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Climate change, internationalism and India in the 21st century

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Climate Change, Internationalism and India in the 21st Century

Jawaharlal Nehru Lecture – 15th July 09

Nicholas Stern, London School of Economics

Introduction and key themes

The defining challenges of our century are overcoming world poverty and managing climate change. We succeed or fail on both together. India is and will be at the heart of both and will play a role of fundamental importance. And in so doing India will become even stronger as a world leader in international economics, politics and governance in the coming decades.

The basic foundation of India's leadership will be in performance and principles. India's economy will grow strongly and still more strongly if it is more inclusive. And the principles that Nehru embodied so clearly of independence, democracy, human rights and dignity, good governance, rational analysis and secularism, will underpin India's moral authority. But it will take leadership and sound policy for performance to be raised further and principles to be sustained and enhanced. And India must be able to call on the understanding and strong support of its friends.

My approach is that of an economist but also, I trust, of the social scientist who has tried to understand the social structure of an Indian village (Palampur in Uttar Pradesh, where I have been working for 35 years) and the politics of making national and international economic policy. And I hope it might reflect the influence of those friends who taught me so much about India, including Manmohan Singh and T. N. Srinivasan, the economists who first brought me to India, Lovraj Kumar, the great Indian public servant, Dharma Kumar the economic historian, and the many Indian economists who I have argued with and learned from for nearly four decades. And I hope it is in the tradition of the outstanding international and Indian public servant and former director of the LSE, I.G. Patel, after whom my chair at the LSE is named.

The foundations: looking back

India's strengths have emerged from millennia of history of complex and often intense political, philosophical and religious argument, of interactions with traders and invaders, and of development and innovation in social institutions. India was the first country to

achieve independence after the Second World War and has been a model to others. It has a remarkable and vibrant democracy, including a diverse and challenging press. It has shown how the military can be at the service of and subject to the will of those who are elected. It has a way of asserting rights, such as clean air, through the courts. And it has pioneered novel methods of social support, including recently the national rural employment guarantee act (NREGA).

India has seen growth accelerate over the years. Annual growth in GDP per capita has accelerated from a little over 1.3 percent in the three decades after independence to around 7 percent or more recently, a rate of growth that would double average income in a decade. There have been many reasons, including the movement out of agriculture into faster growing industry and services, technological change, and importantly in more recent years the creation of an investment environment with less regulation, openness and lower interest rates, which has fostered increasing investment. Investment levels reached nearly 40 percent of GDP in fiscal year 2008. These forces are likely to remain strong over the next two decades and thus India's higher investment rates and the overall growth rates they imply are likely to continue.

India's principles and achievements have been tested by crises including regional wars, adverse weather and natural disasters: from the war with China and India and the disastrous harvests of the early and mid 1960s, to the Kargil Conflict in 1999, the 2004 Asian Tsunami and the monsoon flooding of 2007 and 2008. Most recently India seems to be weathering the international economic crisis better than others. The IMF projects GDP growth of plus 5.4 percent in 2009, compared to minus 3.8 percent for advanced economies and minus 0.3 percent for the ASEAN 5¹ (World Economic Outlook Update, July 2009). Nehru's principles have not been lost or forgotten and their returns come not only directly from the freedoms they bring but also from the resilience and economic advance they can foster.

There have also, however, been tensions, fractures, erosion and regress in key areas. Weak governance, poor public service delivery and corruption have been pervasive. For example, India's ability to raise tax revenue is inferior to that of China or Brazil, in some states as much as 40 percent of electricity is stolen and in some states up to 40 percent of teachers fail to show up at school (WDR 2004, p.24). Environment and natural endowments have been destroyed, damaged and lost. This is particularly the case with

¹ Indonesia, Malaysia, Philippines, Thailand, and Vietnam

forests: recent data from the biodiversity conservation organisation Aaranyak show that the north-eastern states of India have lost almost 20 percent of their forest cover in the past two decades.

Further, India had three or four decades of looking inwards economically from the mid-1950s to early 1990s. This was reflected too in Indian politics and accentuated after the death of Nehru in May 1964. For many during those decades, and for many it continues today, outside actors whether they be economic or political are viewed with suspicion, and international economic opportunities are often seen primarily as risks and threats.

There has often been a marked defensiveness in approach, although sometimes this defensiveness is in the eye of the beholder. India, like any country, will defend its perceived interests, but in my view the defensiveness is sometimes both real and actually damaging to India's medium- or long-term interests. However, I think that this is changing and India and the world have so much to gain from an India moving ever more strongly to constructive leadership.

Palanpur

Before looking forward to some of the grander and more aggregate issues of India's future growth and of managing climate change, let us turn to the very micro and the Indian village that I and colleagues have been studying for 35 years. It is through India's approximately half a million villages that so much of India's past and future must be understood. For me Palanpur has been both anchor and lens in my attempts to understand change in India and economic and social development more generally.

Palanpur, a village now of around 1300 people, is in the Moradabad District of UP. It was studied in detail by the Agricultural Economics Research Centre of the University of Delhi in 1957/8 and 1962/63. Christopher Bliss and I carried out another detailed study in 1974/75 (reported in our book of 1982) and in 1983/84 and 1993, Jean Drèze, Naresh Sharma and I again collected household level data covering the whole village, its social structure and economic development; much of the analysis of the first five surveys was set out in a book edited by Peter Lanjouw and myself. The sixth survey, led by Himanshu, is now completing its data collection and we will be working on the analysis over the coming year or so. Our original choice of Palanpur in 1974/75 was shaped by a number of criteria, including the desire to examine economic change (hence the need for

an earlier study), the role of wheat and the green revolution, land tenancy and the wish to be able to live independently of any particular group.

Whilst the earlier surveys did indeed show change, including from irrigation, the green revolution and the beginnings of extensive employment outside the village, it is already clear that the period between the fifth and sixth surveys (1993 to now) has seen economic and social change at a far more rapid pace than in previous years. Palanpur is integrating into India and the modern world. Yet, at the same time, poverty, hardship and security are ever present and public services, particularly in health and education are very weak. This is not the time to report in detail but a few simple results will illustrate that whilst growth is occurring in Palanpur there are severe problems. The growth is much slower than India as a whole. Its drivers continue to be both employment outside agriculture and the intensification of agriculture. But the forms these drivers take, and the growth itself, are changing.

In the last fifteen years around 40 of 200 households have migrated out of the village. In previous years income from outside agriculture came largely from commuting or temporary migration and such income continues to grow; but the new phenomenon is permanent movement out of the village. It seems that households with assets and of higher caste are more likely to move than poorer, lower caste households. The increasing links with the outside world of employment appears to be tightening the market for agricultural labour in Palanpur with real wages more than doubling in the last 20 years. Agriculture too is changing with a continued expansion in rice and wheat, with slowly rising productivity, although the understanding and use of fertilizers and pesticides is haphazard. But the radical change is a new crop mentha, the raw material for mint oil.

In the time we have been visiting Palanpur the water table has dropped from 10 or 12 feet to around 40 feet. This is symptomatic of the profligate waste and misuse of water across India. Essentially we are seeing “water mining” on a massive scale with the rapid depletion of a resource faster than it can be replaced. This is a problem which will surely be exacerbated by climate change. In recent years it has been made still more acute in Palanpur by the huge water demands of a nearby paper mill pumping 24 hours a day. Trees continue to be cut down – the big mango grove went about 25 years ago.

On the social front there has been much less progress, in fact sometimes the opposite, with the deterioration of the village school in terms of resources and the attendance of teachers. Palanpur’s education statistics are low even by the standard of UP. Infant

mortality rates are at the high end for UP, one of the worst states in the country on this crucial indicator. Violence is a real problem and we know of many murders in the 35 years we have been working there.

There have been many important new initiatives such as the National Rural Employment Guarantee Act (NREGA) and the National Rural Health Mission (NRHM) but these have been largely undermined by corruption by the headman, who was in charge of their administration. And the seed store and the co-operative bank have more or less 'shut up shop'. The picture on this front is not totally bleak however as the corrupt headman has recently been thrown out of office in a rare showing of collective action.

Signs of integration into the modern economy are very visible with for example, the rise of mobile phones in the last few years (around half of the households own one) and the advent of electricity (about 10 years ago) resulting in many televisions. Production assets have been rising too with many more diesel engines, mechanical threshers, tractors and so on.

This is a village which in many ways is reflecting or illustrating what is going on across India as a whole. Strong growth in urban areas is influencing rural areas. People are moving, communication is improving. But insecurity across many dimensions -- income, health, personal -- is ever present, the public services are performing very weakly, and the environment is degrading.

Looking forward: growth, inclusion and governance

Let us now return to the broader growth story. In my view, the factors that have been driving India's growth are likely to be sustained or enhanced over the next one or two decades. As some of my Indian friends have remarked, "there is a strong consensus for weak reform". The better investment climate is likely to be sustained. Policies of openness, and lower interest rates than in the past, are likely to continue. Thus there are excellent prospects that the higher investment that has driven growth will be maintained. Indeed as China and India's investment rates move closer, India's higher efficiency in the use of capital may well imply that India grows faster than China in the next two decades. But given that India is unlikely to want to rely on foreign savings, the high investment rate will have to be sustained by domestic savings. This in turn is likely to require a competitive exchange rate and the maintenance of the higher share of profits that has sustained the higher savings of the last decade or so. The rise of India's savings and

investment rates, from the mid-20s (in percentage terms) to the mid-30s, over the last decade has been a key element in its more rapid growth: around half the increase is from households and half from firms, government savings have continued their decline.

There are, however, a number of key elements that could prevent India from realising its extraordinary potential. The improvement in the investment climate has a long way to go. It still takes more than 70 days to start a business officially in India, compared to less than 20 days in China or South Africa. And the number of different types of tax payment for a business in India is around twice that of China and three times South Africa. There are many regions, social groups and sectors which have lagged behind or been excluded from India's growth story: these include women, major states such as UP, rural areas, and those lower in the social hierarchies. These are of great political and ethical importance and represent a high proportion of the population. India's growth rates will rise if there is greater inclusion. Put simply, if large groups are left out, growth will suffer. More important, the primary objective of overcoming poverty is directly damaged if growth is not inclusive. Key policies for inclusion are investing in the health and education of people who are deprived and the breaking down of the barriers that hinder their participation. Women in India remain much less educated than men and face more obstacles in employment with the result that the labour force participation rate for men is around four times that for women², when it is not far away from equality in China.

In many areas the quality of governance and the delivery of public services has damaged investment and growth on the one hand and the ability to participate of deprived groups on the other. The illustrations we gave from Palanpur are, for example, reflected across UP. The result is that the disparity across states continues to widen.

In this sense a large part of India's challenge lies in raising the productivity of the public sector across the board, from education and social services to rural infrastructure and the bureaucratic determinants of the investment climate. The productivity of the private sector is moving strongly forward but that has not been reflected in the public sector. This differential in productivity growth across public and private sector is not easily quantified as it is hard to give precise measurements of public sector productivity. But I believe it to be a crucial issue in India's future growth and it deserves far greater attention.

² The National Sample Survey.

The damage done to India's environment has been severe and that too affects both growth and inclusion as well as being a profound loss in itself. The black soot on the Himalayas accelerates melting and absorbs, rather than reflects, heat. The destruction of the forests silts the rivers, causes soil erosion, disrupts watersheds, emits carbon dioxide and destroys bio-diversity. Water tables are falling across India, as in Palanpur. The assertion of a trade-off between growth and poverty reduction on the one hand and environment on the other is profoundly mistaken. The environmental damage is already threatening livelihoods and unless there is strong action the damage will intensify. There is much that can be done that good policy and better governance could deliver, from conserving water, to abolishing subsidies which encourage the waste of energy, to better agricultural extension services. And there are good examples. Rainwater harvesting in Chennai has helped raise the water table. In Chennai harvesting is mandatory in 3-storey buildings and all new water and sewer connections are provided only after the installation of harvesting systems.

Thus, India's growth and poverty reduction depends strongly not only on policies that are directly favourable for growth, in terms, for example, of a positive and competitive business climate, but also on policies for, and particularly delivery of, better public services and greater protection of the environment. The point here is not only, or even primarily, growth. Strong policies and governance will promote much greater inclusion and poverty reduction and greater social and environmental security. Good policy and good delivery are vital not only to India's development over the next two decades but also its place in the world. It will be India's growth, India's poverty reduction and India's social and environmental security, all three, which will shape its influence in a new economic order.

There is so much that those outside India have to gain from its advance, and they share a responsibility to provide strong and sustained support. This should include greater openness of rich country markets and the dismantling of agricultural subsidies such as the European Union Common Agricultural Policy. Assistance in the fight against poverty, is a fundamental duty; a quarter or more of the poorest billion in the world are in India. And India's success in managing its environmental problems and its greenhouse gas emissions will be vital to us all.

The global economic crisis

I have not dwelt here on the global economic crisis and India. That would be the subject of another lecture. But an increasingly integrated India cannot be, and is not, immune from the global slowdown and potential future instability. India's conservativeness in international financial and investment policies has given it greater resilience than many other developing countries. Whilst India's growth has slowed with this global recession, it has continued: but this should not confuse us into thinking that strong progress in the reform of the financial sector can be delayed. On the contrary, India will need to be much better served by its domestic financial sector if it is to sustain the strong investment and savings rates necessary to drive its growth and the better allocation necessary to improve the overall efficiency of investment. Reform of its taxes will be crucial both to raise revenue and improve government saving and to lighten the bureaucratic burdens on business. Sound public finances give the strength to pursue expansionary fiscal policy in the face of a slowdown, whilst holding interest rates low. This financial reform and a stronger fiscal position will be important in enabling India to manage the global instabilities that will be unavoidable over the next one or two decades.

But there is something new here in India's growth in relation to the rest of the world. Over the next 20 years, China and India will be key influences on world growth itself. Together their share of the world economy, even at market prices let alone PPP, is likely to rise from around 7 percent to around a quarter. The issue is no longer only about how the world economy affects India. It is now also about how India, as a major element in world growth, will affect the world economy.

Looking forward: climate change, global agreement and India

Business-as-usual in greenhouse gas emissions will, by the end of this century through climate change, likely result in enormous destruction of the world's habitats, affecting everyone. It would redraw where and how we could live and result in the movement of hundreds of millions. We would reach concentrations of greenhouse gases in the atmosphere which would probably take us to temperatures – 5 degrees centigrade or more above those of the 19th century (the usual benchmark) – that have not been seen on this planet for at least 30 million years (we humans have been here for only 100,000 or 200,000 years). India with its dependence on rivers from the Himalayas, its big coastal populations, the role of agriculture, the importance of the monsoon, and its vulnerability to natural disasters is one of the countries most at risk.

There are deep inequities. The poor countries which are most vulnerable are least responsible for the current concentrations of greenhouse gases in the atmosphere. And India's emissions per capita, currently close to 2 tonnes CO₂e, are less than a fifth of those in Europe and less than a tenth of those in the USA. Nevertheless, the world cannot bring down its emissions – it must cut by at least 50 percent, 1990-2050 – unless the people of the currently developing countries are centrally involved: they will be 8 billion of the global total of 9 billion in 2050. The arithmetic simply cannot work unless they are.

Let me describe some of the arithmetic, because it is crucial that these numbers are part of the debate inside and outside India. India's emissions are around two-thirds from energy and one-third from other sources. Under business-as-usual it is quite likely, with the connection to the grid of the 50 percent unserved rural households, the growth of consumption and production, and rapid growth in car ownership, that India's emissions per capita would go up by a factor of around 4 over the next 20 years (that would correspond to a 6 or 7 percent per capita growth rate and emissions growing at a similar rate to income). At 8 tonnes per capita CO₂e and with a population of around 1.5 billion, that would give annual emissions in 2030 of around 12 Gt CO₂e from India. This is illustrated in Table 1, Scenario 1.

If China's per capita emissions were also to grow at this rate (they are now close to 6 tonnes per capita) until 2030 then China's total emissions would be around 35 Gt CO₂e, or more. Together India and China would be around 47 Gt CO₂e.

To be on a path to halve global emissions by 2050 from 1990, the total world emissions in 2030 would have to be around 35 Gt CO₂e. That would mean the 5 billion or so people outside India and China in 2030 would have to average negative 2 tonnes per capita by 2030, compared with 8 tonnes per capita for India and 23 tonnes per capita for China. That is clearly impossible.

This makes crystal clear that the world cannot get anywhere near its targets unless there are very powerful reductions in emissions per unit of output in both India and China, in relation to 'business-as-usual', to the point that emissions per capita in those countries are in the region of, or less than, 5 tonnes CO₂e in 2030; India might be around, say, 4 tonnes per capita and China around 6 or back to where it is now, as Table 1, Scenario 5, illustrates. This would imply a total of around 15 Gt CO₂e for the two countries (combined

population around 3 billion by then), 'leaving' around 20 Gt CO₂e for the other 5 billion in the world, or around 4 tonnes per capita for them. Even 5 tonnes per capita average for India and China in 2030 would leave 'room' for others that would probably be seen by some as too small to be feasible.

To put it another way, India's emissions per unit of output would have to fall by a factor of around 2 over the next 20 years. A cut in emissions per unit of output by half implies a 16 percent reduction for each of the 4 five-year plans covering the two decades. Put that way it looks more feasible. A cut by a factor of 4 requires a 29 percent reduction in each of the 4 five-year plans. China is likely to cut energy per unit of output by 20 percent during its 11th five-year plan finishing in 2010. But the investments in energy efficiency and the low-carbon economy would have to start strongly now. We should not be rigid about precise numbers in 2030, or a particular year. There could be a little more emission in one year and a little less in another. But the strictness of the overall arithmetic of the total emissions over the next few decades is very real.

Table 1

Scenario for emissions (em) change to 2030	Emissions in 2030					
	India		China		Rest of World	
	tCO ₂ e per capita	Total (GtCO ₂ e)	tCO ₂ e per capita	Total (GtCO ₂ e)	tCO ₂ e per capita	Total (GtCO ₂ e)
Scenario 1: 7% growth per capita; em/output constant India & China	7.7	11.6	23.2	34.8	-2.1	-11.4
Scenario 2: 7% overall growth; em/output constant India & China	5.2	7.7	20.6	31.0	-0.7	-3.7
Scenario 3: 7% growth per capita em/output - India constant, China halving.	7.7	11.6	11.6	17.4	1.1	6.0
Scenario 4: 7% overall growth; em/output - India constant, China halving.	5.2	7.7	10.3	15.5	2.2	11.8
Scenario 5: 7% growth per capita; em/output - India halving, China decrease by factor of 4.	3.9	5.8	5.8	8.7	3.8	20.5
Scenario 6: 7% overall growth; em/output - India halving, China decrease by factor of 4.	2.6	3.9	5.2	7.7	4.3	23.4

Population assumptions (bn):	2010	2030
China population	1.4	1.5
India population	1.2	1.5
Rest of World	4.3	5.4

Source: UN 2008 World Population Prospects

In thinking about the magnitude of change we must constantly bear in mind that the 2 degrees centigrade ceiling the scientists speak of in the discussion of 'dangerous climate change', and which was agreed at the G8 summit and meeting of the 'Major Economics Forum' (of which India is a member) earlier this month, implies that the global cut in emissions by 50 percent, 1990 to 2050, should be strengthened, not relaxed.

It is interesting here that PM Manmohan Singh pledged, at the G8-G5 summit in the summer of 2007 in Germany, that India's per capita emissions would never exceed the average for developed countries. For Europe, at least, the average would have to be around four or five tonnes per capita by 2030 if it is to reach two tonnes per capita by 2050, which is implied by the 80 percent reduction target 1990-2050. Thus India's per capita emissions, under the scenario of strong action in India, might meet those of Europe by the end of the 2020s.

Thus the whole world has to find low-carbon growth and developing countries simply cannot follow the high-carbon route if the huge risks to the whole planet are to be managed effectively. For the world, low-carbon growth is the only viable form of growth. High-carbon growth will kill itself, first from high hydrocarbon prices but more fundamentally from the very hostile physical environment it will create. Rich countries must take a lead in finding a way to low-carbon growth, Technological change will be vital, and the rich countries must share technologies and provide finance so that developing countries can also find low-carbon growth. We have no time to lose.

The mechanisms for support by rich countries should be organised around the climate change action plans of poor countries. In my view the developing countries should now set out their own perspective on the action plan for the world. They will be the 8 billion out of the global population of 9 billion in 2050. In this fundamental sense it is their world. It is the rich that bear the primary responsibility for past emissions and current concentrations but action, by sheer force of numbers, has to be strong in the developing world too.

Thus, in my view, the developing countries should not only challenge the rich countries to implement very strong cuts, they should also give a "commitment to commit" themselves to targets within five to ten years, targets which are consistent with the 'adding up' I have described. That would involve around 20 percent cuts, in absolute

terms, for the developing world 1990-2050, alongside the 80 percent cuts for the rich world.

But they could and should place the following conditions:

- (i) strong performance by the rich countries over the next decade towards meeting targets for 2020, 2025 and 2030, which are tough and fully consistent with a path to reductions in emissions of at least 80 percent by 2050 relative to 1990;
- (ii) financial support through the markets and elsewhere for action in the developing world, and strong support in the battle against deforestation;
- (iii) rich countries to develop new technologies for low-carbon economic growth, which should be shared with developing countries; and
- (iv) substantial assistance in adaptation to the impacts of climate change over the next few decades which are now inevitable.

This would be a framework where the developing world would explain to the rich world what is necessary and place the conditionality and performance requirements on them.

India's low emissions and its challenge of poverty reduction give her moral authority on climate change. And with its strong new government and fine analysts, India is well-placed to take a lead in setting the agenda. Its entrepreneurship and physical endowments mean it can prosper from the new opportunities presented by the low-carbon economy. India has been viewed by many, in my view unfairly, as an obstacle to progress. Now is the time for India to move into the lead on international discussions. The world has only just over four months to find an agreement in Copenhagen in December 2009. India's role will be vital. There is no more important issue for the well-being of future generations in India and the rest of the world.

If Indian emissions were to peak at around 5 tonnes per capita in 2030 and China's at around 9 tonnes per capita in 2020, as part of successful global action, historians, looking back in 2050 would have to regard India as a hero. Their emissions, on the road to overcoming poverty would have peaked at 5 tonnes per capita, compared with China at 9, Europe at 12, and the USA at well over 20. This illustrates the consequences of past action by the rich countries in "filling up" the atmosphere and China's growth surge starting a decade or two before India's. Unfortunately, unless India is a hero in this sense, it will not be possible for the overall targets to be realised. We start in a very difficult and inequitable position.

This perspective surely underlines India's moral authority. It demonstrates that India is uniquely qualified to take a lead in framing the agreement. It shows how wrong it is to accuse, as some do, India of intransigence. And it establishes that India has a very powerful case for substantial technological and financial support for its move to low-carbon growth.

The argument is not, however, only about the worthiness of India's moral position, its potential leadership and the future safety of the planet. India has much to gain beyond the crucial issue of greater security from climate change. Low-carbon growth is likely to be more energy-secure, cleaner, quieter, safer and more bio-diverse. Further, the transition over the next two or three decades is likely to bring a period of dynamic innovation and investment which could drive strong growth, just as the railways and electricity did in earlier periods. India could be a real leader in the new technologies and take advantage of the opportunities involved in building a more modern infrastructure. Indeed, in some of the new areas, India is already showing industrial leadership.

A new internationalism

The world has gained greatly from the integration known as globalisation. But our interdependence now means that many crucial aspects of policy and institutions must be determined internationally: trade, investment, finance, health, drugs, arms, terrorism, human rights and governance in general. Some, but not all of this will require the reform of international institutions, including the IMF and the World Bank. But still more fundamentally, it will require an approach to international collaboration which rises above narrow perception of short-term self-interest and which sees the return to all of us, and our broader, longer-term self-interest, from working together.

Collaboration on climate change will have to be on a greater scale than the world has ever seen. But if we succeed here it will make collaboration on all these international issues far easier. Indeed, bringing a few of them together in implicit understandings may mean that it is easier to move forward on any one of them. That kind of perspective, putting the big issues together, can take place only at the Presidential or Prime Ministerial level. It cannot arise only amongst trade ministers talking about trade, environment ministers discussing the environment, and finance ministers working on financial issues.

India's talents, history, endowments and size imply that India will be crucial to the world's future on all of these fundamental dimensions. India's role in the world is already becoming closer to that which Nehru probably imagined. Nehru saw the importance of collaboration and the longer view. He understood the international role that India was uniquely equipped to play. And, as it happens, he saw the potential of both solar and nuclear power for India. I think that if India now takes the lead in these discussions on climate change, along the lines I have tried to describe, it will have transformed the future prospects of our planet. It will also have placed itself where it should be, at centre stage, in the politics, economics, philosophy and governance of our world.