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Energy Sovereignty in Multilateral Clothing?

India's Responses to Global Energy Challenges

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Abstract:

Positioning itself in the wider context of the emergence and role of new powers on the global stage, this study focuses on India's energy policy. Since the mid 1990s, India has been acknowledged to be one of the fastest growing developing economies, showing sustained growth for the last twenty years, and likely to be the world's third largest economy by 2020. India's development is directly related to the energy question: its long-term economic growth depends on the availability of energy resources, which is why the country's energy deficit, together with its growing dependence on energy imports, has become one of the government's most urgent security challenges.

India's energy policy will not only be decisive for the country's future growth. It is also an indicator of how India seeks to insert itself into a new sustainable global order. On one hand, India's commitments to raise energy efficiency and to reduce the share of hydrocarbons in the national energy mix will be key for addressing the problem of global warming. On the other hand, India's political choices regarding energy sectors such as oil, natural gas and nuclear energy raise security questions that go beyond national and even regional borders.

This study focuses on two aspects of India's energy policy, namely: a) the internal debates and b) the country's foreign strategies in the energy sector. Based on the results of our analysis, it will be possible to make some suggestions as to the kind of policy India is likely to pursue in the near future, and on how the present policies might be integrated into the global energy system.

I. Introduction

Energy security leading to Energy independence is certainly possible and is within the capability of the nation. India has knowledge, natural resources; what we need is planned integrated missions to achieve the target in a time bound manner. Let us all work for self-sufficient environment friendly energy independence for the nation.

Former President of India Abdul Kalam on the occasion of the 59th Independence Day 2005

In recent years, rising oil prices have put energy security concerns back on the global political agenda, provoking reactions ranging from „increased efforts in energy-saving measures to a geopolitical battle for influence over oil and gas rich regions“ (van der Linde 2005, p. 5). Some experts even speak of a new generalised „psychology of insecurity“ (Bochkarev 2007, p. i) or of a possible new „cold war on energy issues“ (Dirmoser 2007, p. 3). One of the reasons for the revival of energy security at a global level – though not the only one – is the growing energy demand of emerging powers like China and India. These countries are not only influencing the global energy system by their sheer demographic and economic size, they also bring new interests into the system and contribute to reshaping it.

Positioning itself in the wider context of the emergence and role of new powers on the global stage, this study focuses on India's energy policy. India's growing energy thirst – which is expected to double within the next twenty years – has not only provoked concerns among industrialised energy consuming countries and among environmentalists worried about the effects of increased worldwide GHG emissions. Energy security has also become one of the most urgent security priorities for the Indian government – second after food security. The country's legitimate aspiration to reach better economic standards and to reduce poverty will largely depend on its ability to secure energy supply.

The way in which India responds to the new challenges will be decisive for the country's future development. At the same time, it is also an indicator of how India might insert itself into the future global order. On one hand, India's commitments to raise energy efficiency and to reduce the share of hydrocarbons in the national energy mix will be key for addressing the problem of global warming, even if its domestic policies are economically rather than environmentally motivated. On the other hand, India's political choices regarding energy sectors such as oil, natural gas and nuclear energy raise security questions that go beyond national and even regional borders. In this context, it will be of particular interest to find out whether India's policy strategies are based rather on the concept of energy sovereignty or on a multilateral approach.¹

¹ By policies focused on energy sovereignty/ nationalism, we understand exclusive bilateral diplomacy to strengthen influence and power positions in producing countries; policies implemented against or in

This study will focus on two aspects of India's energy policy, namely the internal debates on energy security and the country's external energy strategies. Our research is based on the two following assumptions:

1. **There is an important linkage between national and global energy security.** Growing energy trade has deepened transnational interdependences in the international energy system. What happens nationally has global impacts, especially in the case of large-size countries like India that are increasingly participating in the global energy market. In the words of the International Energy Agency (IEA), „how rapidly the two countries' (China's and India's) energy needs develop and how they are met will have far reaching consequences for them and for the rest of the world“ (OECD/IEA 2007, p. 53).²
2. **A functioning global energy system must incorporate the interests and perspectives of China, India, and other emerging „energy consuming“ economies.** In the 1990s, there have been many attempts, mostly by Western states and international energy organisations like the IEA, to address energy interdependences by imposing a global energy system based on free-market principles, which have, however, clearly failed.³ Cooperation efforts in the energy sector are not only being obstructed by a growing „resource nationalism“ in producer countries and by rising doubts about the benefits of a market-based international energy system in emerging countries like China, India and Russia.⁴ In some industrialised consumer countries, bilateral energy relations are increasingly politicised or even militarised. A perception of access to energy resources as a zero-sum game based on geopolitical concepts seems to have taken the upper hand. But even if the viability of a global energy system based on a multilateral approach is increasingly questioned, it is nevertheless desirable. Especially weaker states might suffer from a system where unilateral strategies and power relations prevail. Such a multilateral system will have to include the interests of emerging powers that are behaving with a new assertiveness on the global stage.

competition with other states; and the possible use of force. By a multilateral approach, we understand the policies aimed at creating an international energy system that is beneficial to different groups of interest, such as producers, consumers, emerging economies or developing countries. We presume that national energy policies will usually contain both elements, and that the difference might be a subtle one.

² To name only a few examples: Supply disruptions of oil drive up prices in all consuming countries, including those outside the region of disruption; a successful management of supply emergencies and efficiency gains in the energy sector can have positive impacts on global energy demand; policy price signals for transition to low-carbon fuels can contribute to a more climate-friendly energy system; choices about nuclear power have evident (global) security implications, etc.

³ For failures of the Energy Charter and of application of WTO-principles to the energy sector, see Bochkarev (2007) and van der Linde (2005)

⁴ „The present geopolitical relations show that many countries, instead of bowing to a single economic-globalisation recipe, wish to stick, more explicitly than before, to seeking and finding their own way forward, in which their individual political, economic and social beliefs and interests are paramount“. This „own way forward“ mostly implies „...participating in the international economy, but on the condition that the state's long-term political, strategic, and economic national interests are served“ (van der Linde 2005, p. 12-13; see also Dirmoser 2007)

II. India's energy challenges

Since the mid 1990s, India has been acknowledged to be one of the fastest-growing developing countries. Its economic growth of 8% per annum throughout the last decade and its ambition to sustain the trend within the coming century takes its toll: India has to find immediate and strategic solutions to cope with the deadlock between tremendously increasing energy needs in the near future and growing global and domestic scarcity of conventional energy resources to meet these growth objectives. To maintain its present growth rates during the next two decades, the country will need to increase its primary energy supply by three to four times current consumption and electricity supply by five to seven times (Sharma 2007).⁵ Due to insufficient indigenous production and inefficient distribution, energy imports are likely to steadily increase, contradicting the wishful thinking of a transition to total energy independence by 2050, (Wagner, 2007, Sharma 2007).

Table 1: Primary Energy Demand in India (Reference Scenario), 1990-2030

	Energy demand (Mtoe*)				Percentage of total primary energy demand		Annual average rate growth
	1990	2005	2015	2030	2005	2030	2005-2030
Primary energy demand	320	537	770	1299	100%	100%	3.6%
Coal	106	208	330	620	38.7%	47.7%	4.5%
Oil	63	129	188	328	24.0%	25.3%	3.8%
Gas	10	29	48	93	5.4%	7.6%	4.8%
Nuclear	2	5	16	33	0.9%	2.6%	8.3%
Hydro	6	9	13	22	1.7%	1.7%	3.9%
Biomass and waste	133	158	171	194	29.4%	15.0%	0.8%
Other renewables	0	1	4	9	0.2%	0.7%	11.7%
Oil net imports (mb/d**)		(2006) 1.9	3.0	6.0			
Oil net imports (% of primary oil demand)		(2006) 70	80	92			
Oil net imports (% of primary energy demand)		(2006) 17	20	23			

*Mtoe: Million Tonnes of Oil Equivalent

**mb/d: Million barrel per day

Source: OECD/IEA (2007), World Energy Outlook 2007, pp. 119 and 168

Given India's large domestic deposits, coal represents the country's energy backbone with over 50% of its commercial energy consumption; it will keep dominating India's energy mix during the next decades (OECD/IEA 2007). However, due to the low quality of its domestic coal India still depends on the import of higher quality coal from abroad. Demand for hydrocarbons is also likely to experience enormous increases, notably in the transport sector largely dependent on oil. Despite the discovery of recent oilfields, India's oil demand can only be satisfied through imports, which are expected to dramatically increase from 70% to 92% of

⁵ However, per capita energy consumption in India is still less than 500 kg of oil equivalent (kgoe) compared to the global average of nearly 1800 kgoe (Ministry of Environment 2007)

total oil consumption between 2006 and 2030 (OECD/IEA 2007). India's jumping crude oil import bill combined with the threat of rapidly rising oil prices gives continuous reason for national debates and has put the national government under enormous pressure. India's highest energy potential lies in those energy resources that up to date have had a rather small share in the national energy mix: natural gas, nuclear and renewable energy.

India's measures by which security of supply can be ensured will mainly depend on the government's understanding of „energy security“. In general, „the concept is (...) positioned somewhere between geo-politics and market economics“, with a recent shift from a focus on market economics to a focus on national security (Bochkarev 2007, p. 1). Traditional definitions, such as that by UNDP, refer to energy security in terms of ensuring supply in sufficient quantities at reasonable prices. Since no energy system can be entirely secure, the concept can be viewed as a „process of managing risks“ (Pachauri 2005a, p. 3) such as non-availability of supplies and hikes in prices. Definitions can vary, even within a country like India, depending on the actors involved. Former President Kalam's perspective of “energy independence” after 2050 mentioned earlier goes much further than, for instance, the definition of energy security by the Indian Planning Commission: „The country is energy secure when we can supply lifeline energy to all our citizens as well as meet their effective demand for safe and convenient energy to satisfy various needs at affordable costs at all times with a prescribed confidence level considering shocks and disruptions that can be reasonably expected“ (Indian Government, 2005, p. 56).

The recent transformations in the global energy system have made apparent that a broader definition of energy security is required. The supply of energy has become more global, including large supply chains to deliver energy at the point of consumption and the dependence on stakeholders that are often located outside the local system (Pachauri 2005a). A comprehensive concept should reasonably include the creation of governance structures in the international energy system, taking into account geopolitical aspects and conflicting interests among world regions.⁶ Climate change has added a new dimension to the concept. In the long run, the recognition that producing and consuming energy includes negative externalities might accelerate the transition to a low-carbon energy system. This will mainly depend on the extent to which the urgency of climate-friendly actions will be accepted by the international community and countries like India.

In the meanwhile, we cannot ignore that economic concerns remain the primary logic behind energy security. Countries – particularly those which remain poor by OECD standards, like India – worry about environmental measures that might constrain their economic development. The possible coincidence between energy security policies and environmental and economic benefits suggested by the IEA⁷ does not eliminate the fundamental conflict between economic welfare and environmental concerns. Research on India's energy policy can contribute to understanding the country's underlying energy security motivations and

⁶ The strong divides between the different actors make finding common interests a difficult task. While energy importing countries are concerned about excessive dependence on imports, producing countries are interested in security of demand. For poor countries, the question of how changes in energy prices will affect their balance of payment play a crucial role. For India and China, the countries' abilities to rapidly fine-tune their new dependence on the global markets – a major shift from former commitments of self-sufficiency – will be decisive (see, for instance, Sharma 2007, p. 158).

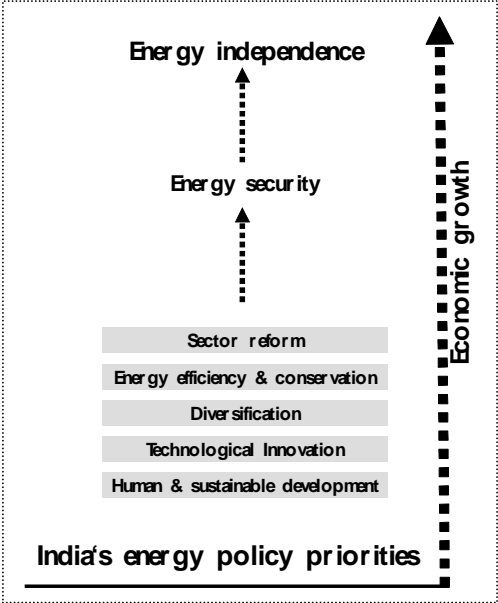
⁷ „Many of the policies available to alleviate energy insecurity can also help to mitigate local pollution and climate change, and vice versa. In many cases, those policies bring economic benefits too, by lowering energy costs – a „triple win“ outcome“ (OECD/IEA 2007, p. 225).

specific interests, a necessary condition to know what an international energy system including India might look like.

III. India’s domestic energy policy

Today India’s domestic policy in the energy sector is the result of a number of key initiatives and political efforts primarily driven by the overall ambition of constant economic growth. Being fully absorbed by an energy devouring catch-up process fueled by imported energy, and at the same time exposed to dramatic energy supply risks inherent to international supply chains, India has to tackle these challenges with a semi-privatised energy sector embedded in a semi-nationalistic economic environment. The government’s strategy is based on the broad vision “to reliably meet the demand for energy services of all sectors including the lifeline energy needs of vulnerable households in all parts of the country with safe, clean and convenient energy at the least-cost [...] In other words, the goal of the energy policy is to provide energy security to all.” (Government of India 2006, p. 14). Domestic energy policy concentrates on four cross-cutting areas of strategic intervention: 1) sector reform, 2) energy efficiency and conservation, 3) diversification, 4) technological innovation⁸.

Table 2: India’s energy priorities
(Graph by P. Baijal)



Thereby resulting challenges for Indian policy are three-fold: 1) The government has to cope with pressing issues that require immediate intervention (persistent power shortages or disruptions, unreliable or uneven access to power risks of price shocks due to high oil import dependence. 2) India’s energy policy is expected to provide long-term strategies through extended exploration of domestic energy resources, increased use of renewable energies, enhancement of energy related national R & D, the role of resource rich states, environmental impact, etc. (Government of India 2006, p. 15 ff). 3) the country’s socio-economic development is still highly affected by its latecoming economic liberalisation, overstrained by its incapability to meet its continuously rising energy requirement through domestic supply and the growing necessity to take part in the global hunt for fossil fuels.

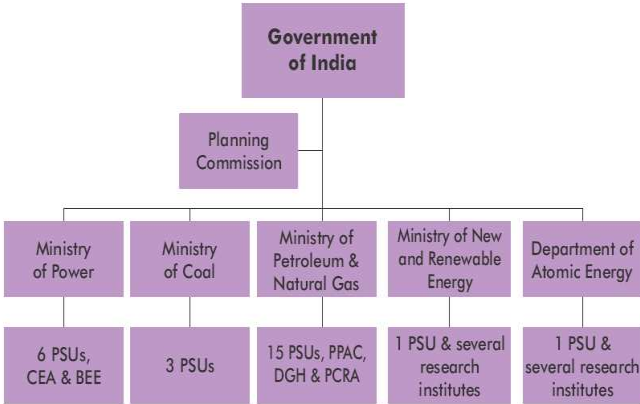
a) Peculiarities of India’s energy system

Before addressing the cross-cutting areas of strategic intervention, one has to understand the peculiarity of India’s energy system that is until date, visibly marked by the country’s political and socio-economic past and its present institutional set-up. Before economic

⁸ The four cross-cutting areas of strategic intervention have been identified by the authors as the major driving forces for energy efficient economic development and are based on the priority recommendations and of the Expert Committee’s ‘India’s Integrated Energy Policy’ and ‘India’s energy policy challenges’ as mentioned by the Energy Outlook 2007.

liberalisation in 1992, the Indian energy sector was exclusively state-controlled and

Table 3: India’s Energy Policy Administration
(Source: OECD/IEA, Energy Outlook 2007)



Note: PSU: public sector undertaking; CEA: Central Electricity Authority; BEE: Bureau of Energy Efficiency; PPAC: Petroleum Policy and Analysis Cell; DGH: Directorate General for Hydrocarbons; PCRA: Petroleum Conservation and Research Association.

concentrated in one central Ministry for Energy. After 1992 the ministry was broken down to five different ministries.⁹ Additionally to this institutional complexity, poor communication flows, mismanagement of financial resources and time consuming coordination processes between different ministries and relevant stakeholders still represent one of the major obstacles to successfully implementing policy options. Until date, India’s economic development, and particularly the energy sector, are shattered by regular waves of nationalisation initiatives. The result is an unsystematic enhancement of private sector participation in a historically state-owned sector governed through fragmented institutional entities designated by uneven responsibilities.

At the same time, India is no longer in the position to exclusively focus on inefficiencies within the domestic energy sector but is directly affected by global scarcity of fossil fuel reserves combined with a continuously rising energy demand to fuel economic growth. (Madan 2006). In the following we will try to answer the questions: How does India’s domestic policy respond to national challenges such as the unbalanced allocation of regional and national responsibilities, ministerial fragmentation, semi-privatization reform processes, inefficient production and consumption? What are the burning issues of today’s energy policy in India and to what extent to they factor in global challenges?

b) India’s energy policy framework

The political framework for India’s present energy policy set-up has been significantly formed by a number of diverse legislative initiatives launched since the early nineties, that basically focus on greater liberalisation through private sector participation, as well as on a higher energy efficiency given the large amount of waste of energy due to inefficient production and consumption. So far, energy sector reforms are primarily driven by the

⁹ The Ministry of Coal, the Ministry for Petroleum and Natural Gas, the Ministry for Renewable Energy, the Department of Atomic Energy, the Ministry of Power as well as the Planning commission operating as the government’s think tank (OECD/IEA 2007).

increasing pressure of rapidly growing oil demand and limited indigenous resources. Accordingly the reforms are more or less limited to privatisation measures within the oil and gas sector allowing private and foreign companies to participate in onshore exploration and production of indigenous resources, a strategy which the Indian government considers necessary to decrease its dependence on energy imports. In this context, the **New Exploration Licencing Policy (NELP)** represents one of India's major steps away from a traditional concept of sovereignty and self-sufficiency towards a more liberalised energy sector.

The **Integrated Energy Policy**, enacted in 2006, represents an attempt to reach an overarching framework and a legislative bedrock for India's present energy policy. Its particular focus is on long-term strategies to cope with challenges like energy security and energy independence, but experts criticise that there is no sufficient precision about how to actually tackle domestic challenges taking account global challenges.

c) Areas of strategic intervention

What are the dominating areas of strategic intervention of India's present domestic energy policy and how do they correlate with global challenges? India's political debate on energy is driven by four cross-cutting strategic approaches: **sector reform, energy efficiency and conservation, research & development, diversification**. These areas of strategic intervention address challenges that concern all sectors, all relevant ministries, state and central governments as well as all directly or indirectly affected stakeholders within and beyond national borders. Furthermore, given the growing relevance of global interdependences for India, the government is now required to respond to domestic challenges from a global perspective accounting its emerging importance as one of the world's largest energy consumers.

Sector Reforms

India's energy sector is calling for comprehensive liberalisation and restructuring processes. Reform initiatives undertaken to increase price rationalisation and privatisation processes are only partly successful but desperately needed especially in the oil market. Price regulation is still in the domain of the Government and large subsidies on petrol prices enable leading state-owned oil supplying companies to offer petrol and diesel at relatively low prices. The price India has to pay for "oiling" its economic growth is high and gets higher every year, since heavily subsidised energy prices within the country are normally borne by the state governments and lead to enormous financial losses and increased fiscal deficits. At the same time large state-owned industrial companies still enjoy major benefits from preferential treatment, which discourages private sector companies from undertaking major investments. Rationale pricing and increased private sector participation would have direct implications for the present energy mix as well as India's international interlinkages. Rigorous enforcement of sector reforms could even provoke a necessary shift towards less oil-intensive alternatives and accelerate R & D activities of new and renewable energies.

Energy efficiency and conservation

Unscheduled power cuts and power shortages are common features when it comes to describe India's electrification. Unreliable power supply is not only affecting power-intensive

industries but also private households who tend to switch to generators operating on the much more pollutant but cheap (subsidised) diesel. Consequently energy inefficient production or consumption leads to enormous unnecessary losses up to 32% to 35% of the total generation (OECD/IEA 2007, p.450).

Given the deadlock of the high level of wasted energy on the one hand and the rising necessity to import energy on the other hand, Indian politicians have undertaken several initiatives to foster energy efficiency among suppliers and consumers with the overall objective of energy security and greater energy independence. Among the major achievements are the introduction of availability based tariff mechanisms (ABT)¹⁰ and the compulsory conduct of regular *energy audits* in the most energy demanding industrial sectors designated as “large energy consumers”. Through a scheme of incentives and financial penalties designated consumers are encouraged to engage more in the enhancement of energy efficiency and conservation through renovation, modernisation or adaptation of new technologies.

India’s great energy inefficiencies due to mismanagement, obsolete technologies and infrastructure comprise a large potential for energy saving. Nevertheless, greater energy efficiency alone does not imply major shifts within the energy mix: Coal and oil would continue to dominate national energy requirements and thus not decrease import independence and energy insecurity significantly.

Diversification

India is expected to become the fifth largest oil consumer by 2020 after the United States, China, Japan and Germany. Currently 70% of India’s oil requirement are imported and the percentage is expected to rise to 90% by 2025. At the same time, only 3% of world oil supply is produced in India (OECD/IEA 2007). So far, the government’s attempts to alterate India’s energy mix have been rather hesitant. Heavily subsidised petroleum products such as diesel and petrol have even accelerated oil consumption. Oil is an outstanding example to illustrate India’s need to enhance systematically the development of adequate alternatives that lead to changing energy consumption patterns.

Especially in the car industry, highly dependent on oil, the search for an adequate substitute for petrol and diesel gets more and more crucial when talking about the Indian energy demand in the coming decade. This sector is projected to grow by 6.1% per year, as the vehicle stock expands rapidly with rising economy activity and household incomes (OECD/IEA 2007). The extended production of ethanol, a side product in the sugar cane based sugar production and inspired by the Brazilian model, as well as CNG (compressed natural gas), successfully implemented in Delhi’s transport sector but presently limited by supply and infrastructure deficits, represent two key initiatives.

At the same time, it is expected that India will become the most populous country in the world by 2031 (OECD/IEA 2007). Given that 70% are still living in rural areas, the percentage of the middle and upper class remains small compared to the total population, but in absolute numbers – 50 to 300 million people depending on the calculation basis – implies major shifts

¹⁰ The implementation of ABT contributes to greater stability in the Indian electricity transmission grids through increased responsibility and accountability in generation and consumption.

in consumption patterns. The critical role of an emerging middle class crops particularly up in the automobile industry. Following the western lifestyle of industrialised countries, the Indian middle class consumer rather neglects environmental aspects but enjoys higher comfort at affordable prices. Domestic car sales are projected to quadruple by 2016 and lead to an exponential growth of vehicle ownership, not least thanks to TATA Nano, the “world’s cheapest car”, going on sale later this year. The consumer boom of the Indian middle class will definitely increase the pressure to implement rationale pricing that reflect international energy prices and simultaneously invest in alternatives that enable the consumers to adjust their consumption to global necessities.

The promotion of urban mass transport as an attractive and reliable alternative to private vehicles represents another alternative strategy to reduce oil consumption. This implies not only major investment in systematic infrastructural planning and implementation but also major shifts of existing mind sets and consumer behaviour, following so far rather traditional “western” models of energy intensive lifestyles.

Nuclear energy has presently the highest potential for greater diversification. Until date nuclear energy covers only a relatively small share of India’s energy demand. Due to its long lasting international nuclear isolation, large indigenous thorium reserves have been left unutilised. The successful US-Indian Nuclear Agreement of 2006 represents a major step to initiate a boost of nuclear energy. The potential of nuclear energy as a long-term substitute of oil and coal and as a promising solution to ensure secured energy supply is dominating the internal energy debate. National discussions on its externalities are rather neglected and limited to voices from civil society. India’s international acceptance as a new global power will most probably foster increased technology transfer, combined with intensive capacity and know how exchange. Given the growing scarcity of world’s fossil fuels deposits, the global energy mix will have to undergo major changes to meet global energy demand on the long term. If the civilian use of nuclear energy becomes globally accepted as the most promising low-carbon alternate energy resource, India’s position might also shift towards greater bargaining power and lower import dependence.

Technological innovation

Researchers lament the alarming high degree of stagnation within India’s scientific and industrial research. Greater engagement in (international) R & D activities are key to come up with innovative technological solutions that would enable the consumer to adjust his consumption to global necessities. Especially in the field of renewable energy, greater investment in research could significantly foster diversification, since renewable energy supplied nearly a third of India’s energy needs in 2005 (OECD/IEA 2007). The importance of hydropower comes right after that of traditional biomass and wind power, while the latter also enjoys growing importance as an alternate source of electricity. India is presently the eight largest consumer of hydroelectricity world wide with a share of 5% within the energy mix for commercial energy consumption. Together with nuclear power, this sector represents the most promising substitute for coal on the long run. The potential of renewables such as hydro, solar and wind is high but so far left unutilised due to high initial costs and infrastructural limitations.

The high potential of renewables combined with a so far rather underperforming R&D sector is increasingly subject to diverse debates on how to cope with the issue of climate change.

India's official position in terms of climate change is quite clear, with a per capita energy consumption of around 500 Mtoe that is far below the world's average. The country does not acknowledge the need to share responsibility and accountability for growing CO₂ emissions. Its commitments to reduce GHG emission remain rather limited, at least at the global level. At the same time, India conducts assessments to explore the potential of renewables and alternate energy resources for the sake of sustained economic growth.

In the search for affordable alternate energy sources, India highly welcomes low-cost opportunities of international cooperation and exchange of know-how in the field of environment-friendly technologies, as offered by the *Clean Development Mechanism (CDM)*. Agreed under the Kyoto Protocol, CDM encourages the investment by industrialised countries of projects in developing countries that primarily focus on the reduction of greenhouse gas emissions. It not only represents a "cheaper alternative" to emission reduction activities for industrialised country, but also implies major financial investments for the economies of developing countries. Major investments in renewable energy technology will accelerate India's capacities towards greater diversification. This would possibly offer India the chance to become one of the world leaders in renewable energy.

IV. Foreign policy strategies to secure energy supply

Domestic policies, such as opting for a more diversified energy-mix, increasing the use of renewable energies, or improving energy efficiency cannot entirely protect states from the (negative) effects of the international system on national energy security. No energy consuming country can therefore abstain from an external strategy. Similarly to domestic energy policy, foreign policy aims at resisting supply shocks, a challenge which is mostly met by maintaining or deepening the dialogue with producing countries, by diversifying (oil-) import sources and by seeking cooperation with other countries in the field of new technologies in order to improve domestic energy sources. On a larger scale, foreign energy policy can also include steps to create regional or international energy cooperation frameworks.

a) Strategic partnerships with producing countries: The case of oil and gas

Energy security is more than just oil security, but petroleum certainly plays a special role compared to other energy sources. Possibilities for oil substitution often remain unrealistic (especially in the transport sector) or costly, not to speak about the geopolitical vulnerabilities of oil imports. Although dependence on imports does not *necessarily* produce insecurity, and although energy independence is no guarantee for national energy security,¹¹ many analysts advocate a limited dependence on oil imports as a core element of energy security. Recent IEA projections about the increasing reliance of importing countries on OPEC producers from the Middle East – a region prone to instability – have undoubtedly triggered fears and concerns. Like other countries, India is trying to reduce its dependence on the Middle East by focusing on other regions and countries and by diversifying energy sources, a strategy which

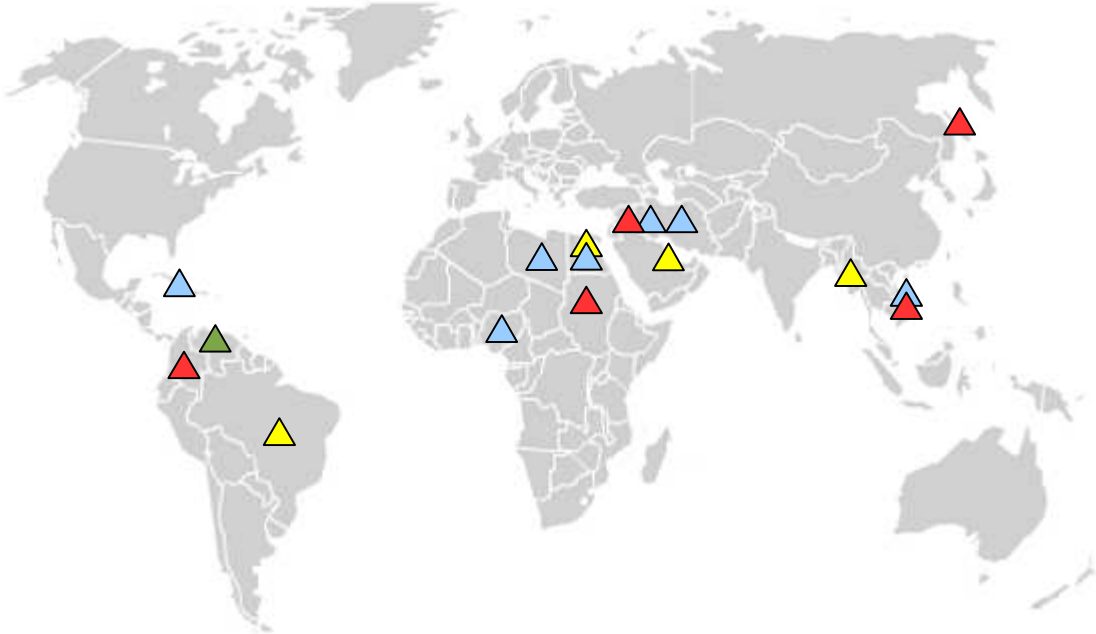
¹¹ An argument in support of the view that imports are a threat to national energy security is the concern that supplies may not be available during a political crisis or accident. Others argue that imports may actually enhance energy security by increasing the diversity of supply sources and giving the country access to reserves of other countries (see Pachauri 2005a).

will require „a clear vision (and) political initiatives at the international level“ (Pachauri 2005b, p. 4).

One of these initiatives consists in acquiring equity oil and gas abroad, a measure aimed at diversifying supply sources and at increasing the country's access to imports (Indian Government 2005). The most important actors for the implementation of the government's strategies in the oil sector are the Indian national oil companies (NOCs). In 1996 the national *Oil and Natural Gas Company* (ONGC) created the overseas subsidiary ONGC Videsh Limited (OVL) with the explicit aim to secure energy resources and produce hydrocarbons abroad. OVL's rapid growth since is partly due to a special treatment by the Indian government. The company contributes a significant 8 million out of the country's total production of 50 million tonnes of oil and gas (R. S. Butola, Managing Director of OVL, quoted in Sumbramanian 2008). However, OVL is still one of the smaller actors on the global stage. Due to its limited resources, it has lost important bids for exploration rights (mostly against China, as in Kazakhstan and Ecuador). Testing the cooperation path, the energy rivals China and India have since successfully considered joint bids for energy assets, such as in Syria and Sudan (Wagner 2007). Today, OVL is present in 17 countries in 35 different projects (Sumbramanian 2008).¹²

Table 4: OVL oil and gas assets (selection):

- ▲ Producing assets
- ▲ Assets under exploration
- ▲ Assets with discoveries
- ▲ Future assets



Source: Based on <http://www.ongcvidesh.com/>

Beyond the exploration and production of oil fields abroad, India has also engaged broader energy cooperation agreements with producing countries such as Russia and Venezuela. Russia and India – traditional energy partners, especially in the nuclear sector – maintain a dialogue on energy cooperation, concentrating on the improvement of energy security. Energy

¹² OVL assets are located, among others, in Russia, Vietnam, Burma, Iran, Iraq, Syria, Qatar, Libya, Egypt, Sudan, Nigeria, Brazil, Colombia, Venezuela, Cuba (<http://www.ongcvidesh.com>)

partnerships include common oil and gas projects in Russia, India and third countries, the most important being the Sakhalin oil and gas field project in Russia. During his visit in India in 2005, Venezuela's president Hugo Chavez signed an energy pact giving OVL a stake in an onshore oilfield at San Cristobal, while companies from both nations were to cooperate in developing and exploring hydrocarbons in India. The investments for the exploration project at San Cristobal were approved by the Indian government in March 2008 (Business Standard 2008).

The Caspian region attracts considerable foreign investment for possessing the fourth largest oil reserves after the Middle East, Venezuela and Russia (Batra 2005). Western and Chinese oil companies dominate the scene, but India has been trying „to befriend the region's leaders and, if possible, gain a foothold“, by stationing troops in Tajikistan, a country which has also received a 40\$ million aid package from India. Similar approaches have been undertaken towards Kazakhstan, Azerbaijan, Turkmenistan and Iran (Sharma 2007, p. 162). However, “while India wants to be part of the “new great game” it is being careful not to step on any toes—especially influential Russian ones—in the region (Madan 2006, p. 48).

The gas market has experienced similar developments, with *Gas Authority of India Limited* (GAIL) investing heavily in equity stakes in liquefied natural gas (LNG) plants in Oman and Iran, significantly increasing dependence of India on LNG (Sharma 2007). The focus, however, is on constructing gas pipelines that would allow India to increase its gas supply and diversify import sources. Both the Iran-Pakistan-India (IPI) pipeline and the Turkmenistan-Afghanistan-Pakistan (TAP) pipeline would cross Pakistan, raising many questions considering the traditional conflict between India and Pakistan. A planned gas pipeline from Burma crossing Bangladesh fell victim to Burma's preference for energy cooperation with China. None of the proposed projects has so far taken off, due to various geo-political problems and political deadlocks (Wagner 2007, Pachauri 2005a).

These few examples show that India is developing an assertive foreign policy to secure oil and gas resources abroad. However, India's strategies are not without arousing certain questions. Diversification of oil sources might help to secure energy supply, but it does not alter the problem of high oil price. Neither does the acquisition of equity stakes in overseas oil fields, although proprietary rights to Indian NOCs might offer a „psychological cushion in terms of reserves“ (Batra 2005, p. 8). Due to the high investment risks, experts differ on the question whether holding equity stakes abroad is actually a better bet for energy security than commercially traded oil.

The government of India itself admits that equity stakes do not increase oil security against supply risks, and that „the political risk of disruption of equity oil through embargoes or nationalisation etc., would be similar to risk entailed in oil import from the same country” (Government of India 2005, p. 65). Critics fear that acquisitions abroad „divert (...) resources and attention away from investing domestically” (Madan 2006, p. 41). Furthermore, India's participation in the global energy markets shows that India has often lost out against China and other countries when competing for equity oil, even when the Indian bid was commercially better. In the case of joint Chinese-Indian bids, some expert see India as a mere „junior partner in Beijing's globe-trotting campaign to secure energy resources“ (Griffin 2006, p. 6). Indian analysts therefore stress the need to „further fine-tune (India's) commercial bids to the way business is done in the host country“ (Batra 2005, p. 7).

In the gas sector, an open question refers to the geopolitical implications of the gas pipelines, a problem that will not only require resolving regional geopolitical rivalries with Pakistan and Bangladesh, but which also poses the risk of direct competition with countries like China and the USA. Particularly the IPI project is interlinked with the difficult US-Iranian relation, since the American government fears that the IPI pipeline could increase Iran's geopolitical importance. China, for its part, is observing India's efforts to obtain gas from Burma with evident distrust. A similar discontent could also emerge from European states regarding India's relationships to countries with serious human rights abuse, like Burma or Sudan. So far, there is no evidence that India will subordinate its energy security interests to human rights principles (Wagner 2007).

b) Bilateral cooperation for new technologies: nuclear, renewables and clean coal

Rising oil prices, the geopolitical implications of oil imports, as well as the world-wide debates on a necessary transition towards a low-carbon future have turned non hydrocarbon energy sources into an important element of India's foreign policy. Foreign strategies focus on the promotion of the civil use of nuclear energy, much more than on increasing the share of renewable energy sources in India's energy mix. Additionally, international cooperation with advanced coal producing countries to bring in clean coal technologies will play a crucial role in the future, considering that the sector remains the main source of pollution and is beset with inefficient and obsolete technologies.

Nuclear energy traditionally has a positive connotation in India, since it is potentially related to India's nuclear great power status. However, its share in national energy mix has been very low so far, currently generating less than 3% of India's electricity (Sharma 2007, p. 167). This is mainly due to India's refusal to sign the Nuclear Non Proliferation Treaty (NPT) and the country's subsequent international isolation regarding nuclear technology. However, the numerous sanctions and restrictions imposed until now by the Nuclear Supply Group (NSG) could be considerably diluted as a result of the Indo-US bilateral agreement on civilian nuclear cooperation reached in August 2007.

This nuclear deal is highly controversial in the USA, where critics argue that it would reverse half a century's nonproliferation efforts, and in India, where many parliamentarians think it will limit India's sovereignty and allow for an excessive US participation in internal nuclear affairs. Nonetheless, the US-Indian nuclear deal opens the door for an increased use of nuclear power in India, since the US would assist India's civilian nuclear energy program and deliver relevant nuclear technology, as well as facilitate the imports of uranium by NSG countries (Sharma 2007, p. 167).

Though the Indian Government plans to expand the role of renewable energy technologies – India ranks second in biogas and fourth in wind energy at global level according to the Ministry of New and Renewable Energy – renewables expand slowly and still account for a very small share of primary energy demand. Curiously, international cooperation in renewable energy technologies is practically non-existent in India's foreign policy, although Indian researchers have argued that investment in renewable energy infrastructure and consumption pathways will not be possible without a major support by the international community (Pachauri, 2006).

The situation looks quite different in the coal sector. In the words of the Indian Ministry of Coal, „considering the limited reserve potentiality of petroleum and natural gas, eco-conservation restriction on hydel project and geo-political perception of nuclear power, coal will continue to occupy the centre-stage of India 's energy scenario“ (see Ministry of Coal). In order to meet the country's demand, India engaged cooperation with the advanced coal producing countries, principally to bring in new technologies, promote efficient management and skill development, seek funds for the import of equipment and access foreign financial assistance to meet the investment requirements. With this objective in mind, India has set up Joint Working Groups on coal with France, Germany, Russia, Canada, Australia, the USA and China. Additionally, the India-EU Energy Panel focusing on cooperation in the fields of clean coal conversion technologies, energy efficiency and renewable energies as well as fusion energy, includes a working group related to the coal sector (Ministry of Coal).

Nuclear and renewable energy sources would certainly reduce India's dependence on hydrocarbons and guarantee carbon-low electricity supply. However, they too raise a number of questions. The interlinkage between military and civil use of nuclear energy makes it a highly sensible issue as regards proliferation and global insecurity. Some analysts even fear that high oil and gas prices and the actions taken to address climate change, such as pricing carbon and emissions control, will drive the threat of nuclear proliferation, since more countries will want to control the nuclear cycle in the future (Pascual 2008). In the case of renewable energies, the challenge is a different one: as desirable as energy conversion from renewable sources might be, there is still a long way to go before these forms of energy will be able to compete with conventional sources. Particularly in the highly oil-dependent transport sector, changes in the structure will require longer-term technological and infrastructure investments.

c) Participation in regional and multilateral energy dialogue platforms

Participation in regional and multilateral energy cooperation frameworks is not a prominent aspect of India's foreign energy policy. This might seem astonishing if one considers, as some analysts do, that India is a rather weak actor in the contention for energy resources, and that it should therefore be interested in joining international regimes in order to secure future energy supply (see Wagner 2007). At a regional level, India's activities are reduced to the above mentioned gas pipeline projects with neighbouring countries, a project considering the integration of electricity infrastructures between India and Sri Lanka, as well as some limited-scope activities within regional programmes such as the SARI-Energy (South Asia Regional Initiative for Energy), the SAREC (South Asia Regional Energy Coalition), or energy cooperation efforts within the South Asia Association for Regional Cooperation (SAARC).

India's participation in multilateral energy initiatives is equally weak, as opposed to the country's traditional commitments in international institutions in the economic and development fields. One positive example is India's membership in the ITER-project (International Thermonuclear Experimental Reactors) aiming at controlling nuclear fusion for energy conversion. India is the only country participating in the project which has not signed the NPT (Wagner, 2007).

Whereas India does not participate in international energy organisations such as the (originally European) International Energy Charter, it has joined some multilateral

conventions on climate change (Kyoto Protocol in 2002). Although these commitments will undoubtedly have impacts on the country's energy policy, economic growth remains a much stronger motivation than environmental considerations. India generally insists on its „right to industrialisation“, referring to its low per capita energy consumption as compared to OECD nations.

India's commitments in regional and international energy initiatives thus remain weak, a fact lamented by Indian researchers like Rajendra Pachauri, who argue that international cooperation in the energy sector would help India to „receive energy supply from diverse sources on a mutually beneficial basis“ (Pachauri 2005a, p. 41).

V. India's “energy sovereignty”: Hype or substance?

For the Indian government, energy issues have become a matter of national security. India's development increasingly depends on global energy supply chains and potential instabilities in energy-exporting regions. At the same time the country urgently needs secured energy supply to fuel its impressive growth pace which alone has the potential to lift millions of people out of extreme poverty and to bring about sustainable development. It is therefore hardly surprising that India's first priority in terms of energy security is put on economic growth.

The challenges to be met, however, go beyond the search for balancing energy sovereignty and India's vulnerability due to rising energy import dependence. In the long run, India will have to come up with sustainable solutions particularly in two areas. Firstly, India is still struggling with the inefficiencies of a semi-privatised energy sector marked by the country's political and socio-economic past, with large subsidies on petrol prices negatively affecting the state's fiscal incomes and discouraging foreign investment. To complicate the picture, there is a lack of coherence and poor communication at an institutional level between different competent ministries with unevenly distributed responsibilities. Secondly, the demanding aspirations of an emerging middle class inspired by Western lifestyle and consumption and the concomitant demographic growth have led to a consumer boom that will put even more pressure on the Indian government to find adequate energy strategies in the near future.

With all these challenges ahead, the Indian government is trying to apply domestic and foreign policy measures to resist global energy supply disruptions. India's responses to energy security challenges are mainly based on energy diversification to reduce dependence on imported oil. At the domestic level, this means promoting adequate oil substitutes, such as nuclear, and to a lesser degree renewable energies. Measures are also taken to attract foreign investments for national oil and gas exploration and production – with mixed results. At the foreign policy level, India tries to acquire oil and gas assets in producing countries outside the Middle East and develops plans to construct gas pipelines in the region.

Despite these efforts, India's economy will keep relying basically on coal and oil – and increasingly on gas – in the foreseeable future. Renewable energies are investment intensive and still only represent a small percentage of India's national energy mix. Initiatives in the nuclear sector will certainly be more convincing, as for India, nuclear energy might be a relatively low-cost alternative option to oil and is positively linked to the country's great

power status. Although the nuclear sector is projected to grow much faster than any other in the next twenty-five years, it will, however, still not represent more than 2.6% of total energy consumption by 2030 according to the IEA.

It is therefore not surprising that India pursues a rather assertive oil and gas-related foreign policy. India's country-by-country energy diplomacy, the purchase of overseas assets, and some first – yet very modest – intents to create a zone of influence in the Caspian region point into this direction. These measures, however, are linked with two specific problems. Firstly, „these attempts are not played out in a vacuum“, as observed by Madan, but occur alongside strategic relationships with other countries including the USA, which might view some of India's bilateral energy relationships with concern (Madan 2006, p. 19). India will have to find a balance between a more openly asserted energy sovereignty and other international interests and strategic relationships that could help the country find a new role on the global stage. Secondly, India's setbacks in the bidding for oil and gas assets – mainly against China – show that the country is lacking an efficient „energy diplomacy“ to apply its priorities in the field of energy security. The call for “oil diplomats” by the Indian government itself indicates that developing exclusive bilateral energy relations will certainly stay a priority in the future.

Despite of India's new global assertiveness regarding energy issues, it is very probable that India's so-called energy nationalism “has more to do with hype than substance“ (Batra 2005, p. 8). Although India's commitments to regional and multilateral cooperation in the energy sector are rather disappointing, the mere fact that the country's political and economic resources are presently insufficient to create actual zones of influence in strategic energy-producing regions or to become an important actor on the global energy market suggests that India will rather pursue a multilateral approach in the near future. At the same time, India's foreign policy strategies identified as resource nationalism should not be overrated. Compared to industrialised countries (or even China), India is still a minor actor on the global energy scene. Batra actually points to the fact that China's and India's production of equity oil „can hardly be of global significance“, when it represents only 5% of total demand.

As India is likely to pursue any path that will enhance its national energy security, the international community – and especially Europe – should take the opportunity to cooperate with India in the energy sectors with a particularly high development potential. Given India's impressive projected economic growth and “consumption boom”, the country will have to turn to alternative energies in order to close the gap between demand and supply in the oil sector. India's deficiencies regarding international research cooperation, particularly in the field of renewable energies, could be one of the areas for European countries to jump into the breach.

In any case, India's growing integration into the global energy system and its new assertiveness make it clear that India cannot be ignored by the international community any more, and that it has to be included in the global energy-related decision-making mechanisms. As formulated by Noël, “whether that means bringing these countries (i.e. the large new energy importers) to the OECD or taking the IEA out of the Paris-based organisation is for governments to decide, but the goal is clear” (Noël, 2008).

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