physical and human capital as well as in research, development and extension and social marketing to sell the paradigm of sustainability over consumerism.
- Fourthly and unfortunately, Indian public and policy makers are, by and large, still infatuated with the newly acquired western style consumption with high incidence of lifestyle diseases (such as diabetes) and despite the early warnings and pressures from the international community, they are not seriously considering the sustainability policy framework. If these conditions persist, India's growth trajectory is likely to come to a halt with a jolt, well before the goal of affluent society is reached.

Let us look at that 'impossibility theorem' in some detail in three areas: energy, transport and food.

In 2005, High-income Countries (HICs) used 5.12 billion tonnes of oil equivalent (btoe) while India used only 0.53 btoe. If India were to replicate the HIC pattern of energy consumption on a per capita basis, its consumption in 2050 will be 8.67 btoe, only marginally short of the level used by the entire world in 2005 (11.09 btoe). With the world moving towards reduced availability of oil over the long-term, consumption of oil on these scales is simply out of the question. The consequences in terms of CO₂ emission would also be totally unacceptable. India's CO₂ emission in 2050 will be 20.33 billion tonnes, more than what is regarded by International Panel on Climate Change (IPCC) as "safe" level of emission in 2050 from the entire world. And these levels of emissions would be clearly inconsistent with even the soft commitment India

has made on greenhouse gas emissions, namely, that India's per capita emission of CO₂ will at no point exceed that of the developed countries.

If an affluent India were to replicate the use of motor vehicles in HICs in 2008, it would have 1 billion vehicles in 2050 which will be close to what the entire world had in 2007. If we were to replicate the OECD pattern fuel usage by vehicles, we would require liquid fuel consumption of 1.6 billion tonnes of oil equivalent (toe) which is more than the global consumption in 2005. CO₂ emissions from these vehicles will be 5.30 billion tonnes which is close to the global emissions from transport in 2008. If our use of land per vehicle were the same as in developed countries today, the land required for roads and parking of these vehicles will be 57 million hectares, which will be about 36 per cent of the arable land of the country.

These numbers clearly suggest that it is not feasible for India to replicate the present pattern of transport with heavy dependence on motor vehicles. Given the stresses created in today's developed countries due to oil dependence, and the expected decline in oil availability over the long-term, it is clearly not feasible for India to consume 1.6 billion of liquid fuel in 2050. And given the turbulence occurring in India in connection with land acquisition, the prospect of taking 36 per cent of arable land for motor vehicles is daunting indeed. So, India just cannot travel the road taken by the developed countries of today.

In 2005, cereal production in HICs was 710.2 million tonnes and in India 240 million tonnes. If India were to replicate per capita food production level of the HICs in 2050, it will need to produce 1202.7 million tonnes which is clearly beyond the potential of Indian agriculture, particularly in view of the limitations in availability of land and water and probable adverse consequences of climate change. Replicating the HIC pattern of agriculture will require 570.5 million hectares of arable land

while India has only 158.1 million hectares, which is likely to decrease with accelerated urbanisation.

Equally binding is the constraint of water availability. Replicating the HIC pattern of agriculture will require annual freshwater withdrawals of 1514.6 billion cubic meters in 2050, more than twice the current level in India. Given the pressures on even the currently available water supply, such an increase is clearly impossible.

The western pattern of consumption is, however, unhealthy and undesirable in addition to being non-feasible. The average per capita consumption of calories in the west is way beyond what is good for health, leading to widespread problems of obesity. In addition, the pattern of consumption has a high intensity of red-meat which is leading to increased incidence of cancer and other lifestyle diseases. Similarly, car population explosion has led to suburbanisation which has been associated with serious problems of health and social alienation. Lastly, excessive use of fossil fuel is leading to air pollution and global warming which can have disastrous effects on the whole humanity.

Fortunately for us, better alternatives are available. With continuing our low-meat diets and by reducing waste of food grains, we can meet the calories requirements of for a perfectly healthy life with about 450 million tonnes of foodgrains in 2050 and with eco-friendly agriculture we can ensure food security even with an affluent income status. Similarly, if we can keep car ownership to the levels observed in Singapore, we can meet the needs of mobility without being overwhelmed by car population. Lastly, we can meet our energy needs within the available carbon space if we make a serious effort for promoting solar power as key source of power for India and on a scale similar to that envisaged by European Union (EU) for 2050.

For all these changes, we would have to work on four fronts. First, we must get prices right, charging carbon emitters full cost of the negative externalities. We must charge full cost of private automobile in terms of fuels they consume and space they occupy. And similarly for prices of fertilizer, power, water and so on. Second, we must undertake additional investments to build eco-friendly agriculture, eco-friendly energy system, eco-friendly cities and high-quality education systems. Thirdly, we must introduce regulations as necessary for controlling car population explosion, inefficient use of water, necessary introduction of solar power and so on. Fourthly, we must do social marketing to inculcate healthy habits of food, mobility, energy and urbanisation.

Institutional and attitudinal transformation for an affluent India 2050

All these changes will require major transformation of our institutional patterns which will be quite different from what is often proposed by neoliberals. We would need more democracy but that has to be cleaner through, among other things, public funding for political parties. In order to provide for the necessary public goods, we would need a greater, not smaller, role of the Government though the government must be more effective. We would need more of organized private sector but it must not be excessively eulogized but be made more responsible socially.

For these changes, we need to change our legal and administrative set-ups. But that is not enough. We also need to rebuild our social capital including respect for our collective self. We also need to repair and reground our moral compass. Moral compass cannot be grounded in reason and self-interest alone but needs grounding in spirituality. Fortunately, blessed with the stalwarts like Aurobindo, Swami Vivekananda and Gandhi, we have rich tradition in that area. For example, on most of the issues where we need institutional and attitudinal reforms (such as confidence in Indianness, identification with the masses, reform of education, fearlessness, freedom, status of women) Swami

Vivekananda's words are like bombshells and provide ample guidance (see Box 1). If in addition to enacting legal and administrative reforms, we can internalize the teachings of Swamiji, we will be well on our way to achieve the much-needed institutional transformation which will include curing the cancer of corruption, building an effective government and responsible private sector.

Combining institutional transformation with economic reforms discussed above, we shall be moving steadfastly towards an affluent India which would be socially and environmentally sustainable and could be a role model for holistic development.

Conclusion

Is all this achievable? Faced with the long list of do's, we may feel disheartened. Which way shall we go? Only time tell. But I believe that if we do not mend our ways and continue on our present trends, we will be a victim of what has been called 'middle income trap' with our continued poor social development, inferiority complex and dominance by China. That will be a betrayal of what our freedom fighters fought for. A better future is possible. But we must exert ourselves. Economists must do their bit. Whenever we feel downcast, let the clarion call of Swami Vivekananda be our watchword: Arise, awake and stop not till the goal is reached!

Endnotes

- ¹ Annual Address by Robert S. McNamara, at the Annual meetings of the Board of Governors of The World bank Group, September 26-30, 1977.
- ² Global Growth Generators; Moving Beyond Emerging Markets and BRICs", Willem Buiter and Ebrahim Rahbari, CEPR Policy Insight No. 55, April 2011
- ³ Angus Maddison, The World Economy. A Millennial Perspective, OECD, 2001.
- ⁴ I have elaborated on this theme in RIS Discussion Paper #158, October 2009.
- ⁵ I am grateful to Ambassador Shyam Saran, Chairman of RIS for highlighting the need for exploring this dimension of growth.

Thus Spoke Swami Vivekananda

On patriotism and identification with the masses:

“I am an Indian, every Indian is my brother. The ignorant Indian, the poor and destitute Indian, the Brahmin Indian, the pariah Indian is my brother. The Indian is my God, India’s society is the cradle of my infancy, the pleasure garden of my youth, the sacred heaven, the varanasi of my old age. ..The soil of India is my highest heaven, the good of India is my good.’

Warning against blind copying of the west:

‘When I see Indian dressed in European apparel and costumes, the thought comes to my mind, perhaps they feel ashamed to own their nationality and kinship with the ignorant, poor, illiterate and downtrodden people of India.’

On national self-help:

‘One must not depend on any foreign help. Nation like individual must help themselves. This is real patriotism. If a nation cannot do that its time has not yet come. It must wait the new light must spread all over India. With end.. (we) must work.’

To the upper classes:

‘You merge yourselves in the void and disappear, and let India arise in your place. Let her arise—out of the peasant’s cottage, grasping the plough, out of the huts of the fisherman, the cobbler, and the sweeper. Let her spring from the grocer’s shop, from the factory, from marts, and from markets.’

On the need for liberation from the oppressive elite:

‘Kick out the priests, who are always against progress. Because they would never mend, their hearts would never become big. They are the offspring of centuries of superstition and tyranny. Root out the priest craft first.’

On the importance of education for the masses:

‘The only service to be done for our lower classes is to give them education, to develop their lost individuality...they are to be given ideas. Every nation, every man and woman must work out their own salvation. Give them ideas—that is the only help they require, and then the rest must follow as the effect.’

On the quality of education:

‘The education which does not help the common mass of people to equip themselves for the struggle for life, which does not bring out strengthen of character, a spirit of philanthropy, and the courage of a lion—is it worth the name?.. We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one’s own feet.’

On attitude towards women:

‘It is very difficult to understand why in this country so much difference is made between men and women, whereas the Vedanta declares that one and the same conscious Self is present in all beings.’ ‘Educate your women first and leave then to themselves; then they will tell you what reforms are necessary for them.’

On the importance of ethical and spiritual culture for social progress:

‘No amount of force or government or legislative cruelty will change the conditions of race, but it is spiritual culture and ethical culture alone that can change wrong racial tendencies for the better.’

On avoiding pessimism:

‘Be not in despair, the way is very difficult like walking on the edge of a razor; yet despair not, arise, awake and find the goal.’

On self-help:

‘Take the whole responsibility on your own shoulders, and know that you are the creator of your own destiny. All the strength and succor you want is within yourselves. The infinite future is before you...’

His call to action and optimism:

‘Arise and awake and stop not till the goal is reached. Arise and awake! Awake from the hypnotism and weakness. ... Too much of inactivity, too much of weakness, too much of hypnotism has been and is upon our race. O ye modern Hindus, dehypnotize yourself.. power will come, glory will come and everything that is excellent will come.. Arise, awake, sleep no more; within each of you there is the power to remove all wants and miseries.. If you think that infinite power... indomitable energy lie within you, you can reach the goal.’

On freedom;

‘To advance towards freedom-physical, mental and spiritual and help others to do so is the supreme prize of man. Those social rules which stand in the way of the unfoldment of this freedom are injurious and steps should be taken to destroy them speedily. Those institutions should be encouraged by which men advance in the path of freedom.’

On the need for going beyond narrow nationalism: ...

‘In politics and sociology, problems that were only national twenty years ago can no more be solved on national grounds only. They are assuming huge proportions, gigantic shapes. They can only be solved when looked at in the broader light of international grounds. International organizations, international combinations, international laws are the cry of the day.’

On the role of India in the world:

‘The eyes of the whole world are now turned towards this land of India for spiritual food; India has to provide it for all the races. Here alone is the best ideal for mankind; and the western scholars are now striving to grasp the ideal, enshrined in our Sanskrit literature and philosophy and which has been the characteristic of India through all the ages.’

Source: Collected Works of Swami Vivekananda.

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