



Resource Management in Asia-Pacific

Working Paper No. 8:

**India and China—‘the populous giants’—critical problems
of resource management**

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India and china—the populous giants—critical problems of resource management

There is a more than five-fold difference in the scale of Hewlett Parkard's investments in China and India. And the difference reflects the reality that infrastructure is increasingly determining Asia's imbalances of power¹.

We now better understand the disadvantages of governments attempting to regulate or influence prices of goods and services, both domestic and international, and to have responsibility for important service and industrial sectors of economies. We are also, it seems, beginning to grasp what may happen to those societies whose political economy has been based on assumptions that state/municipal ownership, or substantial control over the means of production, distribution and exchange, will achieve a more rational allocation of resources. One consequence seems to have been that the former Soviet Union, and the countries it subjected in Central Europe, achieve not rational but irrational allocation of resources and this contributed significantly to the collapse of their regimes. Irrational use of resources is clearly a very pressing problem for India and China, both adherents to different versions of socialism, as well as other countries with large public sectors.

What is evident is that one of the most serious failings of socialist systems, whether Leninist or democratic socialist, is that many of them have usually been unable to provide adequately for the renovation and efficient management, in the face of economic development and technological change, of basic infrastructure, water supply, energy, road and rail transport and telecommunications.

It may be most unfashionable to utter cautionary words about economic growth: but I think that there is abundant empirical evidence which demonstrates that optimism about economic growth, as measured by increases in estimates of real GDP, should be tempered when no allowance is made in the calculation of such estimates for the 'externalities' of economic processes, particularly the pollution of water and the conversion of materials to energy. 'Externalities' are, in the vocabulary of economists, the adverse consequences of economic activity, such as erosion caused by humans, deterioration of soils through inappropriate use of chemicals and chemical fertilizers, air pollution from exhaust gases and the degradation of water systems from human, agricultural and industrial wastes.

All twentieth century societies have pursued 'growth' according to their own lights, some more successfully than others. Governments have not been unaware of the externalities problem. Environmental problems are not a new phenomenon. Britain did not pass a Clean Air Act until the 1950s. There processes of degradation began with the big increase in mining at the beginning of the industrial revolution. The pattern has been: push on with development—it will be possible to clean up environmental problems after much higher levels of material well-being have been achieved. Japan is used as an example of what a major economy can do.

Another notion which has led to problems in all the public industrial and service sectors of economies is the assumption by socialist and social democratic economists that 'socialized' industries or public enterprises would, by definition, be profitable to the state and environmentally benign because they would be managed in the public interest.

The Fabian Sidney Webb articulated this at the turn of this century:

No nation having once nationalized or municipalised any industry has ever retraced its steps or reversed its action.²

That has been proved wrong, as has the assumption that it would not be necessary for public enterprises to be run utilizing the rigorous accounting systems and best management practice of private capitalism, especially accrual for eventual replacement of plant and equipment, and willingness to change work practices as new technology becomes available.

Geography

The primary geographic feature of the eastern half of the Eurasian continent is the great Hindu Kush-Himalayan system and the ranges which extend from it to divide the Indian sub-continent from Burma, almost to split southern from northern China, to divide Burma from Thailand and Laos and to protect the eastern seaboard of Vietnam.

These mountain systems have, because of their sheer scale, served greatly to limit contact between the civilizations of the Indian sub continent and China but they are the sources of rivers, great and small, from the Indus to the Huang He. The major rivers, the Indus, the Ganga, the Irrawaddy, the Mekong, the Song Koi Koi Hong, the You Jiang, the Chang Jiang and the Huang He, and their basins should be regarded as providing the fundamental resources, in terms of forests soils and waters, of the most populous sub-regions of the Eurasian continent.

I suggest that much historical work and, certainly, much of the writing about the eastern regions of the Eurasian continent, has been excessively concerned with political boundaries, many of which, divide the present nation states of the sub-regions, and the states and provinces of these nation states.

If one attempts to get an understanding of the contemporary problems of the sub-region it is useful, I suggest, to consider the present and likely future circumstances of the river basins as well as the prospects for the nation states

¹ Emily Thornton, Asian Infrastructure, Risk Vs Reward, *Far Eastern Economic Review*, 27 March 1997, p38.

² Sidney Webb quoted by Anne Fremantle in *This Little Band of Prophets*, Allen and Unwin, London, 1960, p87

which control or share them. Such an approach should provide an empirical basis for attempting a realistic and relevant analysis of the problems confronting the governments at both central, provincial, municipal and village level of the successors to many of the great irrigation civilizations about which Carl Wittvogel wrote so perceptively thirty years ago.³

Population

There is much debate about the impact of sheer numbers of people on the environment. The issue is not absolute numbers, but the nature of the economic activity of a given number and whether numbers of people and their economic activity is tending to increase.⁴ In the case of the regions dealt with in this Working Paper, the possible populations in 2025 is summarized in Table 1.

Table 1: Projected population growth

Country	Population (000 Millions)	
	1995	2025
China	1153	1540
Taiwan	21	
Sub-total	1174	1565 (est)
Indian Sub-continent		
India	931	1394
Pakistan	135	260
Bangladesh	128	223
Nepal	22	40
Bhutan	1.5	3.4
Sub-total	1217.5	1920
South-East Asia		
Burma	447	76
Laos	5	9
Cambodia	9	17
Thailand	58	73
Vietnam	74	117
Malaysia	20	31
Sub-total	213	323
Central Asia		
Mongolia	17	na
Kazakhstan	17	na
Tajikistan	6	na
Uzbekistan	23	na
Uzbekistan	23	na
Sub-total	63	
Total	2667.5	3930 (est)

Source: World Resources 1994, UNEP with Oxford University Press

Resources

There are three essential resources—air, water and soils. If all three deteriorate any economy will get into progressively more and more serious difficulty. These three, and energy, should not be regarded as factors of production like other resources. Energy differs from the first three in that it is dependent on air, if not in the form of sunlight, and is derived from, plant materials, the work of humans and animals, utilization of falling water and also largely from the combustion of fossil materials, notably of course, coal and hydrocarbons.

The rate of consumption of these non-renewable resources has grown so rapidly and is continuing to increase to the extent that the entropic consequences of such consumption are causing serious externalities everywhere.

Other resources, ferrous, non ferrous and from biological systems of production are being converted into useful things so extensively, utilizing air, water and energy, that wastes from such processes are also adding to the externalities

³ Wittvogel Carl, *Oriental Despotism*.

⁴ J. Mayone Stycos, *Population, Projections and Policy: A Cautionary Perspective*, Working paper, The Environmental and Natural Resources Policy and Training Project, EPAT/MUCIA (Midwestern Universities) 1994.

to such an extent that they threaten water quality everywhere, as well as pressing sources of water to the limit in many important regions and sub-regions with big populations.

Although in most places resources of energy or industrial raw materials are either abundant, or can be imported cheaply, attention needs to be focussed on present rates of consumption and likely demand in the next half century.⁵ We need to get a better appreciation of the consequences of the conversion using energy of these increasing quantities of raw materials and the volumes of water needed by the mining and conversion industries. From that could be derived a better appreciation of the externalities of those conversion processes for the atmosphere, fresh water, soils, vegetation and other species.

We should face up to the possibility, despite the conventional practice expressed as 'get rich first, clean up later' (on the Japanese-South Korean model) that increasing rates of consumption of resources, might make the clean-up processes, very costly in most places and perhaps impracticable in others.

A question should be posed. What are the likely consequences of economic development as measured by the inevitable increases in rates of consumption of materials, especially energy materials? It is axiomatic that if there is insufficient energy any economy will slow down and could go into reverse. An inevitable slow-down in the growth of GDP per capita would appall the apostles of economic growth who have come virtually to reverence economic 'growth' as if it were one of the articles of a major religion.

The consequences can be summarized as follows:

- The international economy is converting too much fossil fuel to energy, but unless it continues to do, or achieves unparalleled increases in efficiency, economic development will inevitably slow down.
- The consequences of this are more than just the addition of excessive quantities of CO² and other greenhouse gases to the atmosphere, they include huge quantities of SOX and NOX and particulate matter which is adversely affecting vegetation and the fertility of soils in many places and, probably worse, degrading sources of fresh water.
- Industries everywhere are using energy to make ever increasing quantities of producer and consumer goods. The wastes of these processes are finding their way into food chains and are polluting surface and sub-surface water systems.
- Agricultural industries have become increasingly energy intensive. This is a consequence partly of the mechanization of farming, including pumping equipment, but also because of the increasing reliance on nitrogenous fertilizers, which need big amounts of electricity to produce. These fertilizers are essential for the maintenance and improvement of levels of production.
- Demand for construction materials, notably cement, has increased greatly, especially in developing countries, adding significantly to demand for energy.
- Chemical industries and industries which use large amounts of chemicals, such as pulp and paper, have been derelict in dealing with their wastes, especially in developing countries.

Water Resources

Economic development, expressed in data of demand for energy and other materials and the consequential widespread use of chemical fertilizers and mechanical equipment in agriculture, together with the development of industries, is slowly but surely causing deforestation, loss of prime agricultural land, degradation of soils through erosion, desertification, salinisation and acidification and pollution of waters from human, agricultural and industrial wastes.⁶ It is also causing a shift of unprecedented magnitude from primarily rural to much more urban economies.

The excessive use of water in some regions, and the pollution of it everywhere, is probably the most serious of an enormous catalogue of environmental problems. Until recently, many economists ignored or dismissed the evidence of progressively more insidious environmental degradation. When questioned they argued that the costs of remedial measures could only be found by increasing material wealth. Moreover, the history of the past two hundred years demonstrated that scientific and engineering solutions can be found for virtually every problem. Such arguments cannot just be dismissed as wishful thinking. But what if the emerging problems, due to the failure to make provision for dealing with the externalities, are of an unprecedented scale?

While acknowledging the risk of arguing from the particular to the general, a recent article in the Far Eastern Economic Review brings out the nature of a crisis confronting small, by Indian standards, but important industrial city in Southern India-Tirupur.

Though Tirupur accounts for 90% of India's cotton knitwear exports, valued at 25 billion rupees (\$697 million), the town does not have the basic infrastructure to support the knitwear industry...

Tirupur's problems are manifold and severe. Employment opportunities and significantly higher income levels...have led to a steady increase in Tirupur's population. But the single-and completely inadequate-natural

⁵ World Resources 1994-95, Chapter 1, *Natural Resource Consumption*, op.cit, pp 3-26.

⁶ Alan Burnett, *The Western Pacific—Challenge of Sustainable Development*, Edward Elgar, 1992, pp 133-167; World Resources 1994-95, People and the Environment, especially Chapter 3, Population and the Environment, Chapter 4, China, Chapter 5, India, World Resources Institute, UNEP, UNDP, Oxford 1994; R.L Edmonds, *Patterns of China's Lost Harmony*, Routledge, 1994; Mark Elvin, *China's Environment Today*, unpublished paper, Research School of Pacific and Asian Studies, ANU 1996.

water sources in the town are completely swamped by effluents. The local population is faced with an absence of drainage and effluent treatment systems, poor and congested road networks and insufficient power and telecommunications facilities.⁷

So much evidence is becoming available that citation of the considerable and increasing literature on the difficulties of ensuring adequate supplies of clean fresh water is a problem in itself. The evidence from China alone is both impressive and concerning. A recent example is the papers of a conference which would have been held in Beijing in February 1977 but for the death of Paramount Leader Deng.⁸

Energy and Industrial Resources

In the 1970s the Club of Rome forecast a disaster for mankind at about this time. Supplies of critical materials would become so depleted that shortages would undermine the industrial countries and make it hard for developing countries to industrialize.⁹ These forecasts were wrong. The problem is not shortages of materials. Petroleum, gas and industrial raw materials are still in abundant supply. *The problem is the increasing rates of consumption of everything* from water to fissile materials. Many more people and significantly greater levels of per capita economic activity must involve more wastes and a greater threat of unmanageable externalities as resources are utilized especially in much larger cities and towns.

China and India

Both China and India face problems of population growth which are virtually beyond the understanding of those of us in relatively underpopulated countries. Estimates for 2025 are: India 1.38 billion (when Pakistan (0.24 billion), Nepal (0.04 billion) and Bangladesh (0.18 billion) are added in the total population of the Indian sub-continent could be about 1.8 billion in less than thirty year's time).¹⁰

China's population is estimated to reach 1,47 billion in 2025, despite the coercive population policy which the government has sought to enforce since the 1980's

China and India pose fascinating challenges for economic historians. Both have pursued socialist systems since the early 1950's. China was derived from the Marxist-Leninist philosophy which underpinned Soviet economic practice and clearly brought the Soviet Union to ruin. India's socialism has impeccable British origins stemming from the Fabian Society.¹¹ It is perhaps ironic that a soundly based political system may evolve in China, despite the legacy of the thoughts of Marx, Lenin and Mao, while India's democratic socialist system may collapse because successive governments have been unable to break the self imposed shackles of what a feature writer in the London Economist has dubbed Nehruvian socialism.¹²

India

India's political economy has been based on maximisation of agricultural and industrial self-sufficiency. Moreover, it has been important for successive governments, in a Herculean struggle against the poverty of such a large proportion of the population, to ensure supplies of food, shelter and to maximize employment even if this has meant millions being underemployed. That priority should be given to the alleviation of the epic problem poverty experienced in India.¹³

There is probably no need to stress the diversity of India. Its mosaic of people and cultures is probably the most complex of all major countries. It is bedeviled by its hostility to Pakistan, the problems of the emigrant Tamil community in Sri Lanka, movement of people from Bangladesh into its eastern states and nationalism within some of those states. In addition its government have to cope with the fundamental problem of latent antagonism between the majority Hindus and the significant minorities of Muslims in many states. In addition there are other identifiable and politically aggressive minorities like the Sikhs in the important Punjab state bordering on the federal enclave of New Delhi.

It also seems that the economic system put in place in the 1950s is well on the path to substantial change as it has demonstrably been unsuccessful. A former Minister of Finance, Manmohan Singh, said in 1993:

...there are still people who believe that the Indian economy can be managed in the nineties as it was managed in the fifties or sixties...Initially it [regulation] served a purpose, but over a period of time, this excessive

⁷ Sucheta Dalal, Local Liquidity, *Far Eastern Economic Review*, 27 march 1997, p 46.

⁸ Chinese society for Environmental sciences, Institute of Human Ecology, with endorsement of National Environmental Protection Agency of the PRC, 1997, *China Environment Forum Papers*, Beijing 24-27 February, 1997.

⁹ D.H. Meadows, D/L. Medows, J Randers, W. W. Behrens, *The Limits to Growth*, Pan, 1972.

¹⁰ Eduard Bos, My T. Vu, Ernest Messiah, Rudolfo A, Bulato, *World Population Projections 1994-95*, John Hopkins Press for the World Bank, Washington, D.C. Population data in this Working Paper is derived from this source other than estimates of populations of river basins.

¹¹ Jadish Bhagwati, *India in Transition, Freeing the Economy*, Oxford, 1993, p21.

¹² *The Economist, February 1997.

¹³ India's Economy East Asia Analytical Unit, Australian Department of Foreign Affairs and Trade, *India's Economy at the Midnight Hour*, AGPS, Canberra 1994, The Economist, February 1997.

regulation became an instrument of harassment, it created excessive uncertainties. It also generated, I think, a lot of corruption in the system and it sapped the creative energies of all.¹⁴

Much of the literature and reporting on India since 1993 has focussed on the problems of deregulating a system based on an indigenous erosion of central planning. What has become apparent is that Nehruvian socialism, like versions of Leninist socialism, contains within its basic philosophy a fundamental flaw. Not only has the planning process become too complex for the central governments of big countries, it has failed to make adequate provision for the renewal and improvement of infrastructure and for the inevitable depreciation, writing off and replacement of plant and equipment used in whatever sphere of economic activity.¹⁵

As far as energy is concerned, policy has been determined by a central planning commission which is responsible for five-year plans. Production and distribution is the responsibility of State Electricity Boards (SEBs).

Although energy has claimed a large share of available investment funds, the national power capacity deficit was estimated in 1994 to be between 10 and 21 per cent of peak demand. As steaming coal is readily available, the main strategy has been to build super-thermal stations close to mines.¹⁶ Nuclear power and hydro-electricity has also been developed. A big problem has been the performance in distributing power, setting tariffs and collecting revenues.¹⁷

Jagdish Bhagwati, an economist noted for his wit as well as insights and scholarship, after observing the 'Honey attracts flies; gold attracts diggers; and India attracted economists', has written:

The disappointment with Indian economic performance lies in her lack lustre growth for a quarter of a century. It lies equally in her consequent inability to remove a significant part of that poverty that afflicts her population.

Then again, the framework of her economic policies, (as defined by the iron fist of controls over the private sector, the spreading stain of inefficient public enterprises, and an inward-looking trade and investment strategy) has produced not merely the dismal economic performance, but also the added sense of a senseless adherence to policies that have long been seen by others to have little rationale.¹⁸

The Australian Department of Foreign Affairs and Trade has referred to the problem in a publication on the Indian economy which appeared in 1994:

In 1994, India had over 1,000 public enterprises, of which 700 were owned by the States. Public sector enterprises in manufacturing, mining, construction, transport, communication, banking and insurance, including State-level enterprises, provided nearly 70 per cent of the 26 million jobs in the organized sector in 1989...

PSEs (public service enterprises) are often characterized by pervasive inefficiency, and poor financial performance...They are a serious drain on government resources...incurred cash losses in 1989-90...

Factors which have acted as constraints on operational efficiency of PSEs include hug cost and time over-runs in project implementation; uneconomic location and investment divisions; choice of inappropriate or outdate technology or linking the choice of technology to the availability of foreign financing; overstaffing...irrational product mix...(etc, etc).¹⁹

If India is having difficulty coping with a series of simultaneous crises, the most serious with water supplies and energy, it is not just because of its doubling of population in recent decades. That is not just because the problems of increasing numbers of people to be fed and housed is an understandable and continuing preoccupation of governments and will remain so. It is because the governmental system has allowed infrastructure to decay in most places. It has clearly also failed to provide adequately for the renovation of the large public industrial enterprises, from power generation to telecommunications and, worse, it has shackled private business with a regulatory system which has ensured excessive obsolescence especially in the heavy industries and in some key consumer goods industries.²⁰

Another more recent Australian publication uses these words to encapsulate the situation as far as energy is concerned:

¹⁴ Manmohan Singh, Business World, 25 August-7 September 1993, cited in *India's Economy at the Midnight Hour*, op.cit, p45.

¹⁵ *India's Economy at the Midnight Hour*, op. Cit, pp16-17.

¹⁶ Bharat Bhusun, *India's Energy: Problems and Solutions for Research Programmes*, ERG Research series, IDRC, Canada, 1990, p124.

¹⁷ Bharat Bhusun, *India's Energy: Problems and Solutions for Research Programmes*, ERG Research Series, IDRC, Canada, 1990, p124.

¹⁸ Australian Department of Foreign Affairs and Trade, op. cit, p53.

¹⁹ Australian Department of Foreign Affairs and Trade, op.cit.pp 46-47.

²⁰ *... India, Economist, February 1997.

The Confederation of Indian Industry (CII) recently pointed out that the most important factor limiting output has been shortage of power. Supply deficits have exceeded 7% annually from 1992 to 1996. The growing electricity crisis is not just due to the lack of power stations but to the poor performance of most state electricity boards (SEBs) that generate, transmit and distribute most of India's electric power. Since July 1995, the overall growth rate in power generation has been declining owing to falling hydroelectric generation and to slow growth in generation from thermal and nuclear power plants.

Power shortages are nationwide. Declining coal stocks have affected power generation and contributed to prolonged shortages. During 1996, the southern region has suffered severe power shortages. Andhra Pradesh and Karnataka experienced power cuts and Kerala was severely affected by power breakdowns. In December 1995, the entire western grid collapsed leading to a major power breakdown in Maharashtra, Madhya Pradesh, Gujarat and Goa.²¹

Anyone who has followed the fortunes of the Enron company and its negotiations over the construction of a very large power station in Maharashtra, cannot but be aware of the philosophic as well as the political issues which caused such long delays in getting the project properly underway.²² This issue illustrates the palpable fact that Indian governments have been unable to provide their people with a key subset of economic security, that is security of energy supply. Energy supply is clearly not keeping up with demand in India.²³ The seriousness of this situation should not be underestimated.²⁴

Such problems are not confined to energy. Problems of water supply are serious, especially in the regions surrounding Delhi, and water tables are dropping throughout drought prone regions.²⁵ As UNEP/UNDP and the World Resources Institute have pointed out:

WHO clean water standards require that 98 per cent of water samples from any one area be completely free of coliform bacteria. By this measure, most of India's water resources are polluted. The Yamuna receives an estimated 200 million litres of untreated sewage every day as it passes by New Delhi...About 70 percent of India's water is seriously polluted.²⁶

Pollution is serious in all river systems, especially that of the Ganga system.²⁷

If governments in India fail to solve both this and the problem of energy shortages by 2010, then it is most unlikely that they will be able to remedy the problem of declining economic and environmental security. It is easy to leap from a pessimistic energy/water scenario to the conclusion that India is facing systemic collapse. Perhaps the central government is facing a form of collapse in that the economic foundations of the policies implemented by Congress in the early five year plans are now undermined. They cannot be shored and are going to be replaced by new policy approaches based on a new philosophy which might better deal with the nagging problem of poverty amid increasing affluence for now many.

India seems to be developing a new federalism, with states being able to make more divisions themselves on key development proposals.

China

China is still separated from India by the Himalayan system. It is worth noting that road traffic between India and Yunnan is minimal. There is little prospect in the foreseeable future of a rail connection being built through the formidable, geologically, unstable, mountains of northeastern India, northern Burma across the Salween and the Mekong into Yunnan.

Nevertheless China, having occupied Tibet, in the face of an impotent India, dominates the mountain system. Nearly all the major rivers of eastern Eurasia rise in the Himalayan system or its extensions in China and Indo-China.

This means that China has vast water resources. It also means that China should feel a measure of responsibility to its neighbours for the intelligent management of the river basins which are so vital to people outside its boundaries.

China authoritarian Marxist economic system contrasts with the democratic socialist system of India in that it is controlled, for the meantime, by semi-permanent elite of the Chinese Communist Party (CCP). The rule of law, which

²¹ Ric Shand and K.P. Kalirajan, *Economic Profiles in South Asia, India*, ASARC, RSPacAS, Australian National University, 1997, p11.

²² *Far Eastern Economic Review*, 1995-96, Passim.

²³ Ric Shand and K.P. Kalirajan, op.cit, p13.

²⁴ UNDP with World Resources Institute, *World Resources*, 1994-95, Chapter 9.

²⁵ Arun Gosh, *Ecology and the Environment, in Nature Man and the India Economy*, Tapas, Majumdar (ed), Oxford, 1993, pp 64-80.

²⁶ World Resources, 1994-95, Chapter 5, *India*, op.cit, pp89-92.

²⁷ *D.S. Bhargava, *Why the Ganga (Ganges) Could Not be Cleaned, Environmental Conservation*, 1992.

has strong roots in India²⁸, is just beginning to become accepted as an option for government.²⁹ For practical purposes senior cadres of the CCP are beyond the law. They may discipline their juniors, sometimes by seeing that death sentences are imposed, *pour encourager les autres* not to flout central dictates or for being obviously corrupt, but an impartial judicial system cannot be said to exist in China. Indeed it has never existed.

The Chinese political system is still grounded in an obsolescent and philosophically and pragmatically unsound proposition that the Chinese revolution of the 1940s has led to the establishment of a socialist system based on public ownership of the means of production, distribution and exchange. Exploiting classes have *ipso facto* been eliminated.³⁰ It is required that this dogma should not be questioned, despite policy changes, and abounding evidence to the contrary and the assumption of effective control of public assets by individuals and groups. Local officials have been able to transmute into rich industrialists in many places as a new class. Solnick describes them as 'cadre-entrepreneurs'. They have emerged in terms of the new Dengist philosophy of 'socialism with Chinese characteristics'. This might seem to be nefarious but it seems that reforms initiated by the central government have served to reinforce the state's ultimate property rights rather than undermine them.³¹

There is, moreover, a further vital aspect of the Chinese systems, which seems to be in the process of breaking down. That is the establishment in the 1950s of the work unit or *danwei*, to which an individual was assigned, in most cases of the term of their natural lives.

The unit was not simply the place of work but also the provider of welfare services such as pensions and health facilities, the means of obtaining housing, childcare and other services, the organization of recreational activities, the channel for authorizing travel or job transfers and so on.³²

Another important aspect of the Chinese political system in the centralization of authority among the CCP elite who have installed themselves in the celebrated and closely guarded Zhongnanhai compound near the Imperial Palace in Beijing. As Kenneth Lieberthal has observed:

Right from the start the CCP established a basic approach to organizing power at the apex that in its essential has endured into the 1990s. The key group has been the top twenty-five to thirty-five leaders headed by a core leader who, together, determine the direction of policy in all important spheres.

...when all is said and done the top power elite in China remains an intensely personal arena. The older generation of leaders has known and worked with each other for in some cases, over sixty years; the younger members of this select group, men generally in their sixties and early seventies who hold key executive offices, are not closely confined by the formal rights and restriction imposed by Party Rules or the State Constitution. At this level of the system, politics is informed by group dynamics more than by formal rules and institutional boundaries.³³

One of the consequences of this system is that lines of authority are largely vertical. It seems to be rare for effective consultation to take place between Ministries, before a proposal is submitted to the leadership. Co-ordination seems to have to be resolved at the highest level.

As far as energy, a prime example, is concerned a whole series of organizations is involved—the State Planning Commission (SPC), with its Fuel and Power and Energy Conservation Bureau; the State Economic Commission (SEC) with its Production Management Bureau (three divisions, coal, electric power and petroleum) and the Energy Bureau (largely policy); the Ministry of Petroleum, the Ministry of Coal, the Ministry of Water and Electric Power. There are bureau of the SEC in every province.

Three important points were made in a study of the Chinese bureaucracy published in the late 1980s:

- Not even the top handful of energy specialists can manage the vast, sprawling petroleum, coal and electric power industries.
- The SPC has not been able to rely on a complete input-output table of the energy sector of China's economy.

²⁸ Aparismim Gosh, *Outside Job*, *Far Eastern Economic Review*, 20 March 1997, p21.

²⁹ Colin Mackerras, Pradeep Taneja, Graham Young, *China Since 1978*, Chapter 11, The Law, Longmans Cheshire, 1994.

³⁰ *Ibid*, p113.

³¹ Steven I. Solnick, *Heirarchies in the Soviet Union and China—A Neoinstitutional Perspective*, World Politics, January 1996, 209-38.

³² *Ibid*, p105.

³³ Kenneth Lieberthal, *Governing China, From Revolution Through Reform*, W.W. Norton, no date, p 184 and 187.

- The prices for electric power were set region by region in China in the 1950s..as a result prices...do not actually reflect either the cost of power generation or the real mix of sources available for power generation in each region.³⁴

This must pose an enormous burden on the leadership of such a large and complex country. For example:

The Ministry of water Resources and Electric Power embodies two quite different types of agencies which coexist within one Ministry. The electric power side exerts close operational control over the vast majority of electricity production in the country. It runs both the generation plants and the major power grids and thereby produces revenue for the state budget. The water resources side, by contrast, vests a large part of both design and operating responsibilities in local units. The ministerial level concerns itself with matters of broad policy and pursuing its mandate within the politics of the capital. This portion of the ministry does not have large production enterprises, employing thousands, under its direct control, nor is it a major revenue earner. It does, however, direct large construction agencies, which employ tens of thousands of people...

The water resources people have a mandate that extends well beyond construction and supervision of projects. The water resources system is responsible for flood control, irrigation, drainage and—in some instances—transportation, as well as hydropower...the main locus of concern of the two agencies is significantly different: the water resources people concentrate on harnessing China's major rivers, while the electric power people are pressed to supply adequate electricity to industrial centers of the country...

...decision makers face competing interest, reconcile contradictory responsibilities, and establish difficult balances and trade-offs, and officials there speak more readily in terms of problems and tensions than do officials in other ministries...It is...a highly political ministry.³⁵

As with India, the question is whether the Chinese system is slowly but surely breaking down or adapting and changing in the face of problems of poverty which are not much less troubling than those of India.

A Canadian geographer wrote a decade ago about energy and poverty in China. Here is what I think is the most moving passage in a thorough analysis of China's impending energy crisis:

Trees in protected forests and along roads are cut illegally: bark is stripped off the living trunks: stumps and roots are dug out; branches are lopped off; pieces of sod are carved out; animal dung is collected—and when all possibilities have vanished, peasants in the warmer regions grow sweet potatoes on odd patches of land and use dried tubers for fuel. Even so most of China's peasants are acutely short of fuel. Official sources acknowledge that...70 percent of the peasants lack fuel for up to half a year ever year...

Here is human suffering and an environmental crisis of truly immense proportions: serious recurrent shortages of even minimum quantities of fuel needed for heating and cooking afflicts three out of five rural families...³⁶

Conclusion

Although the political systems are very different, the one totalitarian, the other democrate, India and China are both experiments in the central control of very complex societies which are federal in India's case and quasi-federal in China's.

In China, the CCP exercises a surprising degree of effective control of all levels of government through the *danwei* system and through its firm control of the military, the policy and the internal security service. Why should such a system break down? The answer seems largely to lie in comprehending the problems of complexities faced by the Communist Party as a modern technological economy develops in China alongside the state and provincial bureaucracies and state-owned industries established during the first three decades of CCP government.

As with the Soviet Union, central planning cannot manage complex economies effectively. Command systems may serve nations at war, or reconstructing after wars, but they do not seem to possess the collective wisdom, or techniques, needed to advise government on all the crucial decisions which must be taken. Once consequence is bureaucratic stalemates as an overburdened elite tries to cope with the vast agenda before it.

China and India have also provided, through provision of incentives and the capacity of their rural people for hard work, for the food security of their populations. Material circumstances have improved beyond expectation for a big percentage. But problems continue to mount up, many of them legacies of the two central planning systems.

Are the present governments of India and China fairly likened to string orchestras fiddling away while their great countries, succumb to the insidious processes of excessive bureaucratisation and environmental degradation?

³⁴ Kenneth Lieberthal and Michael Oksenberg, *Policy Making in China Leaders, Structures, and Processes*, Princeton University Press, 1988, Chapter 3.

³⁵ Ibid, pp 94-95 and 99.

³⁶ Vaclav Smil, *Energy in China's Modernization*, Sharp, 1988, p151.

Some economists, using their limited range of metaphors repetitiously, exhort us to believe that Asian ‘miracles’ performed by tigers or dragons as playing fields are progressively leveled and the forces of market reform bring rationality to the hitherto irrational. People are well fed as a consequence of green revolutions. Wonders are performed, one is left in little doubt, but the ‘invisible hand’ identified by Adam Smith over two centuries ago, and that will mean that China and India and their surrounding present or future ‘tigers/dragons’ will be major industrial ‘powerhouses’ of the world.³⁷

Behind the metaphorical jargon and images of wild and mythical creatures there is much sense. Theories of command and control of economies have been blown away by economic realities, especially insistence that rational pricing and sound accounting practice is essential to sound management of all the sectors of any economy.

But China is still largely flouting such precepts as is India. What are the consequences? Material economic growth is unbalanced. Some areas are making progress while life is not getting much easier elsewhere.

Infrastructure crises are developing at an unprecedented magnitude. Unless shortages of energy are remedied the economies are likely to slow down.

Private enterprise is flourishing in many sectors but one of the consequences seems to be in many places another manifestation of what Galbraith once described as ‘private affluence and public squalor’.

Worse water supplies are running short, notably in the lower basin of the Huang He and the northern plains surrounding Beijing and Tianjin where both surface and below ground water has been excessively depleted and, during dry seasons, in the region surrounding New Delhi. Central governments have to deal with these problems in their own backyards.

In better watered parts of India and China, the problem is pollution from both human, agricultural and industrial sources. Coastal regions are increasingly polluted and supplies of fish and other seafood’s are being depleted.

No one could safely assert that the Indian and Chinese governments have not undermined the economic security of their people by disregarding the ‘externalities’, the adverse consequences of economic development, since 1950. The material progress achieved so far is impressive but no miracle. Theological wonders do not seem to part of economic development. It is a consequence of incredibly hard work but the adverse consequences of inefficient state enterprises and the flouting of sound environmental practice is documented in a now impressive number of reputable publications.

Deserts are extending, erosion is on the increase as forests are depleted everywhere, especially in the headwaters of rivers. Soils are deteriorating because of salinisation and acidification and problems caused by excessive use of chemical fertilizers. Some of the most productive land is being lost to urban development. Both countries are largely lacking water treatment facilities. Too many lakes and wetlands have been reclaimed. Ground water has been excessively depleted in many areas. India and China making material progress, as conventionally measured but they are excessively wasteful economies which need radical reform.

As the Far Eastern Economic Review reported on the state of China’s public finances;

...the slide continues, China’s state sector is in worse shape now than at any time in its 16 years of economic reform. Quasi-fiscal subsidies to foundering state companies exceed the taxes those companies return. Net losses in the state sector eclipse the entire equity of China’s banks, making debt write-off impossible...

Just over 100,000 state-owned firms account for around a third of China’s industrial output. As the non-state firms account for around a third of China’s industrial output. As the non-state sector picks up the slack, it should increasingly absorb the roughly 15% of China’s urban work force that Beijing concedes are superfluous. Yet for now, these state companies still consume a far greater share of scarce state financial resources than those in the non-state sector—roughly three-quarters of Beijing’s industrial investment.³⁸

This assessment is confirmed by no less a authoritative journal than *The Economist*. In a supplement issued in March 1997, Dominic Diegler brings down evidence to support the contention that the Chinese banking system is technically insolvent and is propped up by the amazing propensity to save the Chinese populace.³⁹

Much the same is being written in the daily and weekly press about India.

Infrastructural deficiencies must be made good. This is widely understood both inside and outside India and China, but how, given the vast amount of investment required? Estimates of infrastructural needs amounting to sums in excess of \$US 1 trillion for the energy sector alone in the next couple of decades are bandied about, yet it is recognized that, even if India and China were better organized industrial societies, without shortages of skilled people and possessing competent administrations at both central and state/provincial levels, like Japan or South Korea, problems of managing reform are extreme.

Unless problems of water supply and energy can be solved, both countries face the possibility of an economic slowdown which will cause a crisis of confidence in central governments. The possibility that new Delhi and Beijing will have to answer the consequences of economic folly, as Moscow did so recently, should not be ruled out. The

³⁷ Ross Garnaut, China and the East Asian Miracle, *The Asia-Pacific Magazine*, April 1996, pp13-16.

³⁸ Matt Forney, Trial by Fire, *Far Eastern Economic Review*, 12 September 1996, pp 62-63.

³⁹ Dominic Diegler, Ready to Face the World—A Survey of China, *The Economist*, London, 8 March 1997, p19.

succession of economic miracles witnessed by some exuberant economists since 1987 could turn out to be 'economic mirages'.

To summarize, India and China could be failing to provide the basic elements of economic and environmental security for their people-sufficient energy from efficient sources and adequate supplies of unpolluted water.

Should India become governmentally unstable, the effects will be felt throughout the entire Indian sub-continent. Should China become unstable, the effects will be felt throughout Indo-China and the archipelagic countries from Japan to Indonesia. Whether the effects of severe instability of a descent into a number of seemingly corrupt states like Russia and several of those which have emerged from the ruins of the Soviet Union, would be catastrophic is impossible to predict. It would surely be very destabilizing.