



Submission No 5

Inquiry into Australia's relationship with India as an emerging world power

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Dr Margot Kerley
Secretary
Joint Standing Committee on Foreign Affairs, Defence and Trade
House of Representatives
Parliament House
PO Box 6021
Canberra ACT 2600

Dear Dr Kerley,

Inquiry into Australia's Relationship with India as an Emerging World Power

Thank you for your letter of 3 April 2006 asking me to make a submission to the Joint Standing Committee of Foreign Affairs Defence and Trade inquiring into Australia's relationship with India (henceforth the Committee) as an emerging world power. I thank the Committee for giving me this privilege and would like to make the following submission focusing primarily on the following items in the terms of reference: i) trade and tourism including investment opportunities, and ii) the strategic possibilities for both nations resulting from increasing globalisation and regional imperatives. However, I have organised this submission into slightly different headings.

In sum, this submission argues that there are very important complementarities between the Australian and Indian economies. Both are emerging knowledge economies. India is likely to be a significant and growing net importer of minerals and energy and offers substantial opportunities for Australia's key agro processing expertise. Furthermore, India represents a very large and rapidly growing consumer market to which Australia can export profitably.

I. Complementarity between the Australian and Indian Economies

India as a Knowledge Economy

In the 21st century the most important long-term driver of growth in both the Australian and Indian economies are likely to be technological innovation and the scientific research that underpins it. The knowledge economy is propelling long term economic growth in India. Australia can play a significant role in complementing the growth of the knowledge sector in the Indian economy and thereby reap substantial advantages for the growth of science and technology and general economic growth in Australia.

Recent advances in technological innovation in India have been truly spectacular and, in view of the fact that technological innovation is often subject to increasing returns to scale, are indicative of the considerable potential for such growth in the years ahead. Box 1 lists some examples of the technological revolution now underway in India.

Box 1: The Recent Surge of Innovation in India: Some examples

Innovations in India's Vast Rural Sector

Examples of technological innovation in the rural sector include:

- the development of a stove that uses both kerosene and electricity;
- modification of an Enfield diesel motorcycle to enable it to double up as a tractor;
- development of low-cost drip irrigation systems;
- blending combustible oils to produce a flame which does not produce soot but gives a bright flame, lasts longer and repels disease-causing bacteria;
- a banana stem injector similar to a syringe which can be used to inject pesticides into the pseudo-stem of the banana that is diseased;
- a manual milking device which can be used to milk cows effortlessly; and
- a solar water harvester which uses solar energy to convert non-potable water into potable water. Many of these innovations have now been put into commercial use.

Supporting the commercial use of these innovations are two major institutions: the National Innovation Foundation and the Rural Innovation Network. The National Innovation Foundation is building a national register of grassroots innovation and traditional knowledge and integrating its activities with micro-finance ventures. The Rural Innovation Network integrates its activities with those of local engineering colleges and technical schools and provides credit as well as marketing support. Even IBM is interested in developing a National Innovation initiative in India.

Rapid Expansion of Industry–Academic Liaisons

Apart from technological innovations at the grassroots levels academia–industry alliances are growing quite rapidly in India. 50 of India's 250 odd universities are active in academia–business liaisons. These have taken several forms including consultancies, joint ventures, and even 'blue-skies' projects that entail industry sponsorship of research in an area where the outcome is not clear. Some recent examples of successful academia–industry linkages are the following:

- i) The private sector is funding biotechnology research in premier institutions such as the All India Institute of Medical Sciences in New Delhi and the Centre for Cellular and Molecular Biology in Hyderabad;
- ii) the Indian Institute of Science, Bangalore, has more than 400 private sector collaborations;
- iii) the Indian Institute of Technology in Delhi hosts labs for major organisations such as IBM, Tata Infotech, Motorola. Samsung India Electronics;
- iv) Scientists from Guru Nanak University provide quality control consultancy to textile and agro-based units, including food giant Nestle;

- v) Dibrugarh University in north-east India has set up a world-class research facility in petroleum technology in collaboration with the Oil and Natural Gas Corporation and Indian Oil Corporation and provides technically qualified local manpower to ONGC and IOC;
- vi) FMC Corporation, a leading producer of chemicals for industry and agriculture, has established an R&D centre at the Indian Institute of Science campus in Bangalore to drive research for its agriculture products business;
- vii) DuPont has had profitable alliances with national research laboratories under the Centre for Scientific and Industrial Research (CSIR), since 1994. Dupont Polyester has entered into a strategic alliance with Reliance Industries to jointly develop an advanced polyester process and product technologies in India;
- viii) A contract between Shantha Biotechnology and CCMB led to India's first recombinant DNA-based vaccine, Shanvac, for Hepatitis B, transforming India's medical biotechnology industry. Midas Technologies, incubated by Indian Institute of Technology Chennai's Tenet Group, proved that cheap rural connectivity could be integrated with a sound business plan. It made possible WLL, now adopted by many telecom companies. Such activities have had a global impact. Software developed by the National Aeronautical Laboratory, Bangalore, determines aircraft landing frequency at many British airports;
- ix) Most important academic institutes now also have specific business development wings;
- x) India's first biotech company spun off from an academic institute — Strand Genomics. Strand now has an office in San Francisco;
- xi) IIT Delhi has produced innovative solutions in the areas of security, sensor networks, and effective, computerised screening of automobiles;
- xii) Indian institutions have developed the script mail and, in association with Hewlett Packard, have produced internet kiosks that could be used on very large scales in Indian villages with poor computer connectivity. This would create huge opportunities for investment and open up markets on a large scale.

Procedural Advances to Support Technological Innovations

Technological innovation in India has gone beyond the production stage to areas such as conception and incubation. The private sector is often taking a lead in such efforts with venture capitalists joining in to groom potential entrepreneurs to think differently with a global understanding of technology and markets and with sensitivity to challenges of high growth businesses. At a macro level there are major programs on smart materials focusing on critical areas such as aerospace engineering, development of light combat aircraft, fibre-optics and other frontline areas of research for innovation.

The CSIR has launched the largest post-Independence knowledge network — the five-year New Millennium Indian Technology Leadership Initiative. It aims at bringing together industry and academia to focus on innovation in 14 niche areas, including nanotechnology, climate modelling and fuel cell power. The idea is to make India a world leader in these areas. An important aspect of India's recent economic growth has been the use of India's advantage in the service to enhance competitiveness in manufacturing. Recently published research reveals how India is embedding the advantages of its well-trained and plentiful labour force in the area of services and product customization into manufacturing business models. This procedure differentiates Indian innovation from their Chinese counterparts and, at the same time, facilitates a global reach, since so few others are following this model.

The examples in Box 1 mention only a few instances of the boom in technological innovation in India but should suffice to show that India has now emerged as a very significant player in the knowledge economy. Australia would benefit considerably by contributing to this process and reaping the advantages of technological and scientific spillovers. The design, functioning, financing, private-public liaison initiatives and marketing strategies could all be covered under such spillovers. The terms of this engagement would involve trade, investment as well as substantial research cooperation. That said, it should be recognised that technological innovations are subject to considerable uncertainty — these include funding and marketing issues in addition to the risk of failure of any scientific endeavour.

Nevertheless India's progress in the knowledge economy area is too promising an area for Australia to miss.

Specific areas in which Australia and India could collaborate include:

- strategically linked corporate research;
- university linkages between Australia and India;
- Australian universities–Indian corporate sector partnerships;
- linking premier Indian institutes such as the Indian Institute of Science and Indian institutes of technology with premier research-oriented corporations in Australia and with organisations such as the CSIRO; and
- collaborating with Indian universities and corporations in developing centres and markets for technology in third markets.

India's Energy and Natural Resource Needs

India's rapid economic growth has placed a strain on energy resources specifically, and natural resources generally. Australia has a distinct comparative advantage in these areas and is well-poised to take advantage of the opportunities provided by India's rapid expansion. I briefly mention here the prospects for LNG. Because of geographical factors Australia does not yet find it economical to pipe LNG to India. However, given suitable technological innovations this should not be ruled out in the future. India's prospects as a potential market for LNG are just too important. According to calculations reported by Henry Lee of Harvard University's JFK School of Government¹ between 2005-2030 imported LNG volumes as a per cent of the total amount of gas consumed will under almost every growth scenario remain much lower than that for oil for all countries (including China) except for two only: Japan and India. In these two countries LNG will continue to be used for electric generation and compete with fuels such as low-sulphur diesel oil or coal. At the present moving LNG from Qatar to India is very competitive with pipeline gas even if prices return to 2002 levels, which they are unlikely to.

However, there is a potential risk here as well. It is entirely possible that any LNG pipeline to India could, if relations between the two countries improve, be extended to China as well. However, any warming of relations between the two Asian giants could open up considerable new opportunities for Australia.

The Coming Indian Agro Export Boom

Recent research has highlighted the prospects for agro exports from India. India's agricultural sector holds out excellent prospects for expansion. The business model used here is to buy agricultural products — grain, vegetables, fruit, milk, meat and the like — directly from Indian farmers and process these to sell them in domestic and international markets. Both the Indian government and major food and agro-business giants are very enthusiastic about this. The latter because it provides them with relatively inexpensive agro products and the former because this effort would help redress one of India's most stubborn problems — rural poverty. Despite infrastructural constraints agro exports from India have already started to expand rapidly. Indian commerce ministry figures suggest that in the nine-month period ending November 2005 agro exports grew at 16 per cent (over the corresponding period in 2004) to US\$4.9 billion. Some components grew at rates in excess of 40 per cent. There appear to be tremendous opportunities for such expansion across a broad array of agro exports. Australia with its substantial expertise in this area can be a natural partner for India with mutual benefits to both countries.

¹ Dawning of a New Era: The LNG Story, RWP05-053, JFK School of Government, Harvard University.

II. The Enormous and Rapidly Growing Indian Market

One of the most important characteristics of the Indian market is its enormous size and its rapid growth. India is able to attain real GDP growth in excess of 8 per cent with saving-investment/GDP rates of around 26 per cent. The upshot of that is that India has a vast *domestic* market.

The Indian middle class is not just growing at a rapid pace it has also become the segment driving consumer goods like cars and air-conditioners. Consider some examples. While the middle class accounted for barely 5.7 per cent of all Indian households² in 2001–02, it already owned 60 per cent of the air-conditioners in the country and 25 per cent of all televisions, refrigerators and motorcycles. By 2009–10 the middle class is projected to account for 13 per cent of the households. This will have a huge impact on the demand for consumer durables. National Council of Applied Economics Research (NCAER) predicts that the market for cars will grow at 20 per cent a year, while motorcycles will clock growth of 16 per cent per year. Thus the demand for cars is projected to grow from 276,000 in 1995–96 to almost 3.5 million in 2009–10. Over the same period the demand for motorcycles is likely to rise from 760,000 to 8.4 million, for coloured televisions from 1.8 million to almost 10 million, refrigerators from 1.8 million to 6.8 million and white goods from 3.4 million to 13.1 million. The projected consumption boom isn't just restricted to urban India. As a matter of fact NCAER suggests that the urban demand for some relatively low-end products will be saturated by the end of this decade, while rural demand picks up. Thus the rural population is projected to own 8 per cent of radios, 65 per cent of colour televisions, and 48 per cent of motorcycles by 2009–10. It is estimated that rural demand for cars will rise by 11 per cent by 2009–10. As a result of this large and rapidly growing middle class — both in the rural and urban sectors — the Indian market has become stable and more mature.

Australia could position itself to export to this large and rapidly expanding market.

I hope you find these comments useful. I will be happy to answer any questions about this submission.

Yours sincerely,

(Ragbendra Jha)

² The size of the Indian middle class is subject to some interpretation. For certain categories of products, the market could be as high as 50 million consumers, for others it was ten times that. In the early 1990s, a figure of 200 million to 250 million was the one cited most often.