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ENERGY SECURITY: Managing risks, balancing concerns and developing frameworks

5th TERI-KAS International Energy Dialogue

24-26 October 2010, New Delhi

Konrad Adenauer Stiftung

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The Energy and Resources Institute

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Foreword

The politics of energy security has emerged as a key concern worldwide and national energy strategies are increasingly treated as part of the traditional security agenda. The global demand for energy is slated to grow dramatically over the next 20 years, with the most rapid incremental consumption becoming evident in Asia, particularly in China and India. All governments will therefore need to develop comprehensive policies to meet the challenges posed by the growing demand for energy globally. Access to cheap energy has become essential to the functioning of modern economies. However, the uneven distribution of energy supplies among countries has led to significant vulnerabilities. Threats to energy security include the political instability of several energy producing countries, the manipulation of energy supplies, the competition for energy resources, attacks on supply infrastructure as well as accidents and natural disasters. Energy security will thus become an increasingly important component of foreign and security policy agendas in the countries the world over. As the strategic importance of energy rises, both globally and nationally, the more it is going to be the focus of intense public and political debate. The 5th event in the TERI-KAS International Energy Dialogue conference series was part of this ongoing debate with specific emphases on the energy resource sector, the role of the states and markets and its impact on globalization.

With this conference we conclude a successful series of five TERI-KAS international conferences on energy security which have created a fruitful dialogue between political decision makers, experts and other stakeholders.

I would like to express my sincere gratitude and congratulate our partner organization TERI – especially Dr. Ligia Noronha and her team –

for the excellence of all their initiatives and efforts in conducting the conferences.

The support of the Konrad-Adenauer-Stiftung for similar activities on related issues and our partnership with TERI will definitely continue in the future.

Dr. Beatrice Gorawantschy

Resident Representative,
Konrad-Adenauer-Stiftung (KAS), New Delhi

Preface

This volume, fifth in the series, reflects the proceedings of the 5th TERI-KAS Energy Security Dialogue. The conference sought to engage and understand better the emerging concerns, changing interactions between states and markets, the reconstitution of traditional notions of authority and control and the multiple and competing pressures connected to resources and their development. It took forward the thinking that was started in the first of the series when the concerns were more with the external aspects of energy security – trade, foreign policy and security. In this conference, the focus was also inwards and sought to discuss the multiple pressures arising from concerns associated with the development of the resource as well as the impacts that this development gives rise to. Some of these concerns are intrinsic to the resource itself—for example concerns regarding increased GHG emissions from coal use or fears about nuclear terrorism and nuclear waste arising from the development of uranium resources. Other concerns, however, pertain to the governance of resources and their development, for example mining-related concerns, adequate compensation for displacement, the equitable distribution of benefits arising from development and so on. Given the globalization of these concerns, risks and of markets, conventional notions of control and ownership of resources are being reconstituted. There is now a greater demand for balancing these multiple concerns emerging from the local, national and global levels and for developing adequate and accountable frameworks that address these concerns better.

The Conference had four substantive sessions:

1. Globalization and Sovereign Control over Energy Resources
2. Changing Roles of States and Markets in the Resource Sector
3. Risks and Challenges in the Energy Resource Sector

4. Frameworks for Sharing Value and Avoiding Conflict in the Resources Sector

This was followed by a concluding panel session in which each panelist reflected on a core idea that emerged from the conference.

This publication seeks to make available to a wider audience the papers and the discussions at the 2010 conference. A policy brief was also circulated earlier in 2011. As this was the last in this dialogue series, we do hope all five dialogues have contributed to the global and national debate around energy and resources security.

We are very grateful to the Konrad-Adenauer-Stiftung for their unstinted support of this Dialogue Series, and especially to Mr. Joerg Wolff and Dr. Beatrice Gorawantschy, the former and current Resident Representatives at New Delhi. Their encouragement and interest has been truly remarkable. We would also like to thank Mr. Pankaj Madan for his good cheer and help in all of the five dialogues. This series would not have been possible but for the enthusiastic support of the participants who have accompanied us through the five dialogues, the team at TERI, and especially Dr. Devika Sharma. Our grateful thanks to all of them. We would also like to thank Dr. R K Pachauri, the Director General for his support and encouragement of these dialogues through these five years.

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CONCLUDING SESSION
REFLECTING ON EARLIER THEMES

Chair: C Dasgupta

Acronyms

ABR	Aboriginal Benefits Reserve
BP	British Petroleum
DA	Development Agreements
E&P	Exploration and Production
ECT	Energy Charter Treaty
EITI	Extractive Industries Transparency Initiative
EPC	Engineering, Procurement, Construction
EREC	European Renewable Energy Council
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross domestic product
GHG	Greenhouse Gas
GHGE	Greenhouse Gas Emissions
GRC	Gulf Research Center
IAEA	International Atomic Energy Agency
ICC	Inuit Circumpolar Council
IEA	International Energy Agency
IEPC	Integrated Energy Policy Committee
ILO	International Labour Organization
IOCs	International Oil Companies
JDZs	Joint Development Zones
KAS	Konrad Adenauer Stiftung

LNG	Liquefied Natural Gas
MMSCMD	Million Metric Standard Cubic Meter Per Day
NELP	New Exploration Licensing Policy
NOCs	National Oil and Gas Companies
OECD	Organisation for Economic Co-operation and Development
ONGC	Oil and Natural Gas Corporation
OPEC	Organization of Petroleum Exporting Countries
PINBio	Papua New Guinea Institute of Biodiversity
PPAC	Petroleum Planning and Analysis Cell
PWYP	Publish What You Pay
R&D	Research and Development
SEMA	Socio-Economic Monitoring Agreement
TERI	The Energy and Resources Institute
TFT	Nestlé recruited the Forest Trust
UAE	United Arab Emirates
UNDP	United Nations Development Programme
UNGA	United Nations General Assembly
WEO	World Energy Outlook
WTO	World Trade Organization

I

Globalization and Sovereign Control over Energy Resources

Chair: C Uday Bhaskar

Global Energy Security Challenges

The Impacts of Globalization and Sovereign Control over Energy Resources

Frank Umbach

Overview of Global Energy Security Issues

Traditionally, energy security has been described as 'the uninterrupted physical availability at a price which is affordable, while respecting environment concerns'.[1] Since the end of the 1990s, international energy experts have stressed the increasing strategic importance of energy supply security in the context of economic competitiveness and environmental and climate sustainability. The biggest challenge is in maintaining the balance between the three objectives instead of favouring one at the expense of the other two. While the world has directed its attention to the manifold challenges of climate change and in coping with the manifold security challenges, it does not pay the same attention to global energy supply challenges and preserving economic competitiveness.

For a long time 'energy security' has had a different meaning, depending on the perspectives from the producer, consumer and transit states. Whereas consumer nations are primarily interested in security of supply, producer countries are more focused on security of demand from foreign markets. Transit states are interested in their own national security of supply *and* security of demand from neighbouring markets in order to benefit from stable and ever-higher transit fees. In addition, the concept of 'national energy security' also depends on the individual country's geographical location, domestic policies and the traditional state, economic and business ties it maintains with its partners.[2]

Integrated solutions to the energy-climate nexus are needed to balance energy security priorities with economic and environmental

objectives. While there may be agreement that energy security is often defined as a national priority everywhere, there are very different ideas about the best ways of achieving it. Although the EU believes its energy security is threatened primarily by its rising gas import dependence on Russia and Gazprom, it has relied primarily on market-based solutions to its energy needs. There has been a separation of energy questions from political factors and strategic developments in the EU. Until very recently, when the EU recognized the need for a common energy foreign policy and to speak increasingly with one voice, energy policies have generally been left to the private sector to determine. This is significant because business interests have been primarily guided by short-term economic concerns in an increasingly competitive environment. As result, longer-term national interests and energy security issues had been neglected by both energy companies and national governments.

A number of recent events have highlighted how important energy is to the global economy, and just how vulnerable individual states and consumers can be to changes in supply and new energy price shocks. On one hand, this is simply a function of the growing imbalance in the supply and demand for energy worldwide. On the other, energy supply problems reflect the dependence of much of the industrialised world on potentially unreliable suppliers. It was highlighted dramatically with the dispute between Russia and the Ukraine in the winter of 2008/9, when the Ukraine and 17 EU member states suddenly found their supplies of gas cut-off. Furthermore, perceptions of a new 'axis of oil', or a loose coalition of states among energy producers and energy importers including Russia, China, Iran and Venezuela has heightened fears about a potential authoritarian alliance against the West in general and American hegemony in particular.[3]

Resource Nationalism

The growing power of national oil and gas companies (NOCs) and the energy exporting states have created a global 'seller's market' of energy sources and raw materials,[4] shifting the strategic calculations of the energy importing states.[5] The growth of 'resource nationalism' is not only threatening to undermine the market based supply of energy, but is also jeopardizing future global investments, energy efficiency and planned production levels. Saudi Arabia, Russia, Iraq and Iran, which together hold 50 per cent of the world's conventional oil reserves, are all reluctant to accept the foreign direct investment (FDI) that is necessary to develop

oil and gas production, in line with international projections of global energy consumption. As a result, the supply-demand gap is likely to widen as political factors increasingly determine access to oil fields in Africa, the Caspian Basin and the Middle East.

Securing realisable energy supplies has consequently become a major goal of governments everywhere as they attempt to make themselves less dependent on potentially unreliable suppliers. Energy security is no longer simply a 'technical' question of providing energy efficiently, but also a deeply geopolitical issue that highlights growing interdependencies and inequalities across the world.

At the same time, China's investments in Africa's extractive industries are seen in Europe and the US as undermining efforts to foster economic diversification, and creating new 'rentier economies' with unstable social and political institutions.[6] Countries with large oil resources often have weak governance structures, and neglect the development of other, non-resource based economic sectors.[7] Thomas L. Friedman has argued that there is a direct correlation between crude oil prices and political freedom. According to his 'First Law of Petropolitics': the higher the average oil and gas prices on the international market, the lower the internal political and economic enthusiasm about reform, leading to 'petro-authoritarianism'. This helps explain the present policies of 'petro-ist'-states such as Russia, Iran, Venezuela, Nigeria, Sudan and others, which are highly dependent on oil and gas and have either weak institutions and/or authoritarian political systems.

Another challenge that has contributed to anxiety about the future energy supply security are the attacks of September 2001 and new forms of terrorism. Since 2001, terrorist attacks on oil and gas pipelines or thefts of crude oil have increased worldwide.[8] While the impact of such attacks has thus far generally been localised and small in scale, at the very least they add to the overall level of uncertainty in volatile energy markets. Western security experts and governments also fear coordinated terrorist attacks on their electricity infrastructure, Thus, the safety and security of energy sources and energy infrastructure have become another important security challenge for both industry and governments.

Global Energy Megatrends of Demand and Supply Till 2035

As the result of the present worldwide economic crisis, and the twin challenges of climate change and global energy security, due the huge

energy demand of Asia and in particular China and India, the world is confronted with 'unprecedented uncertainty', as the last 'World Energy Outlook' of the International Energy Agency (IEA) in November 2010 has warned.[9] According to the IEA's central scenario, the so-called 'New Policies Scenario',[10] world primary energy demand will increase by 36% between 2008 and 2035 mainly caused by the non-OECD-countries accounting for 93% of the projected increase.

The rise of China and India and their rapidly growing energy consumption have increased traditional energy security concerns, and have highlighted the scarcity of conventional oil and gas reserves in global dimensions. For the first time in history, their rising demand coincided with the dramatic rise of prices since 2003 and mounting uncertainties about how long oil and gas reserves will last and how many resources will really be available on the future global market. In detail:[11]

- China alone will contribute 36% of the increase in demand which will raise its share of world demand from 17 per cent today to 22% by 2035.
- Despite the growing use of renewable energy resources of about 7% annually, the share of fossil energy resources will still be around 74% in the global energy mix by 2035 if no global revolution of energy policies takes place.
- Global primary oil demand (excluding biofuels) will increase from 84 million barrels per day (mb/d) in 2009 to 99-107 mb/d in 2035. Here again, China alone will be responsible for 57% of that increase. The bulk of the increase in world oil production is expected to come from OPEC countries, in particular from the Persian Gulf, where all have to cope with conservative depletion policies, insufficient foreign investment and rising geopolitical challenges inside and outside their countries.
- Like oil, natural gas resources are highly concentrated in a small number of countries and gas fields: Russia, Iran and Qatar alone hold 56% of the global reserves, and just 25 fields worldwide hold more than 50% of natural gas reserves in the world (IEA 2009).
- Worldwide natural gas consumption will grow faster by 1.4% per year and 44% cumulatively until 2035. LNG trade will double between 2008 and 2035, while around 35% of the global increase

in gas production will come from unconventional gas resources. China's gas demand will grow fastest at an annual increase of almost 6 per cent, accounting for almost 25% of the rise in global gas demand to 2035.

- Despite the global efforts for climate protection policies, global coal production will further increase from 4900 Mtce to more than 5600 Mtce, and global hard coal by 15% till 2035. In 2009, China became the world's largest coal importer despite the fact that it has the world's third largest coal reserves. By 2035, China will account for half of the global coal production and install around 600 GW of new coal-fired power generation capacity – the total combined coal-fired generation capacity of the Unites States, the EU and Japan.[12]

Energy consumption in the OECD countries fell faster than GDP and consumed less primary energy in 2009 than 10 years ago. However, in the developing world, outside the Former Soviet Union, it grew it faster than GDP. The global energy markets are now, more than ever, determined by developments outside of the OECD countries, in particular by China and India.[13]

The rising oil prices since 2001 have triggered the nationalization of oil and gas assets, particularly in 'petro-authoritarian' countries with weak political institutions. Governments have retained majority stakes in their own state-owned oil and gas companies. They mostly remain open to foreign investment only as long as foreign investors accept minority shares with no real control over the consortium. The national oil companies (NOCs) are 'advancing national interests but are also instruments of national power projection. The choice of pipelines to build and of the partners with whom to build them is an index of political entente, if not alliance'. These strategic trends have changed the bargaining power of oil and gas producing countries at the expense of the consumer states as well as between international oil companies (IOCs) and national oil companies (NOCs) in favor of the NOCs.

While the great game over energy resources was in the 19th century confined to Central Asia, now the field and the numbers of players have expanded while new rules are still being written. As the result, the supply-demand gap may widen and political factors are increasingly determining the access to oil fields in Africa, the Caspian Basin and the Middle East.

At the same time, nearly 32% of the population (about 1.6 billion people) in the developing non-OECD countries outside of Europe and Eurasia still do not have access to electricity.

Inadequate Investments

Another major challenge is the need for massive investment in energy infrastructure around the world in both the upstream and downstream sectors, which may rise to US26 trillion between 2007-2030.[14] While the financial crisis of 2008 is unlikely to affect long-term investments, it could delay many projects. Insufficient investment may create even more bottlenecks for global energy supplies. As the IEA has warned, more than 50% of projected global energy investment between 2007 and 2030 is needed just to maintain the current level of supply capacity that has to be replaced by 2030. At the same time, increasing energy efficiency and conservation is very much hindered by the fact that 37 of the world's biggest developing countries subsidized fossil fuels to a record US$557 billion in 2008.[15]

New large scale investments are required urgently at a time when geopolitical risks are rising. The high concentration of the world's remaining oil and gas reserves in an ever smaller number of potentially unstable producer states and regions makes the future supply of energy increasingly uncertain. The economic rise of Asia (above all China), has not only created an enormous regional energy demand, but it has also raised countless foreign and security policy questions for both regional and global stability.[16] In the view of many Western experts, China's energy foreign policies in Africa and Iran have complicated, if not undermined Western strategies for conflict prevention, management and sustainable development aid in Africa and the Middle East.[17]

The Return of the Middle East and North Africa Region to the World Agenda

The recent revolutions in North Africa, the unrest in Bahrain and the following military intervention of Saudi Arabia and the United Arab Emirates (UAE) as well as the civil wars in Yemen and Libya have caught the entire international world by surprise and led to supply disruptions of oil and gas to Europe and other parts of the world. In the EU and in particular in Italy and Spain, the widespread domestic instabilities in the Arab world have highlighted the challenge of energy supply security,

and enhanced the geopolitical importance of the 'Strategic Ellipse' (Persian Gulf and the Caspian region), where over 70% of the world's remaining conventional oil and more than 40% of the world's remaining conventional gas resources are concentrated. While Italy, Spain and the rest of the EU were able to compensate for the disruption of gas supplies from Algeria (as the EU's third largest import source) and Libya by importing more Liquefied Natural Gas (LNG) from other countries and regions, energy stability, particular in Italy, could become much more severely affected by a supply disruption in the winter months.[18]

The situation in Bahrain might lead to even greater instabilities. After the government in Manama imposed martial law mid-March 2011, Saudi Arabia and UAE invaded Bahrain with security forces. It marked the first time that Arab forces had crossed an international border to respond to the domestic turmoil of one of its members and the wider region since December 2010. The Saudi government probably feared that the unrest in Bahrain, with a population of 70% being Shia, would spread to its eastern provinces.

Although Bahrain's king Hamad bin Isa al-Khalifa has ended the martial law and announced a 'comprehensive, serious dialogue',[19] it is far from clear whether this will really bring back domestic stability. It has deepened the already existing rift in the Saudi-US security alliance and weakened the political foundation of the close military cooperation between the U.S. and Bahrain, which is also a strategic ally of Washington and is the base of the US Navy's Fifth Fleet.

A further radicalized Shia population in Saudi Arabia would certainly strengthen Iran that has long-standing territorial claims on Bahrain or even lead to an open military conflict between Saudi Arabia and Iran. But any regional instability in this critical and sensitive region of the Straits of Hormuz, the world's most important choke-point for oil transported to the global oil markets would have direct and indirect impacts on the oil prices and global energy supply security.

While the traditional regional allies have lost trust in the US because of its lack of support for the Mubarak regime in Egypt, the Arab public and reform movements have been equally disappointed by the slow and hesitant US and EU government support for regime change and political reforms. Though the US president Obama has rightly said that the status quo is unsustainable, the Chairman of the Gulf Research Center, Abdulaziz Sager, has stated:

> 'Based on long-term interests, however, the US could emerge as the biggest loser coming out of the storm. Winning the loyalty of ruling elites is much easier and far more secure than winning the trust and commitment of the people. As the honeymoon of political euphoria passes, the US will face new and formidable challenges. This in turn may result in having to choose between adopting to the new realities produced by the popular uprisings or revisiting the old practice of ignoring the people and siding with their opponents'.[20]

Thus the region is only at the beginning of a transformed regional landscape where the 'old oil order' is collapsing in world highly sensitive to sustaining global energy security.[21] As the '*Arab Human Development Report 2002'* by the *United Nations Development Programme* (*UNDP*) had already impressively highlighted to the world, energy security concerns could conceivably become more acute in the future, particularly in regard to the political stability in the Persian Gulf and the greater Middle East.[22]

At the same time, the new resolution and a more democratic government as in Egypt does not necessarily and automatically produces more regional stability and regional energy security. When, on April 27, 2011 saboteurs destroyed an Egyptian pipeline supplying natural gas to Israel (being dependent on 40% on Egypt for its natural gas demand), it took more than a month to repair the pipeline. But the gas is still not flowing due to street opposition and politicization of the issue, and Egypt is losing millions of dollars a day. Even the most promising outcome for regional peace has created a less friendly Egyptian government and a less energy secure Israel. Israel may face even more terrorist attacks on critical energy infrastructure in the near future, when it begins to produce oil and gas resources from the big Leviathan gas fields discovered in December 2010 in the Levant Basin, 130 km west of Haifa. Along with a number of smaller oil and gas fields in the Eastern Mediterranean, these discoveries are a matter of dispute between Israel and Lebanon. While the Hizbullah has already threatened to use all means to prevent any Israeli exploration. Israel has also announced the use of force to protect its rights.

Conclusions and Perspectives

The disruptions of oil supply in the 1970s, which were both economic and physical, led to international action to improve supply security

through a package of new measures, including the newly created IEA in Paris. The major Western energy importers have sought to ensure security of energy supplies in the following six ways since the mid-1970s by:

- diversifying their energy mix, avoiding over-reliance on a single fuel;
- diversifying their sources of imported energy;
- pursuing the exploitation of domestic energy resources;
- building strategic reserves of oil on their own territories;
- promoting energy efficiency and reducing the energy intensity/ improving energy efficiency of their economies; and
- in the case of the US in particular, actively policing the Middle East.[23]

Emergency strategic reserves of oil and gas and traditional crisis measures, such as those set up by the *IEA* in 1974 at a level of 90 days of net imports and by Community legislation, have provided an important response to any external supply threats or supply interruptions of energy sources. But the history and experiences of negotiations within the EU have also indicated that effective co-ordination and co-operation are extremely difficult to achieve in practice. Furthermore, the lack of a clear definition of a crisis that would trigger the oil distribution plan has forced member states in the 1990s to set up their own independent inventories or strategic reserves for certain energy products.

The globalization of oil markets has made energy independence an anachronistic objective of energy policies on the consumers side whereas energy interdependence has become a reality that requires intensive international cooperation. While the increasing reliance on market forces has indeed enhanced energy security, globalized market dynamics alone cannot guarantee full access to energy – particularly in regions in which market forces have a mixed record and which are internally unstable, externally aggressive, and pursuing weapons of mass destruction. Although the world is not confronted with an overall shortage of energy resources, geopolitical factors can constrain their availability. If political factors such as crisis and conflicts were to block the development of new promising oil fields in the Middle East, the ramifications for world oil markets could be quite severe, unless measures are taken immediately to diversify to other energy fields.

The key challenge for the EU, its member states and the rest of the

world is whether they can accommodate such rapid geo-economic changes and the geo-political challenges to their economies, traditional styles of governance and energy policy concepts. The rapidly expanding production of unconventional gas resources (i.e. shale gas) has almost overnight transformed the U.S from becoming the largest LNG importer to a self-sustaining gas producer and a net gas exporter. The new gas revolution has begun to shift to the rest of the world, with exploration test drilling in Europe, China, Australia, Canada and many other countries. On the geo-economic and geo-political side, unconventional gas has the potential to change the industry structure far greater then is commonly understood. This call for a new mindset within both industries, conventional gas suppliers – like Russia or those in the MENA-region– and demand centers (e.g. Europe) and those involved in the wider public policy arena.[24] Despite the perceived but often overstated environmental problems, 'not in my backyard' mentality and the resulting public acceptance problem, it is one of very few areas that offers solutions to the problematic mid-term perspective of global energy security. It will lead the way to a long-term de-carbonization of the world's energy production. Renewables will increasingly replace fossil fuels in a rapidly changing geo-economic and geo-political landscape. Energy will be just like any other commodity that is traded in the open market. It will, more than ever, be intertwined with strategic interests of governments – be it of a domestic nature or a core element of their geopolitical agendas. At the same time, increasing 'electrification' of energy production will result in electricity supply and infrastructure acquiring the same level of national and international attention as oil and gas security.

NOTES

1. See the definition of "energy security" by the International Energy Agency (IEA): http://www.iea.org/subjectqueries/keyresult.asp?KEYWORD_ID=4103.
2. See F.Umbach, Energy Security in Eurasia: Clashing Interests, in: Adrian Dellecker/Thomas Gomart (Eds.), Russian Energy Security and Foreign Policy (Routledge: Abingdon-New York 2011), pp. 23-38 (25 f.).
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Companies in International Energy Markets, Baker Institute Policy Report, No. 35, Houston 2007.

5. See also Mathew Burrows/Gregory Treverton, A Strategic View of Energy Futures, Survival, Vol. 49, No. 3, pp. 79-90.
6. See also International Crisis Group, China's Thirst for Oil, Asia Report, No. 153, Brussels, 9 June 2008; E.S. Downs, The Fact and Fiction of Sino-African Energy Relations, China Security, No. 3, Summer 2007, pp. 42-68 and Sarah Raine, China's African Challenges (IISS/Routledge: Abingdon-London-New York, 2009).
7. See also M.L. Ross 2004, How Do Natural Resources Influence Civil War: Evidence from Thirteen Cases, International Organization, 58 (Winter) 2004, pp. 35-67 and idem, What Do We Know about natural Resources and Civil War?, Journal of Peace Research, 41 (3) 2004, pp. 337-356.
8. See also E. Blanche, Terror Attacks Threaten Gulf's Oil Routes, Jane's Intelligence Review, December 2002, pp. 6-11.
9. IEA, World Energy Outlook (WEO) 2010, Paris 2010, p. 45.
10. The New Policies Scenario takes into account the broad policy commitments and energy plans that have already been announced by the national states around the world, including pledges to reduce greenhouse gas emissions (GHGE) and plans to phase out fossil-energy subsidies. This scenario is being place between the traditional Reference Scenario (business-as-usual) and the ambitious 450 Scenario that is consistent with the 2° C goal of the global climate policy efforts.
11. See IEA, World Energy Outlook 2010, Paris 2010.
12. See IEA 2010, p. 199 ff.
13. See also British Petroleum, BP Statistical Review of World Energy 2010, June 2010.
14. See IEA, World Energy Outlook 2008, Paris 2008, p. 39 f.
15. See also Financial Times.COM/Energy Source, 'The Cost of Fossil Fuels Subsidies: $557 bn, Financial Times.COM/Energy Source, (June 2010).
16. See also F.Umbach, "The EU-China Energy Relations and Geopolitics: The Challenges for Cooperation", in: M. Amineh/Y.Guang (Eds.), The Globalization of Energy. China and the European Union' (Koninklijke Brill NV: Leiden-Boston 2010), pp. 31-69.
17. See also F. Pflueger, Eine neue Ära des Energieimperialismus: Für Europa gilt: Von China lernen heißt siegen lernen, Internationale Politik, (May-June 2010): 76-83 and F.Umbach, "The EU-China Energy Relations and Geopolitics: The Challenges for Cooperation".
18. See Stefan Lochner/Caroline Dieck Dieckhöner, Civil Unrest in North Africa: A Risk for Europe's Natural Gas Supply? – A Scenario-Based Analysis, Energiewirtschaftliches Institut an der Universität Köln (EWI), Cologne 2011 and idem., Civil Unrest in North Africa – Risks for Natural Gas Supply?, EWI-Working Paper, No. 11/01, ibid., April 2011.

19. See also Katherine Zoepf, Bahrain Ends Martial Law but Renews Crackdown on Protests, New York Times 1, June 2011 (Internet/edition).
20. Abdulaziz Sager, Gulf Leadership and the US: Matter of Trust, Analysis of the Gulf Research Center, 30 May 2011.
21. See also Michael T. Klare, The Collapse of the Old Oil Order, European Energy Review, 7 March 2011.
22. See UNDP, Arab Human Development Report, New York 2002.
23. See Julian Lee, 'International Energy Security: Prospects and Problems', in: Krause, Joachim/ May, Bernhard/Niemann, Ulrich (Eds.), 'Asia, Europe and the Challenges of Globalization', Lectures. From the First ASEF-Summer School 1998, Singapore, June 1999, S. 165-186 (165 and 173).
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Energy Resources and Energy Security

Caught Between State Sovereignty and 'State Responsibility'

*Devika Sharma**

Introduction

The way international and domestic politics has unfolded can be seen as essentially the result of a basic collision – between the theoretical absoluteness that modern state sovereignty entailed and the reality that this theoretical absoluteness has had to continuously encounter – both from politics within and without. This reality can be evinced in the myriad challenges facing countries – however unequally but in common – both from below the national level, as well as beyond the state at the regional and global level. At the national level, these challenges emerge more often than not from the fact that the modern state is in essence a *status quoist* enterprise. As entities therefore, the state has tended to centralise and totalise its power in the name of the people it is supposed to represent and on whose behalf it is supposed to govern. As a result, the state has had to address issues arising from the lack of accountability and transparency, the delay in justice and the redressal of grievances, and the need to broaden representation and involvement of the people in the decision-making processes. At the supranational level on the other hand, states need to continuously encounter a reality that extends from the concern for maintaining international peace and security, ensuring the smooth functioning of trade and global markets as well as critical infrastructure, and addressing environmental concerns and climate change. It is this reality that together has required the state to temper its absolute sovereign power to control and govern, both within its

* This paper draws from the work done as part of a TERI project funded by the Konrad Adenauer Stiftung on 'Responsible Sovereignty' and Energy Resources.

boundaries, as well as across its boundaries. What this has meant is that states in the international system have acted 'responsibly' in their efforts to deal with the realities they are faced with. By acting 'responsibly', what is meant is that the state has accepted limits on its absolute sovereign powers by sharing, delegating and devolving domestically (through practices of good governance, broadly speaking) as well as by constraining its actions by adhering to legal conditionalities as well as normative values internationally (through mechanisms of global governance, broadly speaking). This historic and ongoing juxtaposition between state sovereignty and what has been referred to as 'state responsibility' can be elicited the context of energy security and energy resources as well.

The multidimensional and holistic understanding of energy security and energy resources that highlights not only the availability and accessibility of energy resources, but also its affordability and acceptability has implications for modern state sovereignty – both in its traditional sense of the term, as well as the broader idea of 'responsible sovereignty'?[1] The increased responsiveness and responsibility of the state is a result of a recognition that the state can no longer afford to insulate itself from the interests and concerns of the relevant stakeholders – both within the domestic sphere of the sovereign state, as well as beyond—at the international level. Governance and decision-making can no longer be packed into sovereign spaces that are impervious to each other or the larger international system. Nor can governance and decision-making be a top-down centralised affair domestically speaking; and that when it is, it creates problems, more often than not. 'Responsible sovereignty' and indeed the underlying philosophy that impels it are both not new.[2] Sovereignty has therefore been modified (however, not in any definitive or determined manner) as a result of forces acting both at the sub-national level as well as the regional and global levels. The absolute nature of state sovereignty has been impacted by normative concerns such as environmental degradation, human rights and concerns for sustainable development, as well as non-normative concerns such as inter and intra-state conflict and insurgencies, terrorism, nuclear proliferation, energy security and so on. 'Responsible sovereignty' is therefore an acknowledgement of this reality.[3]

Responsible Sovereignty and Energy Resources

The very nature of energy resources and energy security make for two opposing impacts on sovereignty. On the one hand, energy resources and energy security by their very nature call into play the traditional juridical understanding of sovereignty: mainly due to the fact that energy is a sine qua non of a country's viability as a political entity in terms of access to adequate sources of energy at affordable rates; because important sources of energy are distributed disproportionately around the world. As a result, there are only a few countries in the world that own these very essential commodities, introducing a hierarchy in the energy field that places suppliers on the top and markets with growing demand and inadequate supplies at the bottom, with countries that facilitate access through transit between suppliers and demands being somewhere in the middle; and because states consider survival and their military and economic prosperity of prime importance, countries are willing to access energy, notwithstanding the cost of their choices, that is, whether the energy resource is acceptable by countries in the global community (coal) or the immediate region (nuclear or hydro), whether the energy resource has been mined and delivered in an acceptable manner, and whether people living in the energy producing country or region have been adversely impacted by the mining and development of the resource.

However, the very nature of energy resources and energy security[4] also demands countries to rise above their state-centric moulding and identify collaborative mechanisms or establish institutions that constrain their otherwise independent authority to do all in their power to ensure their survival. Sovereignty has therefore not remained confined to the juridical and state-centric understanding of the concept in the energy sphere. Below five broad developments in the world of energy are identified that highlight practices, approaches and legislation that can be seen as falling under the rubric of 'responsible sovereignty', rather than the traditional notion of juridical responsibility, in the context of energy and energy resources.

The Role of Values and Norms

Norms and values play an incredibly important role in governance beyond state boundaries. Once norms acquire a degree of shared legitimacy and validity, they can regulate behaviour as well as constitute the identity

of actors. At the international level, indication that norms have achieved a certain degree of acceptance and legitimacy can be discerned from the creation of institutions that frame the rules of the game, through formal rules, laws and regulations that specify enforcement mechanisms and through informal constraints in the form of non-binding conventions and agreements.

In the area of energy resources, all three are in evidence. Institutions that have framed the rules of the game and have the clearest impact on states in their ability to choose (or not) certain energy resources over others is undoubtedly the area of climate change. Countries have been called upon to *definitively* attune their nationally defined economic growth pathways to concerns that transcend traditional notions of security, risk, development and territoriality. Addressing climate change concerns by states, either individually, plurilaterally or multilaterally, can be viewed as providing a global common good. Almost all countries (the traditionally big energy consumers as well as the new entrants such as India and China) have made concerted efforts to thwart the deleterious effect of anthropogenic greenhouse gas (GHG) emissions by shifting away from the use of, especially coal, amongst all sources of fossil fuels. The expansion of nuclear energy, hydropower (See Yardley 2007), the search for alternatives such as shale gas, algae, geothermal energy and other sources of renewable energy such as wind and solar are together the result of this basic concern with planet Earth and the global climate. The shift is sometimes more expensive. According to the International Energy Agency's (IEA) recent calculations, power from photovoltaic systems (solar cells) costs US$ 200-600 a megawatt-hour, depending on the efficiency of the installation and the discount rate applied to future output, whereas onshore wind power in the US costs US$50-70 per MWh, and even lower prices for power from fossil fuels.[5] Yet, due to the legitimacy of international norms, the cost is a factor several countries have been willing to incur.

It can be argued that all these examples are not essentially about norms and values trumping the logic of narrowly defined state sovereignty and interests, but that countries have decided to adopt aggressive renewable energy programmes only as a way to make themselves energy secure by diversifying their energy baskets, and by circumventing the threat posed by rising competition for dwindling fossil fuels. Be that as it may, just as no act, particularly in the world of politics, can be borne solely out of altruism, the converse does not necessarily have to be true

either. A sizable section of the world still does not believe in peak oil; and new discoveries of oil and gas continue abreast with a continued expansion in the coal sector. This notwithstanding, countries are choosing to look for alternatives that impose considerable short-term costs. Also, the obligation to uphold sustainable development practices that would go a long way in addressing global challenges (such as climate change, or environmental damages, for climate change naysayers) are entrenched norms that countries recognise as legitimate and valid concerns that are common to all (primarily due to the fact that environmental damages do not respect man-made boundaries). Environmental concerns have been a key constituent of several abiding and successful agreements such as the 1985 Convention for the Protection of the Ozone Layer (and the subsequent protocol of 1987), the 1986 convention on the Early Notification of a Nuclear Accident, the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. Addressing climate change concerns that require countries to constrain their sovereign right to use energy resources of their choice could therefore be seen as part of this long-standing concern for sustainable development practices and environmental protection.

Role of Transnational Actors and Transnationality

There has been a proliferation of transnational rule-making organisations or entities that have impact on laws and regulations, both at the domestic as well as international level. Through two different examples, the role of transnational actors and the 'transnationality' of certain regions, such as the Arctic, the role of transnational actors and the state of being transnational have constrained traditional notions of sovereign control over energy resources.

The first example is that of Greenpeace and deforestation in Indonesia because of palm oil cultivation. Several studies have been done which record how the forest cover in the major producers of palm oil in the world – Malaysia and Indonesia – has reduced over the years. Greenpeace has therefore been putting pressure on big companies such as Unilever and Nestlé to stop buying palm oil that is not certified as being from sustainable sources. Under growing protest due to pressure from Greenpeace, Nestlé recruited the Forest Trust (TFT), a charity based in Switzerland, to provide an independent review of its palm-oil supply chains, from top to the ground level.[6] Although the campaign against palm oil from unsustainable sources is not without its drawbacks, it is

important to note, for our purposes, the role and the comparative success that transnational activist organisations such as Greenpeace have been able to encounter in the area of ensuring responsible sovereignty vis-à-vis palm oil cultivation.

The other example is from the Arctic region. The Inuit of the Arctic region straddle more than one country (the United States, Canada, Russia, Norway, and Denmark). Because of this and the fact that the Inuit are impacted by changes in their physical environment, particularly as a result of the development of resources within the region, they have formed a counter-narrative of political sovereignty that does not adhere to traditional state-centred sovereignty; and hence have formed an interest-based confederation that straddles national borders.[7] The Inuit have mobilised themselves through the Inuit Circumpolar Council (ICC) to establish what they call a cultural form of sovereignty, which at least theoretically underlines the right of the Inuit people to not only maintain a historical relationship to the Arctic region, but also user and policy rights to control the economic development of Inuit-inhabited Alaskan natural resources.

Market as Stimulus

Energy markets are far more globalised today than they ever were. It is because of these networks of interconnections in the energy world that Harris suggests traditional energy policy approaches directed toward national autonomy and control are obsolete.[8] Several countries have de-regulated their energy markets, and have also put in place mechanisms that regulate and ensure transparency in energy-related trade and transit issues. The Energy Charter Treaty (ECT) for instance has been one such mechanism put in place by countries to ensure greater transparency and a means for enhancing investor confidence. It seeks to provide a 'level playing field' to reduce non-commercial risks attached to energy security and ensure energy trade to be non-discriminatory and consistent with WTO guidelines. Azerbaijan is another interesting example, which signed the Extractive Industries Transparency Initiative (EITI) inspite of the fact that it is an authoritarian petrostate. 'Responsible sovereignty' in energy markets has also been the result of entities such as the World Bank and business companies themselves. In the case of a pipeline from Chad to Cameroon (to facilitate the export of Chads oil), the World Bank agreed to fund its construction on the condition that the Chad government sign up to agreements that controlled the way revenues

were spent. However, the EITI, ECT and the World Bank have only achieved limited successes in face of entrenched political interests. Hence, there is a need to put in place new rules to ensure that transit and energy infrastructure cannot be disrupted as a result of deteriorating political relations, the political whims of key transit countries and due to non-state actors such as pirates. The market provides a stimulus for countries to formulate rules that ensure countries cannot act in self-seeking and narrowly defined statist ways.

Sharing Value with Domestic Stakeholders

Alternative paradigms and approaches to developing and managing energy resources as well as their wealth are not only the result of pressures from above, but the realisation by governments that not sharing value and not taking cognisance of impacts of energy resource projects on local communities can impose real costs in the future. In a number of cases, it is local communities that coalesce around a shared grievance to put pressure on the government to implement best practices in the energy mining sector. In India for example, the mines ministry has suggested that the Mines and Minerals (Development and Regulation) Act of 1957 be replaced by a new law, which proposes the sharing of profits with the local population and the state government. Through the new law, the ministry not only aims to tackle corruption in the sector, but also address Naxalism in mineral-rich areas. Ghana offers the example of a country that is trying to put in place 'responsible' laws that will ensure that conflicts around its mineral riches do not bedevil the country. Accordingly, the government in Ghana is taking steps to create a separate oil regulatory agency, to mandate a greater role for local contractors, to increase the transparency of the states oil revenues, and to update the country's oil regulations for deepwater drilling environments.

Several studies have looked into the link between mineral wealth and internal ferment and conflict. In many cases, such as in India, there are adequate laws and regulations in certain areas, but a lack of implementation. It appears that the legal framework, rules and institutions are in existence but the organisational structure and lack of executive action is found to be either wanting or an impediment to ensuring greater transparency, accountability and representation. It is important to identify the areas in which the government needs to be more 'responsible'—that is, the areas where the state is likely to face greater challenges due to outdated legal frameworks, centralised

organisational structures or because the states actions are not representative or sensitive to the grievances of the relevant stakeholders. In other instances however, because there is an internal bias that gives the centre/government greater powers than lower federal units or private companies, the legal framework in place has not been able to check the state bodies. The Indian state for example is in a position of authority to significantly regulate, manage or alter the way in which the resource sector develops. It is also in an important position to bypass some of the challenges that are connected to the expansion of energy resources, as also to identify the mechanisms, institutions or regulatory policies that could help in addressing possible side-effects that might emerge from the development of the sector in India. Of some of the powers that the Indian government has which impedes 'responsible' authority is eminent domain. The power to take, and the unqualified nature of 'public use', has made dispossession and mass displacement possible, and is fast becoming a power which is acquiring illegitimacy, especially among the displaced.

Due to the heavy hand of the state and the powers vested in the centre (as opposed to federal units), there is scope for grievances spiraling into internal conflict. It is primarily because of the threat of conflict that governments have started to become sensitive to the need for 'responsible' governance within the domestic sphere. While governments cannot be held accountable from above for their unrepresentative and non-transparent means of developing energy resources and addressing the impacts arising from the use of resources, in several cases, they are being held accountable from below—by the affected communities themselves. This is true of authoritarian polities such as China, as well as democratic countries such as India.

The Strategic Logic of Collaboration and Cooperation

Even in a world where the strategic logic of sovereign exclusiveness in its traditional sense would prevail, a degree of responsibility in accessing energy resources can be distinguished. However, this is in evidence under the very specific circumstance of energy resources being located in areas that are under dispute or where territorial jurisdictions have not yet been determined. The Arctic issue raises some interesting points for analysis. In the past few years, the Arctic has assumed great importance in world politics. Inspite of environmental concerns about the need to preserve the sanctity of Earths last frontier, global warming has made it

technologically feasible to tap the energy resources lying under the ice. This has resulted in a scramble between the littoral states to stake claims on the mineral riches of the region—up to 25 per cent of oil reserves in the world are said to lie below the Arctic ice. The scramble started off with Russia planting its flag on the Arctic sea bed, and Canada staging Operation Nanook 07. However, more as a result of the utilitarian and self-seeking interest of the littoral states to divide the pie, evidence of cooperation and discussion in resolving the territorial claims in the region are in evidence. Russia for instance agreed with Norway to a maritime boundary in the Barents Sea to end a dispute that had left the region a grey area for potential mineral exploration for 40 years, and Russia and Canada accepted that the UN should rule on who owns what part of the Lomonosov Ridge, the continental shelf that could potentially give exploration rights up to the North Pole. In September 2010, Russia also hosted an international dialogue to discuss rival claims to the Arctic Oceans potentially lucrative oil and gas reserves. This of course is a severe jolt to the cause of environmentalism and the protection of the Arctic's pristine environment. However, the point being highlighted here is that instead of continuing a zero-sum approach to staking claim on the basis of military and economic power, countries have tried to identify alternative mechanisms to reach an agreement to carve up the Arctic region.

If countries fail to equitably divide the spoils, they have resorted to joint sovereign control over development projects in mineral-rich regions that were otherwise under dispute. Joint Development Zones (JDZs) in West Asia for instance are perfect examples, such as the Kuwait-Saudi Arabia in the Persian Gulf where the neutral zone between them was divided while the seabed beyond the 6 nautical mile territorial sea limit was to be jointly exploited; the Iran-Sharjah Arabian/Persian Gulf JDZ based on revenue sharing arrangements, with provisions for a single oil company to operate under an MOU between Iran and Sharjah; the Saudi Arabia-Sudan JDZ in the Red Sea where a 1974 agreement technically provides for cooperation over all resources; the Malaysia-Vietnam Gulf of Thailand JDZ based on an agreement that facilitates resource exploitation and moves away from institutional and regime-building tendencies and so on. What is interesting to note is the fact that these examples highlight the mutual interest of the littoral countries to develop the energy resources jointly (win-win situations), rather than wrangle over sovereign ownership and staking claims (zero-sum).

Conclusion: Key Inferences

- At the international and national level, the biggest problem is not of intent or the absence of norms and values that inform 'responsible sovereignty', but the 'will' for countries to strengthen regulatory frameworks that bind them, as well as implement the laws that do exist.
- Self-interest and not altruism is the biggest stimulus for countries to put in place responsible sovereignty mechanisms. Countries have begun to realise that it hurts their long-term interests to continue in a business as usual manner. In order to avoid costs in the long-term that could be more expensive, countries have come together in several functional areas to address common challenges and implications implicit in them. This is most evident in the area of access to energy resources, particularly in areas with the potential for new resources of energy and where there are competing claims of jurisdiction.
- While implementation and regulation of processes that constrain unbridled sovereign power might remain weak, both at the international level as well as the domestic, the fact of the matter is that countries have begun to put in place mechanisms and frameworks that do just that – constrain their sovereign rights. The reason why countries, both internationally and domestically, are paying more heed to values and norms, is because the 'legitimacy and density' of these norms often make it too costly for countries to continue to ignore them. The norms implicit in the need to protect Earth from climate change is perhaps one such area. The authority and power of countries to decide on which energy resource has as a result been most impacted by the role of ideas and norms that stress the need to adjust their otherwise sovereign economic programmes to the larger concern for the climate. While national energy programmes differ and the extent to which countries are willing to limit their choices, the fact is that almost all countries are aware of the need to cut back their use of fossil fuels.

It is also interesting to note that just as the nature of energy security and energy resources cause countries to fall back into traditional and narrowly defined approaches to sovereignty, there are simultaneously multiple actors and forces compelling countries to do the opposite – that

is, identify more responsible frameworks of governing, managing and addressing the implications arising from the energy sector. These competing processes are tied to the very nature of energy resources and energy security, and hence are both going to be a part of the discourse and developments in the energy sector. In certain pockets and sub-issue areas, countries might continue in a BAU manner, but even within these areas, they will have to do so in the knowledge that they are contravening certain commonly accepted norms and values that sanctify certain actions over others. Countries might hold out the argument that these norms are externally-determined or imposed by the powers that be, however, in the area of governance, there are certain basic norms such as accountability, transparency and stakeholder engagement that make it imperative for countries to follow 'responsible sovereign' practices in the energy sector.

NOTES

1. Sovereignty in the traditional and theoretical sense has meant 'supreme authority within a territory'. However, no sooner than this definition is adopted than we become aware of the several qualifications that need to be introduced. That is, when the way sovereignty is actually practiced is studied and analysed, we notice that sovereignty neither denotes 'supreme authority', and nor is it always co-terminus with the territory of a state. In practice therefore, sovereignty has not developed according to its formalistic understanding. Neither is the state the supreme authority within the domestic sphere (in as much as it is neither the only entity with a role in 'governance' and nor is it totally independent to do whatever it wants), nor is the state completely independent of compulsions, pressures, the functioning of the global economy, and the norms and values that arise beyond its borders, that is, the international system.
2. The 'good governance' literature for instance is similar to that of responsible sovereignty in terms of philosophy. The World Banks work for instance has focused on identifying 'good governance' indicators as well as practices that pertain to the domestic arena of states. There is a need to make a conceptual difference between government and governance.
3. As a term, it was first used by Francis Deng in the context of Africa. See Deng, Francis M., Sadikiel Kimaro, Terrence Lyons, Donald Rothchild and I. William Zartman (eds). 1996. Sovereignty as Responsibility: Conflict Management in Africa. Washington, DC: Brookings Institution. More recently, Bruce Jones et. al. highlights the importance of responsible sovereignty wherein they make a case for countries to be accountable for their actions

that have impacts beyond their borders such as transnational terrorism, civil conflict, climate change and nuclear proliferation. Jones, Brice, Carlos Pascual and Stephen D. Stedman. 2009. Power and Responsibility. Building International Order in an Era of Transnational Threats. Washington, D.C.: The Brookings Institution.

4. That is, given that there are basic demand-supply linkages between countries in the energy sector, that is, energy dependent countries need access to resources but equally, energy-surplus countries need assured markets in order to sell their commodities. Countries need to therefore trade and cooperate with each other, as well as in several cases, identify and build mutual stakes and areas of collaboration, both in the energy sector as well as beyond. Because energy is a strategic commodity that is internationally traded and because of the inter-dependency between markets and suppliers, countries have tried to put in place frameworks that ensure the smooth functioning of trade and investment in the energy sector.
5. See The Economist. 2010. The Rise of Big Solar, 15 April.
6. See The Economist. 2010. The Campaign Against Palm Oil, 24 June.
7. Shadian, Jessica. 2010. From States to Polities: Reconceptualising Sovereignty through Inuit Governance, European Journal of International Relations, 16(3): 485-510.
8. Harris, Martha. 2001. The Globalization of Energy Markets, in Richard L. Kugler and Ellen L. Frost (eds.). The Global Century: Globalization and National Security. Washington, D.C.: National Defense University Press.

Discussant

Ligia Noronha

The two papers have addressed the objectives of the session superbly by not just highlighting the opportunities and challenges around resource security but also examining whether the traditional notion of sovereignty of natural resources linked to power and control over resources is beginning to engage with notions of morality and values. Under what circumstances is the State beginning to limit it pure "control over resources" function to take on board a more "responsible sovereign" function?

I would like to make four points here that I believe are relevant to the discussion today:

One, the UNGA Resolution 1803 of 1962 was passed in the context of an increase in demand for raw materials from developing countries which led them to demand more fair and equitable systems of revenue distribution based on resource ownership. This resolution was, in the succeeding decades, tempered by a 'do no harm' objective symbolized by international agreements and principles as in notions of sustainable development, the precautionary principle, CBD etc. Today the increase in demand for raw materials is leading to increased demands at the sub national level - from resource rich states and the people of these states - for more equitable and fair systems of revenue and benefit sharing.

Two, is that we have a 'globalized demand' but a 'partially globalized supply' as resources are still spatially located and controlled. The two papers have highlighted the opportunities and challenges around this. Frank Umbach has highlighted the insufficient attention to supply issues relative to climate concerns and the importance of doing so: the coal dependence and the need for clean coal options; global conflict fuelled

by energy inequality; overlap of energy supply sources and security concerns; the balance of energy security objectives, etc. Devika Sharma's paper focused on responsible sovereignty and energy resources. The notion of responsible sovereignty can range from Deng's definition of 'ensuring a minimal standard of security and social welfare for citizens' to that of the Brookings project which calls for responsible sovereignty beyond borders. We see in these interpretations both a positive responsibility, (i.e., ensure a minimum standard of security, this would relate to access issues) to a negative responsibility, (i.e., do no harm by your actions within or beyond borders).

Three, in the juxtaposition of positive and negative responsibility, we find the need to introduce the development stage of the economy and the nature of its energy security concerns, as these will determine the nature of trade offs that states may make over time. In an economy when energy security concerns are primarily linked with energy poverty, the enabling function make take precedence over the protecting function i.e. the environment. Responsible sovereignty requires that a balance be observed as much as possible.

Four, and this point links back to the point made by Montek Ahluwalia in his opening remarks at the inaugural session wherein he said that the policy framework to optimize supply of resources is not optimal and that we need to think of a more innovative policy frame. I believe such a framework would need to pay attention to the following key aspects:

a) Engaging with popular sovereignty, which has not been sufficiently discussed today. Popular sovereignty requires us to think, as Margaret Canovan argues, that a truly sovereign people is not simply an abstraction or an imagined community, but a community of action where people as individuals come together in groups to make their collective views felt.

b) Sharing benefits from resource exploitation as economic surpluses from natural resources belong to the resource owner, which need not be the operator. There are both legal and moral claims that need to be engaged with in thinking about benefit sharing.

c) Having in place transparent, clear and well defined regimes to attract investment.

d) Recognizing the rights to fair returns of resource rich states, or else we will have a myopic federal structure that does not recognize

where resource ownership lies, and can result in political troubles as has been the case elsewhere.

e) Ensuring that resource pricing internalize environmental and social costs

Integrating environment, economic and security issues in the resource development regulatory framework.

II

Changing Roles of States and Markets in the Resource Sector

Chair: Moritz Lumma

Coming into Reach

Energy Security for all

*Inge Kaul**

Introduction

Energy security is commonly defined as the provision of a reasonably priced, uninterrupted flow of energy. However, a commonly missing question in this discussion is that of *for whom*? Should it be, say, for the richest quintile of the world's population only; or, should it be for all?

This paper argues that the skipping of this question so far has perhaps not been accidental, especially in international debates on energy security. In fact, it is only now that the goal of energy security for all is beginning to look like a realistic, attainable goal because of the confluence of two major global change processes. First, our move from relying primarily on the finite stock of fossil fuels to relying increasingly on renewable energy; and second, the emerging shift in global power relations towards greater multipolarity that will contribute to more open and participatory global energy politics and markets. From a zero-sum world of energy and power we are now entering a world that affords more opportunities for positive-sum strategies, one of which could be the pursuit of energy security for all.

The paper also suggests ways in which the energy transition could be accelerated and steered so that it actually reaches poorer countries and poorer population segments. In this context, it would be of greatest importance to strengthen policy leadership and cooperation on energy issues at the international-regional and global levels.

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The Roots of the Zero-sum Energy Strategies Pursued to Date

Our main energy sources, so far, have been coal, oil, and to some extent, gas. All these sources have the properties of what economists call 'a private good'. They are rivals in consumption and excludable. Rivalry in consumption implies that if a person, firm or any other actor consumes a certain amount of the good, that amount is no longer available for others. The property of excludability refers to the fact that a private good can be parceled out and property rights can be attached to it. It can be bought and sold; and its use or consumption can be withheld from others, unless they are willing to trade the good against payment of a price.

As energy is an essential good (meaning, that without its adequate availability many economic activities will just grind to a halt), and fossil fuels are of a finite nature, it becomes clear why fossil fuels are also a source of rivalry among states and firms, especially now with the peak-oil point rapidly approaching. This potential for competition and conflict exists especially where economic and political power is unevenly distributed, as has been the case globally until now.

Therefore, it is not surprising that, as the conventional major powers began to realize their growing dependence on imported energy and the risks of potential supply disruptions, 'club' responses emerged. For example, following the first oil shock in 1973, the International Energy Agency (IEA) was formed by OECD member states as a major-consumer counterpart to the Organization of Petroleum Exporting Countries (OPEC), the major-producer organization. With the end of the Cold War, when energy markets underwent further globalization, the Energy Charter Treaty (ECT) was formed to address issues of energy investment and trade and to ensure reliable transit routes. The ECT has links to the World Trade Organization (WTO) and relies on WTOs dispute settlement mechanism.

Yet, international cooperation in the energy field has so far remained relatively weak. This is evident, for example, from the limited role that agencies such as the IEA and the International Atomic Energy Agency (IAEA) have been able to play. States have preferred to pursue energy security primarily as a national goal and through their own diplomatic, bilateral efforts. With emerging resource scarcity, energy diplomacy by states and firms has become an increasingly active field, backed, in part, by military support, and at times ignoring technical standards and

environmental concerns, as well as human rights, democracy and 'no corruption' principles. As a result, wealth in energy resources has, for many developing countries, turned into a resource curse.

Energy security has so far primarily been approached as a zero-sum game – as a competitive race that some would even term a 'scramble' for resources. The national energy security of some countries has at times been achieved by making others, notably local communities in the producer countries, less secure. This risk is growing because of dwindling resources and more risky explorations to be undertaken.

The Emerging Scope for Positive-sum Thinking about Energy Security

Despite all prophecies of doom it appears that the global energy situation is today standing at a cusp. The fact that we are nearing or perhaps already crossing the peak-oil point is stimulating research and development (R&D) in alternative, renewable sources of energy and clean energy products. Moreover, evidence that we are rapidly approaching a climate change tipping point is mounting, adds further urgency to accomplishing the energy revolution: the switch from a high-carbon to a low-carbon world. Again, this means developing alternative, clean sources of energy like the wind, sun, waves, and biomass.

These alternative sources differ in a significant way from fossil fuels. They are, in 'economist speak', public goods. Contrary to their counterparts, the private goods, they are non-excludable and non-rival in consumption. The sun, for example, will continue to shine for all, even if we create solar energy; the wind will continue to blow even if we generate wind power. Renewable sources of energy offer the possibility of a large, continuous supply of energy that could last way into the future, forever. They constitute nature-given global public goods.

Also, many more countries and firms are likely to emerge on the supply side so that future renewable energy markets could exhibit fewer distortions than the present fossil fuel markets, function more efficiently, and thus, lead to lowering of energy prices.

Importantly, global power relations are shifting towards growing multipolarity as new economic and political powers rise. Brazil, China, and India are leading the movement, but many more developing nations are following closely on their heels. This is changing the nature of

international negotiations and cooperation. The Copenhagen and Cancun meetings on climate change, for example, have already shown that the international discourse is becoming more participatory, more open and pluralistic. It seems that just as more competitive markets tend to lead to more toward efficient outcomes than distorted ones, more participatory policy dialogues might generate more efficient and more broadly acceptable outcomes. The new global political realities thus offer a better climate than the previous decades for promoting, where desirable, a multilateral global approach to energy issues.

Another positive effect of the emerging multi-polarity is that due to the growing economic importance of developing countries we are beginning to see more cross-border cooperation in the energy field. For example, global research and development (R&D) partnerships are multiplying between institutions and experts from industrial countries like the US or EU member countries, on the one hand, and emerging-market-economy countries, on the other. Sure, they are seeking an early-mover advantage in the renewable-energy markets, but the competition in the renewables field is an upward, enabling competition. It is not a downward, ruinous competition of the type witnessed in the fossil fuels field. It helps us, the world, to achieve the energy revolution.

The *Renewables 2010 Global Status Report,* the *Global Trends in Sustainable Energy Investment 2010,* the *World Energy Outlook 2010* and UNEPs 2011 *Green Economy Report* indicate that the energy transition is beginning but gaining momentum. Governments, private firms, civil society organizations, and people at large are increasingly realizing that 'greening the economy' generates sustainability benefits as well as economic benefits – new business and job opportunities as well as more affordable prices, especially if partners, with different comparative advantages, form joint ventures and relationships of innovation, product development and market expansion.

The Growing Feasibility and Desirability of Energy Access for All

Given these new circumstances – especially the non-rival nature of renewable energy sources and the emerging multi-polarity, with the added scope for cross-border cooperation and, perhaps, the more constructive competition it offers – energy security for all is becoming a goal that appears to be increasingly technically feasible and economically desirable. However, to see this, we need to switch from thinking about energy

security as a zero-sum game and, as renewable energy comes on stream, more as the positive-sum game that it could be in the future.

Given that renewable energy sources are non-rival, there is no reason to withhold the energy generated by them from anyone, provided that universalizing access to affordable energy does not only allow us to realize long standing, though as yet largely unmet, promises of poverty reduction and enhanced equity, but that it also constitutes a good investment. Many studies have demonstrated that achieving poverty reduction, equity improvements and profitable investment are not mutually exclusive activities, but can be undertaken conjointly. And while only energy-source and context-specific cost/benefit analyses can provide reliable answers, it appears that promoting universal access to energy is likely to be a good investment. It would not only improve people's individual, private well-being but also generate a range of positive spillover effects: societal benefits like improved public health conditions or enhanced overall economic productivity, growth and prosperity.

In this respect, energy is similar to education, the social benefits of which are well documented. Therefore, in many societies school attendance up to a certain level has become compulsory for all children. Education is obtained by students going to school and occupying available school seats. Thus, education has a rival aspect: the school seat. But, because of its societal importance, states have not only made school attendance compulsory but also aim at providing school facilities in a plentiful, non-rival way so that all pupils can be accommodated. Education is, thus, an example of a good made public and available for all by policy design – by a deliberate policy choice. Of course, not all countries have as yet attained this goal; but most are by striving to do so. Considering that energy security for all also generates not only private benefits but, like education, also important societal benefits, it could – and perhaps, should – be approached in a similar way as universal education.

While renewable energy sources are non-rival, the energy supply generated from them can and most likely, will be parceled out, turned into a priced and metered private good, with the charges being collected from individual consumers. But, just like most governments offer at least basic education free of charge or at a low, subsidized fee, they could help finance energy infrastructure and introduce a differentiated fee system so as to facilitate access to energy for all at an affordable price.

According to the 2010 edition of the IEA *World Energy Outlook,* some US$ 40 billion would be required annually in order to lift an additional 395 million people out of energy poverty. No doubt, such an effort will also provide considerable business opportunities.

Thus, at the dawning of the low-carbon economy era universal energy access could potentially be a win-win proposition for individual countries, regions, and the world as a whole.

But, will it happen automatically?

Fostering an Energy Transition that Keeps Energy Security for All in Mind

While the aforementioned trends are likely to assert themselves in the longer run, they, nevertheless, require deliberate policy intervention, because the challenges we are facing, notably those of poverty and climate change, need to be addressed urgently.

It seems that it would be especially important to take corrective steps in terms of the international-level governance of energy security so that a more conducive global policy environment emerges for regional and national-level policy interventions and private-sector initiatives.

Against this background, it is most striking today that no one is clearly in charge of fostering the energy transition process. Many agencies are playing a role but no one promotes collective, concerted action so that everyone can indeed be assured that all concerned parties will contribute their share to the transition effort.

Therefore, it would be desirable to place energy as a priority issue on the agenda of the G-20 leaders forum, with appropriate adjustments in the Groups composition. This is an opportune time to do so, because the worst of the 2008 financial crisis that has, so far, pre-occupied the G-20 now appears to be behind us; and the energy revolution has reached a critical take-off point.

The G-20 could, for example, encourage the respective concerned actor groups and international agencies to address issues such as:

- *Improved global regulation of fossil fuel markets* – so that exploration and exploitation efforts in the post-peak oil phase will follow technical, environmental and social standards that are clearly defined, consensus-based and monitored.

- *Global regulation of the emerging renewable energy markets* – so that politicians and regulators can be ahead of market developments;
- *Reporting on, and assessments of, country efforts in terms of progress in accomplishing their part of the energy transition* – so as to maintain the transition momentum as a joint collective endeavor, ensure accountability, and reduce uncertainty on the part of potential investors in new and renewable energy.
- *Establishment of a global facility for pro-poor clean technology innovation*– to support the development, dissemination, and adoption of new energy technology that could be especially relevant to developing countries and serve population groups that would otherwise not be reached. The financing of this facility should be additional to the financing of mechanisms that have been or are planned to be set up to assist developing countries in adapting to climate change. Recognizing that governments may prefer using their resources to offer national incentives to firms headquartered within their jurisdiction, the innovation fund could be resourced, for example, through the proceeds of a solidarity levy on international currency transactions, that is, money that no country alone could tap.
- *Proposals for a global energy architecture* – because the G-20 leaders involvement in energy should be temporary, and as international energy governance at present is, as some analysts put it, an organizational patchwork, the question arises of how to envision the future architecture of global energy governance, notably to whom the G-20 could in due course, once the transition process is well on its way, hand back a global leadership responsibility.

Concurrently with a closer G-20 involvement in energy issues it would also be desirable for different regions and sub-regions to review the state of their international cooperation arrangements and explore which energy-related challenges would best be left for individual nations to resolve on their own, in a decentralized way; which issues are of a pure regional nature and ought to be settled at that level; why and where the region might like to seek global cooperation and be willing and interested to help meet global challenges; and what its vision of future global energy governance might be. Initiatives such as norms, standards, information, and facilities would increase the availability of global public goods in the

energy domain, if they were collectively designed, potentially beneficial for all: states, firms, and people at large.

However, experience in other global public good fields like in the area of international financial stability has taught us that the provision of global public goods often suffers from a dual failure: market failure (that tends to affect any public good whether it be local, national, regional or global in nature), and state failure. The latter occurs, because, while appearing to be international, states often behave like private actors. They pursue national, particularistic interests that may not fully overlap with regional or global concerns; and they, too, attempt to free-ride – to let others contribute to the provision of a global public good, and when the good exists, then to enjoy it free of charge. Therefore, it is important that all actor groups – states, business, and civil society –have an effective say in international consultations and that non-state actors nudge state actors into action as some civil society organizations have already done quite effectively. Examples are Publish What You Pay (PWYP) and the Extractive Industries Transparency Initiative (EITI). Fortunately, changes in this direction are already underway.

Conclusion

The foregoing analysis suggests that we are at the threshold of, or perhaps already in, a new energy era: an era of non-rival energy sources and more participatory energy politics. Both these trends augur well for attaining, in the not too distant future, the goal of energy security for all. Effective global and regional political leadership could facilitate full breakthrough into this dawning energy era.

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State Control Over Energy Resources

Sudha Mahalingam

Introduction

State control over mineral resources is inevitable in mineral-rich countries primarily because it helps the governments of these states to wean themselves away from dependence on taxation. In importing countries, the state is unwilling to let go of control over commodities which it considers merit goods. Energy, to some extent, falls in this category. The Indian example shows that it is very difficult to let go state control over energy be it coal, electricity or petroleum although we did initiate measures that would place these industries within the ambit of the markets.

The main reason for state control over energy lies in its very nature. Energy, unlike most other goods, can satisfy both needs and wants. To the extent it satisfies needs, the State will have to supply, regardless of the citizen's ability to pay. Energy to light up a single light bulb in every household, to pump up water to overhead tanks in urban high-rise residential apartments, to provide cooking fuel to urban kitchens etc. would be the responsibility of the State and as such, would be deemed a merit good. States will, therefore, tend to adopt 'populist' policies to make it affordable to its citizens. This will introduce distortions in the market.

Markets, however, do not accept such distortions passively. They react in different ways, often manipulative, to protect their turf. Gaming is a device often used by markets to respond to market distortions introduced by populist policies. Markets react disproportionately to distortions and push prices beyond reasonable levels as in the case of current crude prices where, the speculative premium is said to be anything

between a fifth and a third of the price. A chain reaction results where the State tries to keep prices down to protect the interests of its citizens and the market reacts to push prices into a spiral. In such a situation, tension between State and markets is inevitable but it also erupts in conflict.

Import Dependency

Economic growth and galloping energy intensity are unstoppable juggernauts. In India for instance, the manufacturing industry is energy-intensive. Even the service sector is now energy-intensive, because of a huge urban sector population whose lifestyle demands more and more energy. Growing import dependence is a searing reality for mineral-poor importing nations. China, which was a net exporter till 1993, is now the second largest importer of crude oil. Just ten years ago, India was importing 40 million tons of crude oil; now it is importing 160 million tons of crude oil, an increase of 400%. Allowing for some of it being exported as refined products there is at least a 300% increase in imports. So, increasing imports is a reality States have to deal with and that makes for internationalization of energy trade, which brings its own attendant problems. Threats of piracy in sea transportation, terrorism, intimidatory tactics, geopolitical blackmail etc. are attendant evils of internationalization of energy trade that can only be dealt with by the State, since markets are clearly unequal to the task.

Peak oil pessimism has driven up prices in the past and generated huge price volatility which with markets cannot grapple and which the State must address. If oil supply is going to be disrupted, the State has to keep the needs of its population supplied. It therefore, has a role which no other institution can take over. In recent years, concerns over carbon-induced climate change have thrown a spanner in the works and only the State is competent to make policies that will arrest climate change.

Managing Supply Risk

The changing role of the State which now encompasses supply risk management poses a tremendous challenge to governments across the world. While acknowledging that there are many questions which are difficult even for the State to deal with, the approaches thus far have been ambivalent, half-hearted, confused and ad hoc. Should a State

ignore import risks and leave it to markets supply because oil has never been disrupted in all these years? Oil is fungible, so can we just trust Saudi Arabia and the OPEC to keep us supplied throughout or are there new threats which indicate the possibility of disruption necessitating the State to step in? The US has an impressive strategic petroleum reserve pile. Member nations of the EU hold stock reserves under the aegis of the IEA. China has already built up some of its stockpiles. India is building its oil storage but is yet to work out the modalities of stock build-up and it is left to the State to worry about the cost.

The State also attempts to mitigate supply risks by acquiring oil assets abroad. It is debatable whether overseas oil assets are an energy security measure. Assuming that they are, the State will have to undertake many measures. Should the state groom and support national oil companies or even private oil companies engaged in acquisition of overseas energy assets, as the Chinese leadership does? Should political initiative supplement commercial ones? Should we, for instance, sell military hardware in exchange for access to oil assets in Africa. These are questions that the State has to resolve primarily because the regions in which such assets are available are usually areas where legal systems are weak, creeping expropriation or outright nationalization is a distinct possibility and the stage of development of the host country warrants State involvement.

Should geopolitical considerations outweigh security of supply? Our position in the UN Security Council on the Iran vote was decided more by geopolitical considerations than by security of supply. After all, a gas pipeline from Iran, if it had materialized, would have enabled setting up of 20 gigawatts of power capacity in a much shorter time and at lower cost than setting up similar nuclear power capacity.

Managing Demand Risk

Ours is an aspirational economy, fed by images of the 'good life' beamed into our homes by satellite television. Ownership of private automobiles is at the centre of this concept of the 'good life'. Should the State just leave it to the market and let cars jam the roads or should the State put in place viable public transport systems? Should the State incentivize and promote a national gas grid so that gas reaches all regions of the country? The East-West pipeline has 80 MMSCMD capacity right from Kakinada all the way to Gujarat, because the original intention was that

the gas go all the way to Gujarat because that is where the markets are. Markets will take the energy at reasonable prices and where there are ready takers. Should the State ensure equitable distribution of energy products for balanced growth of the country? Should the State or the regulator mandate some kind of a universal service obligation? So, the point that needs to be emphasized here is that markets will not deliver energy security to everyone unless they can afford it. Therefore, the State will have to play a valid role and not leave it to the market.

Managing Resources

The Indian State has been giving out acreages for exploration and production by private investors since 1997. Now we are in the 9th round of NELP. The production sharing contract allows the investor freedom of marketing and of price. Instead, should the State be prioritizing gas allocation? Should the Empowered Group of Ministers decide who gets the gas and at what price? These are questions that are difficult to resolve because if the State keeps out, it is believed investments will flow, but only to regions where there is a profit. If the State aims at balanced growth of the vast geographical regions of the country, it may have to step in directly and prioritize investments. Should government revenues from profit share of any E&P field determine the gas price? This is another tricky question the State will have to grapple with.

Prices, Taxes and Subsidies

Public discourse on energy pricing has repeatedly focused on getting pricing energy right. Today, in India, we pay very high prices and still are told it is not priced right. This is because of two factors: First, oil is priced on import/trade parity. Second, there is big chunk of tax component in the prices as the energy sector is treated a milk cow by the State. Indian retail prices of petroleum products are almost close to OECD prices and much higher than US prices. The under-recoveries claimed by oil companies are not losses because they are integrated oil companies and whatever they lose in marketing is more than made up by refining margins. If the international price of crude oil is $140 per barrel, ONGC gets almost $140 a barrel even though its marginal cost of production may be very low. So, ONGC provides one-third of the subsidy, the government issues bonds for one-third and the oil marketing companies bear only one-third of the subsidy.

Taxes have exceeded the subsidies paid out by the state for subsidizing these basic fuels whether it is kerosene or LPG. Total taxes from the petroleum sector was Rs.183,861 crores in 2010 according to PPAC figures and the subsidies paid out will be just about a little less than half or may be one-third. If you look at the price of petrol in Delhi for instance, 45% is the basic price, 4% the refining cost, 4% the marketing cost and the entire balance of 48% consist of 31% excise duty and 17% sales tax. So, this is the kind of flab is in the retail consumer price. So, what are we talking about when we are saying we are subsidizing the energy sector? Another point is that price signals won't work basically because demand for petrol is inelastic because we don't have good public transportation systems. Demand for diesel is also inelastic because most of the goods move by road. So, even if the prices of diesel or petrol were raised, they are not going to bring demand down, as these are inelastic goods.

Limits to Regulation

Regulatory remit is limited. Pricing is totally outside regulatory purview. The environment is also outside the petroleum regulator's purview. So, what can the regulator do about pricing or environment? The regulator can't tell refineries to reduce their refining margins so that they can make it up on product pricing. The regulator does not have the remit. All that the regulator does is regulate transportation tariff. So, you tie the hands of the regulator, you get not so ideal people to regulate and then you expect the regulator to do all the dirty job for the government. It is not going to happen. Let us not wait for the regulator to deliver. Energy is too political a subject to be regulated by a non-political regulator. We are not accountable and can't be removed unless there is a committee of High Court judge and the process has to be something similar to impeachment. So, once installed, it is very difficult to get rid of the regulator. Therefore, key decisions like delivering energy needs to the people cannot be passed on to the regulator. This has to be done by the government.

The Bottom Line

So, what are the approaches, what should the government do to tackle these, what should the State do to tackle these? The approaches are not so innovative. In fact they are very unglamorous. If we go back to

traditional wisdom, we have to get the pricing right. Any additional megawatt of electricity capacity that is set up is not going to the people who are not grid connected or who have not used electricity even once in their lives. So, how do you ensure that those who have not had access to energy get it? A certain quantum of electricity should be given to everyone at really low prices but make it very steep (say), Rs.100 a unit for those using (say) a third or fourth air conditioner. Time of the day tariff is tinkering at the margin because everybody will want to switch on their lights in the evening. To make it expensive at 6 pm is not going to solve the problem. Similarly, levy a huge tax on a second car registered in the same name or on a bigger luxury car so that it becomes a disincentive. The government has to be bold as it has every duty and responsibility to plan and prioritize its energy resources. If there is gas found in its geographical territory, the government has not just the right but also the responsibility to prioritize its allocation and any freedom given to the investor should be within this framework. At the same time it should also ensure policy stability and certainty to the investor. The government should support the NOCs and private companies which are acquiring overseas oil assets. It should carry out political risk analysis and cultivate political relationships with mineral rich regimes. It should invest public funds in R&D for cleaner energy and finally it has to educate citizens and wean them away from an energy intensive lifestyle.

Global Energy Governance

Mapping a Rapidly Changing Field

Navroz K. Dubash and *Ann Florini**

Introduction

While there is an abundance of writing and thinking about the governance of energy, there is relatively little scholarship or policy work focused on governance of energy at the global scale. Yet, challenges of energy governance are increasingly manifested at the global level, even as national level challenges remain. Among these global challenges include global coordination around markets for oil and gas, accelerating the transition away from fossil fuels, addressing issues of energy poverty that are globally prevalent, and, of course, addressing global climate change which is substantially linked to energy. This paper seeks to briefly map out some emerging ideas in the rapidly changing field of global energy governance.

Context for Global Energy Governance

There are at least three overarching contextual elements that are shaping emergent discussions of global energy governance.

First, over the last two decades, the dynamics between state and market have shifted considerably. The 1990s saw the deepening of market relations in energy arenas, notably in electricity, with the spread of the 'independent power producer' model, especially in Asia, and a wave of privatizations of electricity utilities, especially in Latin America. More

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generally, private investment in energy-related infrastructure soared. Since the turn of the century, and perhaps the Asian financial crisis was an important turning point, states, especially in Asia, have begun once again playing a leading role in guiding the sector, even if not through direct ownership as before. There is a shift to the language of public-private partnership, as the state re-engages energy, but in different ways than before. Also, the rise of China and its powerful state owned enterprises in energy have further tipped the global balance toward a larger role for the state in governing energy.

Second, there is an emergent norm toward greater transparency, and a coincident spread of democratic ideals, which has implications for the energy sector. For example, efforts such as the Extractive Industries Transparency Initiative, Carbon Disclosure Project, and regional efforts on transparency such as around the Chad-Cameroon pipeline are gradually dragging information on energy transactions into the public domain. Much of this activity is driven by transnational advocacy networks or multi-stakeholder networks that seek to provide new forms of accountability over energy-related activities through transparency and disclosure. Most of these new efforts operate at the global level and are driven by transnational networks of various sorts.

Third, and most obviously, is the growing challenge of global climate change. While climate change is not just about energy, it is almost certainly true that climate change simply cannot be addressed without spurring an energy transformation. Increasingly, climate change is setting a meta-context for discussion of energy futures.

Objectives of Global Energy Governance

Drawing on multilateral statements, UN documents, and the charters of various global bodies, we infer at least four objectives of global energy governance that have relatively broad based global support. These are:

- *Energy Supply Security and Related Geopolitical Stability*: This is, in many ways, the foundational objective, and underpins institutionalized efforts to manage global oil markets, and to limit cross border tensions over access to energy;
- *Energy Poverty*: Almost two billion people lack access to commercial energy. Efforts to address energy poverty are now considered necessary to achieving the Millennium Development

Goals, due to the close links between energy and several other development objectives;

- *Environmental Sustainability*: Environmental sustainability, including but not limited to climate change, has emerged as a major objective of global coordination. In recent years, climate change in particular has become an important element of global geopolitics.
- *Domestic Governance*: With energy sectors accounting for a substantial share of national resource rents available for corrupt practices, there are growing global calls for consistent national formulations of good governance of energy.

This is by no means an exhaustive list, and indeed, these categories could be grouped in a variety of different ways as well. However, based on our scan of a range of international sources, these four appear to be a reasonable compilation of the various and disparate objectives of global energy governance.

Understanding Global Energy Governance

To what extent is the global community satisfactorily able to organize itself to govern these various aspects of energy? We offer a few over-arching characteristics of global energy governance that shed light on this broader question.

Fragmented and Unprioritized Objectives

Global energy governance is hampered by fragmentation and a lack of prioritization across the objectives listed above. These objectives are not immediately apparent, but have to be extracted from a clutch of global agreements and other documents. They have emerged at different times and in different contexts. Thus while energy supply security is a long standing concern, a focus on domestic governance is of relatively recent vintage and is very much a product of recent trends toward greater transparency. Climate change has driven environmental objectives to a position of greater prominence in the last two decades. Frequently, institutions are established to address one or other set of objectives, which in turn reflect the global politics of the time. Thus, the International Energy Agency, which emerged out of the oil crisis, is a very different institution to the International Renewable Energy Agency, which has just been created.

Without any prioritization across objectives, there is no good way to address trade-offs across them. For example, rapid rural electrification in a country like India would probably be best achieved through diesel gensets. But this would be a deeply problematic outcome in climate terms. How do these contending objectives get reconciled? The need of rising Asian economies for vastly increased amounts of fuels in coming years has led to an increasingly mercantilist approach, particularly from China, which has alarmed those focused on energy security. But the need for greater energy resources in much of Asia is undeniable. How is this need to be addressed, even while maintaining geopolitical stability? Without an explicit discussion of priorities and trade-offs across objectives, it is very hard to answer this question.

The point is that given existing structures, serious trade-offs exist across the various objectives of global energy governance. But the structures are not immutable. For example, technological and institutional change could resolve, at least partially, both the points of tension described above. Technological change could potentially enable rural electrification in a less carbon intensive way. Institutional change could provide means of allowing the Asian giants access to necessary energy, even while providing better mechanisms for resolving possible political tensions associated with their search for energy resources.

At a global level, there are few candidates for coordination across objectives at the moment. The G20 is one possible mechanism, but the jury is still out. The climate negotiations are another possible mechanism that provides the scope necessary to address these kind of issues, but this forum is battling a serious crisis of legitimacy.

Overlapping and Partial Institutional Frameworks

The institutional basis for global energy governance mirrors the confused nature of global energy governance objectives. While there are clear and cogent regimes for some aspects of energy governance, such as nuclear energy, in most other areas there are overlapping sets of institutional frameworks without clear hierarchies among them. These 'regime complexes' probably best describe the governance framework for oil and gas, clean energy finance, hydropower and many other aspects of the global energy governance system. That these regime complexes are insufficiently mapped to objectives further confuses the issue.

Will climate change provide a mechanism for linkages across regimes

or regime complexes? For example, shifts in oil prices create incentives or disincentives for investment in renewable energy, with implications for R&D investments. Whether or not climate change provides the appropriate linkage, to better understand global energy governance will require systematic exploration of linkages such as these. To advance global energy governance will require finding linkages that allow us to break the fuel-based silos within which discussion of energy occurs.

Fragmented and Weak International Governing Bodies

Existing organizations responsible for global energy governance tend to be fragmented and weak. The International Energy Agency has a limited mandate, and its membership does not include the rapidly emerging and growing industrializing countries of China and India, which limits its scope and influence. OPEC is relatively ineffective at maintaining stability in oil markets. UN Energy, the umbrella body for energy work at the UN, has limited authority and serves mainly as a coordinating body. The renewable energy space is occupied by diverse organizations including the International Renewable Energy Agency, but also by two network based bodies, REN 21 and the Renewable Energy and Energy Efficiency Partnership. It is too early as yet to comment on the impacts of this diversity. Not coincidentally, attention to renewable energy has grown at a time when various forms of networked governance are increasingly becoming common. This structure is in stark contrast to the centralized institutional form of OPEC, which emerged in the 1970s. Organizational forms reflect, therefore, the political economic context within which they emerge.

Global Energy Governance Inside the Nation State

Perhaps because of weak institutions and organizations at the global scale, many decisions critical to global energy governance continue to be made within nation states. For example, the trend toward greater mercantile tendencies in emerging Asian powers is, perhaps, a result of a lack of confidence that the international system can deliver energy supply security. To understand global energy governance requires exploring just how much global frameworks shape national decision making and the levers through which they operate.

One set of institutions that does prove to be important are multilateral development banks. Although not explicitly energy organizations,

nonetheless they shape domestic institutions around energy through processes of policy and institutional transplant. The spread of energy regulators, in large part due to their propagation by the World Bank, is a case in point. Similarly, the wave of energy privatizations in the 1990s, were also prompted and promoted by these agencies. The two were related trends, as the World Bank and Asian Development Bank used their loans to make the case that attracting private investment in energy would require establishment of new forms of domestic governance structures. The intention was that newly created domestic regulators would conform more closely to global practices of governance with the primary aim of providing predictability and a stable business environment to investors. In this case, global regulatory forces operated by actually shaping domestic environments.

Different countries, however, have different relations to global rule frameworks. China has certainly emerged as a potential rule-maker rather than rule-taker in the energy context, with India another possible candidate for this role. As these countries increasingly assert themselves as major energy consumers, institutions of global energy governance may well have to accommodate the peculiarities of their domestic frameworks, in what would be somewhat of a turnaround from the past.

Multifaceted Energy Governance

The interaction between global and national scales is likely to continue to be an important determinant of the future of global energy governance. This interaction happens through a variety of pathways. Some of these are formalized, like the Berne Union that coordinates export credit agencies of countries. These agencies are deeply relevant to energy because a substantial proportion of large energy infrastructure worldwide is backed by export credits and guarantees. Disclosure mechanisms that operate at the global level, like the carbon disclosure project and the extractive industries transparency initiative, are another, less formalized way in which national energy institutions are being influenced by global norms and rules. Yet others are voluntary, like the Equator Principles, which several major private banks have constructed to voluntarily regulate their lending in infrastructure. Finally, and not least, the emergent global climate framework is increasingly moving in the direction of being a disclosure and reporting based regulatory framework, where global pressures on national action arise less from *ex ante* commitments, and

more from *ex post* disclosure and scrutiny. All this suggests a complex and multifaceted form of global energy governance.

Conclusion

As the discussion above suggests, fragmentation characterizes global energy governance at every level. However, this is not, by any means, to argue for centralized authority in the form of a centralized global energy agency. Any such effort, whether under the climate umbrella or an outgrowth of existing organizations, is unlikely to be successful. The energy sector is far too multi-faceted to admit of such a possibility. Instead, we suggest it is important to first understand, and then creatively harness the multiple pathways through which energy governance occurs and can be strengthened. This requires an attention at the national level where many significant decisions get made, as well as an appreciation of the multiple ways in which global and international policies and institutions interact.

Discussant

Vijay Duggal

The session had some very interesting insights. Inge Kaul highlighted State behaviour and what could be expected in terms of interventions required for energy security. She covered the issue of cooperative arrangements between governments to secure access to energy. She also mentioned that lack of interest from some of the energy consuming States to become IEA members basically goes against the concept of global efficient energy markets because it is important to have real control over the speculative activities which tend to create conditions in the energy market, similar to what happened sometime back in the financial markets.

Subsequently, Sudha Mahalingam spoke as practitioner and presented a very bold view with regards to the importance of the State's role and at what level the State should intervene. She discussed this point in the Indian context both in terms of the power sector and her recent experience in terms of the Petroleum and Natural Gas Regulatory Board. She also discussed the issue of energy as being a public good rather than a private good. This differentiation possibly could be debated at length. The State has a major oversight role in the energy sectors.

I would like to make the following additional points with regard to the topic and the issues raised by the Speakers

- The global influence on Asian countries including on India, should it be seen in the light of the experiences of the European market and how it has evolved. In other words, whether the wheel needs a reinvention or is its replication possible. More specifically, is differentiation in approach possible if we get guided by the global perspectives or is one restricted by a cultural or national ethos?

How do we deal with this mismatch between global and national perspectives?

- The role of State capitalism varies according to whether we look at energy poor nations versus energy rich nations in Asia. We could take the examples from the gulf region and compare with those in the Indian subcontinent and China.
- Although we understand that local environmental issues and the quest for energy is a global phenomenon, localizing issues may not achieve the objective of sustainable quest for energy. Is India really going to explore the idea of regulatory convergence which is where I think India needs to learn a lot from the EU countries. Perhaps this is the only country where we have 9 different ministries dealing with different kinds of fuels, but ultimately fuels are nothing but a different form of energy. So, regulatory convergence is key for achieving that objective of energy security.
- Is the regulatory environment conducive enough for development of markets or is the regulatory environment becoming subordinate to State capitalism? That is the question which Sudha also touched upon. Are regulators interested in pursuing the consumer interest or taking care of company's interest or promoting environmentally sustainable quest for energy? So what are the expectations from the industry, more so the public sector?
- When will India arrive at a sectoral regulatory maturity? At the macro level are we ready to debate on radical issues, concept of affordability of energy from a sustainability point of view? Are we going to leave fuels for the next generation or everything is going to be gobbled up by the current generation? The here and now should be how do we price energy? I think valuation, which is based on monetary terms or populist measures, is a misconstrued kind of approach, rather it should be linked to the input/output ratios because every unit of renewable energy or be it coal or be it any other kind of a fossil fuel its input/output ratio which is inherently important and guides the entire focus.

Are we also serious about affordable and efficient energy solutions? I think here I would like to bring in a new perspective. Deliverability is more important than sourcing as it guides sourcing of energy. I think the deliverable form of energy should be the key focus particularly for a country like India. To be more specific we could look at combined cycle

gas turbines and nuclear for base load power, distributed power solutions and time of day tariffs for meeting peak power requirements, encourage cross subsidization of renewables, accept them as supplement to overall energy demand rather than as a replacement for fossil fuels. One of the very key ideas is to encourage mass rapid transport systems thereby restricting per capita energy consumption while taxing private ownership of cars. Particularly in this context when we look at London the price of gasoline attracts a tax of 80%, a tax which is basically to discourage conspicuous consumption. Lastly, we need energy efficient construction designs and lifestyles, while not compromising on the growth aspirations.

III

Risks and Challenges in the Energy Resource Sector

Chair: Friedbert Pflüger

Understanding Risks and Challenges in Nuclear Power

Ramendra Gupta

Introduction

I have broadly structured my presentation to address the normal questions on nuclear power and uranium mining, but I have also covered uranium mining, India's nuclear programme, a little bit of the backend of nuclear cycle and the extent to which nuclear energy can meet India's growing power requirements.

The Power Scenario

The installed power generation capacity was 164,835MW as on September 2010 and in that we have a mix of thermal, hydro, renewable, nuclear, diesel and gas of which the share of nuclear power is only 3%. There is a gap between energy requirement and energy availability of almost 10% and we are not able to supply commercial energy to at least 50% of our Indian poor.

Electricity consumption is directly related to development. United States and other developed countries consume in a year as much as 2400 KW per capita whereas India is somewhere in the range of 700 or 740 KW. So you can see that we need to produce more power so that our development rate can go up. To achieve a GDP growth rate of 8% we require reliable, quality and optimum power with cost and commercial viability of the power industry. In 2007 we achieved 132 gigawatt installed capacity and in that the share of coal was 54% and hydro 26% and still the peak shortage was about 14%. We are expected to increase our planned capacity addition in 2032 to the extent of 778 gigawatt of power.

Issues with Other Power Sources

As regards coal, we have environmental issues, 'go' and 'no-go' areas, resources only for 40-50 years and constraints on transportation networks. We have very limited resources of oil and gas and are impacted by global price fluctuations. There are issues of land acquisition and displacement with regard to hydel power. I have my own doubts, in the present situation where displacement has become a big issue, whether we will be able to achieve the targets set for hydel power. Non-conventional energy, i.e. solar, biomass and wind at the present level of technological development are only minor distributed sources.

The Scope of Nuclear Power and Environmental Impacts

Now we come to atomic minerals and nuclear power. We have only very moderate sources of uranium which is enough to produce 10,000 MW of power from pressurized heavy water reactors but we have large resources of thorium. Once we achieve our three stage programme, we will have energy security and independence for almost about 300-400 years. That is why the government of India has decided to focus on nuclear power.

Now, how does nuclear power score over hydel and thermal? For a 1000 MW hydel power plant the total submerged area will be to the extent of 2000-5000 hectares. For a country like India, where we have large population, displacing people will be a major issue. A nuclear power plant of the same 1000 MW capacity needs only 120 tons of fuel per year and 20 hectares of land and the waste generated is less than 1 ton of fuel per year. For a thermal plant of the same 1000 MW capacity the CO^2 emission is about 7 million tons per year and produces 1.5 million tons of ash, which needs disposal. Now keeping these things in mind it becomes essential for India to go in for nuclear power. Also, because we have very moderate resources of uranium we have decided to go in for a closed fuel cycle were the energy produced per kg of fuel is quite large and also disposal of waste becomes easy.

The Civil Nuclear Programme

Now, we come to the much talked about India's three stage power programme. Stage-I is a pressurized heavy water reactor where the fuel used is natural uranium. We have at present total 19 reactors working, of which 17 reactors are pressurized heavy water reactors. Five reactors

are under construction. Total power potential for Stage I is about 10,000 MW. We also have two boiling water reactors operating and two light water reactors under construction. In Stage-II, a fast breeder reactor is deployed where the plutonium generated from Stage-I is used to breed and produces more plutonium. We have a 40 MW prototype fast breeder reactor operating since 1985. This reactor is working very smoothly and the problem with regard to usage of sodium as a coolant has been solved. We are constructing a 500 MW fast breeder reactor which is expected to go critical in the year 2012-13. Because the fuel in this reactor breeds more fuel we have a very large power potential of 530,000 MW. In Stage-III we make use of our large thorium resources and plutonium U233 which is also produced in Stage-II. We have a 30KW Kamini reactor which is operational and we are planning in the 12th Five Year Plan a 300 MW advanced heavy water reactor which is under development and peer review. Once we achieve this, then India will really have energy security and independence. The only problem is that the time scale is a little too long because, unless we have enough plutonium and U233, we cannot go to Stage-III.

At present the installed capacity of reactors under operation is 4560 MW. Eight reactors are under construction and will be commissioned by 2017, adding another 5520 MW. Thus by 2017 we will have almost about 10,000 MW of power. In the coming years we will be adding light water reactors imported mostly from countries like US, Russia, and France of 36,000 MW capacity which means we will have a total capacity of 46,000 MW. We have entered into agreements for lifetime fuel supply guarantees for our light water reactors.

For 2030 we have a pessimistic nuclear capacity projection at 48,000 MW but if everything goes well then we may even go upto 63,000 MW and by 2050 we can even have 275,000 MW of total power capacity with at least 20% share of nuclear. These figures are very challenging and we have to work really hard to achieve these targets. Uranium is the basic raw material and whatever uranium we are importing will be only an additionality and not sacrificing our indigenous power programme at all.

Challenges Facing Nuclear Power

However there are other challenges. There is difficulty in getting a large number of sites even though six sites have already been identified where we are going to put up large power reactors in energy parks. We are also

facing difficulties in opening new mines. We need expansion of the existing manufacturing capacity of local suppliers because, for the imported light water reactors, a good number of equipment has to be sourced indigenously; otherwise we will not be able to compete with the power produced by thermal reactors.

Construction and commissioning of projects is also a challenge because very limited EPC (Engineering, Procurement, Construction) contractors are available. Mobilization of equipment and machinery by EPC contractors and upgradation of technology are most important. Adequate funding is needed and the government has proposed public sector/public sector partnerships as well as public/private sector partnerships where the public sector Nuclear Power Corporation will have 51% equity. We need human resource development because of the large manpower requirement. It is very difficult to get experienced underground mining engineers.

Also institutionalization of a safety and quality control culture with well trained manpower is essential.

Uranium Mining

We have very moderate resources of uranium in Andhra Pradesh (44%), Jharkhand (32%), Meghalaya (13%) and Karnataka (3%) and total estimate of the resources is 150,000 tons of U_3O_8. The first mine was started in Jaduguda in 1951 and is operating even at present. It is the deepest mine today in India at about 905 meters and perhaps the second deepest uranium mine in the world, after Czechoslovakia. We also have a small underground mine in the same area. The third is a very mechanized mine using total trackless equipment. We commissioned the fourth mine in Jharkhand in 2003 which is producing uranium ore at full capacity. The first open pit uranium mine was commissioned in 2009 and has a very low grade resource. A mine and process plant in Andhra Pradesh is expected to be commissioned by 2011 when the uranium production will almost go up three times than what it is today. Another mine in Karnataka is expected to be commissioned by 2014.

Because of very moderate resources it is essential that technological upgradation in the field of uranium exploration, which includes geophysical prospecting, 3D modeling, stabilizer etc. takes place. Greater attention on identifying uranium bearing areas and intensified exploration is needed.

Tackling Societal Issues and Public Perceptions

We have constraints in land acquisition. Even though we could open four new mines and a process plant in Jharkhand but still this is an issue. It takes time to get clearances for forest lands, environmental clearances and other clearances from regulatory bodies. Though we have adopted the system followed in most developed countries, conducting a public hearing itself is an issue. People could be misled and it becomes very difficult to have any meaningful dialogue and that delays the whole process.

The most important aspect of uranium mining is uranium tailings management. Uranium tailings impoundment is a matter of public concern and we produce large quantity of tailings because we dealing with a very low grade resource. Because of negative public perception about the nuclear industry in general and mining as a polluting industry, we have to deal with the spread of misinformation by activists influencing public opinion. Because nuclear energy was introduced by dropping bombs on Hiroshima and Nagasaki in World War II, it got a very negative public perception and created a myth about the uranium mining; that it is hazardous and waste management is dangerous to public life, which is not true. Once a tailing dam is filled we restore the area fully and give it a vegetation cover.

Another important myth is with regard to loss of land for the locals and inadequate compensation. We carry out exhaustive consultations with land owners and eventually restore the land. A unique method is followed in Meghalaya where land is taken on lease for the life of the mine with progressive payments made annually. Further there is a myth that people living in uranium mining areas are suffering from mysterious diseases. Health surveys have proved that most of this information which is fed by NGOs is not correct.

Now, what mechanism should we have for managing these concerns, regulating public opinion, identifying the real concerns, managing and addressing the concerns of the community as a stakeholder? Inclusive growth of society, role of the regulatory authority as a facilitator, action for sustainable development, neighbourhood development as part of corporate social responsibility should be defined within the framework of a corporate philosophy, which factors in the needs of the community.

Risks and Challenges in Coal

Partha S Bhattacharya

Introduction

Coal is the most dominant source of energy in India and accounts for about 53% of the total commercial energy space. The last serious study on the energy options for the country was when the government appointed the Integrated Energy Policy Committee. The recommendations of the committee were made available to the government in August 2006 and concluded that coal will continue to play a dominant role in the foreseeable future (2031-32). Given the fact that coal has this kind of premier role, I will try to briefly explain the constraints, the demand for coal, how the coal sector can meet the demand and what will be the constraints and consequently the risks to energy security.

Supply & Demand in Balance till 2007

The coal sector was nationalized in 1970s and Coal India was formed in November 1975. Coal India has a market share of 82%. The company and the sector has been growing at about 5.3% to 5.4% per annum and that was, by and large, sufficient to meet the demand of the country largely driven by the power sector which was growing at a pace consistent with the growth of 5.4 to 5.5% in the coal sector. The annual capacity additions in the power sector (coal based) used t o be in the region of 3000-3500 MW which translated into an incremental demand of 15-18 million tons of coal and the growth in supply was more or less commensurate with demand till 2007.

2008: Demand Outstripping Supply

From the 11th Five Year Plan i.e. beginning 2008 things started changing and today the capacity addition in the power sector is much more. In fact in the first three years they added about 22,000MW, so the average is more than 7000 MW per annum. Last year it was close to around 9000 MW, which means an incremental demand of 45 million tons. This situation will continue for sometime because we are a power deficit country, the per capita consumption of power is very low, about 750 units or so, it is one third of that of China, so there is a lot of catching up to be done. We have possibly entered into a situation where the coal demand in the country will grow at 9 to 10% per annum. Though the coal based capacity in the power sector is today 53%, coal based generation in terms of billion units is about 66%. The plans for the power sector for the next few years envisage that 80% of the capacity addition will be coal based. So, the dependence on coal is increasing. One may not like this particular situation but we have to live with it. India is a country where coal is available in relative abundance and therefore dependence on coal is obvious. If one is looking for a fuel at an affordable price then again it is coal, because in India coal sells cheap. The price is about 30-60% less than international prices at all destinations in the country.

Constraints in Meeting Increased Demand

As on date we can take some pride in saying that we meet 82% of the primary commercial energy requirement at a highly affordable price and therefore we make the end users competitive. We insulate the end users from the volatility in coal prices, and we do all this without depending on any kind of direct or indirect subsidization. But having said that, I question whether we are in a position to meet this 9-10% demand growth. Clearly speaking we are not. While we have been able to enhance the production rate marginally from 5.4% to 6.8% last year, and it may hover in the region of 6.5 to 7% in the years to follow, but increasing it beyond that is not possible because of certain facts. First, coal is found in places which are inhabited. To mine coal requires physical relocation of people and creation of resettlement colonies. It is not easy to uproot people from places where they have been living for generations. Second, in India large quantities of coal are found in forest areas, so it is a question of degrading forests to some extent. To do a huge amount of afforestation, forest and environment clearances are required which naturally take time. Third, land acquisition is another key issue which

affects the people. So, basically I would say that the major challenges are the social and environmental issues.

Good Afforestation Record

Coal India has been steadily growing and today we are at a production level of more than 430 million tonnes so the company must have been doing something right. What we essentially do is to look at these issues as proactively and as passionately as possible, particularly the peoples issues as well as the afforestation issues. We have had a fairly good track record of creation of forests post mining in very many places. In recent times we have taken photographs of some of the forests that have been created and environmentalists tell us that these are really good forests; not single variety species but multi-species and fairly close to natural forests. With that track record we approached the environment ministry to suggest that the old system of giving forest clearances and environmental clearances needs to change without affecting the quality of due diligence of the whole process.

Expediting Forest Clearances

Let me explain in specific terms what would be the processes that can change. The first step in obtaining forest clearance is enumeration of trees. This is done to calculate the net present value (NPV) that is to be paid by the company to the forest department for afforestation activities or for compensatory afforestation. This enumeration of trees is done manually. If (say) 100,000 or150,000 trees, are to be counted, it can take one and a half to two years compared to the 300 day period stipulated in the guidelines for the entire forest clearance. We have been suggesting that since we monitor the restoration/reclamation activities in our opencast mines through satellite images, we feel it is entirely possible to do this exercise through high resolution satellites. To avoid any risk that the count is on the lower side, add 10% when asking for the NPV payment. Saving this one and half years time is very crucial and important for the growth that is required in coal production to meet the nation's energy demand.

Second, the process requires the paper to move from the block level to the Secretariat in the state government and that involves something like 30-35 days. We feel that that is not really adding to due diligence, so many people need not really be involved in this process. The work

can be done with some amount of due diligence by much less, may be half a dozen people.

Third, which is also very important, is if a question is asked by somebody on the file, let us say at the last stage, and is to be answered by somebody at the first stage, the file does not travel vertically; it takes 6 months to come back to the person. So, it takes 5 to 6 years in getting forest clearances when all that is required is asking 5 or 6 questions.

Fourth, to clear forest applications irrespective of the density of the forest takes about the same time i.e 5-6 years. For dense forest applications it is understood that there has to be greater due diligence, with a lot of conditions put in. One can understand that. But 'open forests' are only on record. When you go there you see only shrubs (jungle *jhaadis* as they say). There is a strong case for demarcation based on density. Let a very dense forest be designated a 'no-go' zone for the time being. But in open forests clearances must be given within the 300 days stipulation of the Forest and Environment Ministry. Apart from ramping up coal production faster, the forest quality can improve because of our track record of good afforestation.

We can make far better forests by proper afforestation post mining or even along with mining. It is not that when a forest is given the first action is to cut down out all trees. It is progressive, starts from one end and as we proceed, we also start the land restoration and reclamation and afforestation activity. So, by the time we complete in 25 to 40 years, a large part of it is already afforested. You never lose more than 25-30% at any one time. You have to look at these practical aspects and then redesign the whole process of forest clearance. If that is done then certainly the availability of coal from domestic sources can go up faster. The current demand and supply mismatch to the extent of 2.5 to 3%, is translating into an import growth of more than 20% year on year and given the fact that imported coal is much costlier, it is actually adding to the power cost and creating pressure on the consumers of power. The whole process can be rationalized and simplified. If we can carry out due diligence much faster we can increase the rate of growth in coal production.

Resettlement and Rehabilitation

Finally, the social side is very important and we need to have a resettlement/rehab policy which ensures irrevocable improvement in the

quality of life of the people, otherwise it can become a blockade. The energy security of the country could be at risk if we don't look at people issues very carefully. Our resettlement/rehab policy was reformulated about two years back and we keep on making modifications, adding good suggestions from people representatives or based on our various experiences. It has definitely yielded results. Our resettlement policy basically involves giving employment and upgrading skills. It is not that employment is based on suitability etc. We need to train them and make them competent. We have tribal women who operate 20 cubic metre shovels and they are absolutely first rate. As a result of the civic assets that we create i.e. drinking water facilities, roads etc. the quality of life has improved. These models that have been created need to be replicated and we should try to keep on improving them so that resistance to give land or resistance to the process of mining gets diluted, which is essential for coal production. We work towards this quite hard.

Security of Energy Resources

Surya P Sethi

Introduction

I have been part of the TERI-KAS dialogue series on energy since the beginning and I have had to work harder each time in making the energy security topic more and more specific. This time I have focused on resource security which feeds into energy security in general, working jointly with TERI. We could not find articles that focussed just on this narrow element as opposed to generally covering energy security, though I am sure there are books that delve deeply into the matter of resource security as distinct from energy security.

What I am going to tell you is work-in-progress and will benefit from your comments and insights. I have reduced these risks to 7 generic concepts. Although I can illustrate how each of these seven risks impacts different energy resources, I will not have the time to delve into those details.

Risk 1: Mismatch between Source and Demand Centres

One of the key drivers of resource risks has its origin in the mismatch between where the resource exists and where it is consumed. This is as true in the national context as it is in the international context. A lot of the globally perceived energy resource risks are driven by the fact that the 4 to 5 countries or regions that consume 50-60% of oil and gas have under 10% of the global reserves. And while this is not as stark in the case of coal, the regional distribution of the coal resource and its demand within the same country or region also pose similar risks and requires policy interventions to address them. We all know that the coal rich belts of India are today demanding more for the right to exploit their

reserves; not just in price terms but also more to address environmental costs, loss of livelihoods, more share of a resource that they regard as theirs, and so on. All this leads to strife and the risk perception of a given resource rises. 'Markets here, resource there' syndrome is only going to get more acute in the 21st century and this would mean that more energy resources will need to flow through the 'choke points' that create the perception of risk.

Risk 2: Mismatch between Monopoly Ownership & Liberalized Markets

The second resource risk is the mismatch between the monopolistic ownership of a resource and the liberalisation of downstream energy markets. About 75% of the hydrocarbon resources are owned by governments worldwide. The global energy resource system is a vast inertia-ridden complex of large fixed capital assets that take years to plan, sanction and construct and are typically in place for decades. Now we can blame Governments for many wrongs but no one has ever accused a government of taking hard nosed long term strategic decisions that make economic sense. No government in its right mind, even Obama's well informed government, thinks beyond the next election. So the resource sector that is largely in government hands is devoid of defensible long term strategic and economic thinking. Resource policies, typically, are designed to address concerns over the next 5-10 years. This absence of a supply side competitive and well regulated market is behind the repeated cycles of boom and bust in the resource sector. There is simply no reserve capacity and supply constraints or surpluses are addressed with a lag over market realities.

Risk 3: The Changing Nature of Resource Assessment

The third risk is of resource assessment itself. Any resource assessment is based on assumptions of prevailing absolute and relative energy prices, available technology and the contemporary regulatory regime. Since all these change over the life of any resource the assessment itself changes. Cost of extraction, technology used and regulatory regimes can make extractable resources non-extractable or vice-versa. Again, ameliorating this risk requires a very long term perspective and policy framework which is often missing. So resources are exploited based on short or medium term considerations – often at the cost of long term supply security.

Risk 4: Lack of Access & Equity

The fourth resource risk has to do with access and equity. Resource security is defined by availability, reliability and affordability. Now yesterday we were told that if we get our energy needs optimally addressed, then it is merely a problem of rising prices under constrained supplies and not a security risk. Well let me suggest that affordability and the prevailing regulatory regime have kept half of my fellow Indians without any electricity and some 90% of my fellow Indians with inadequate supply of commercial energy even to support levels of consumption equivalent to those at the poverty levels of the developed world. Now if this inequity is not a security threat, then I believe we simply do not understand that external belligerence, whether it is cross border or within borders, is the result of internal insecurities that are born out of chronic inequities of one form or another. We were also told that kerosene subsidies could be diverted to financing photo-voltaic (PV) lighting. But kerosene subsidies are not reaching the intended beneficiaries and the amount of kerosene subsidies for lighting would hardly make any visible dent in the PV program. Further, and most importantly, kerosene is also needed for cooking and the subsidy requirement would actually increase if we were to provide clean commercial energy for cooking. Suffice it to say that our resource security would be seriously jeopardised if we are unable to deliver energy equity.

Risk 5: Energy Resources Impacting Other Resources

Resource rights in most jurisdictions are fairly well defined but land (including forest land) and water (including international waters/regions) both essential to realising energy supply security in the 21st Century, are not all black and white. This reality translates into the fifth resource risk that has to do with rehabilitation, loss of livelihoods, environmental and state sovereignty concerns. As energy becomes dearer and more difficult to access, these resource risks will manifest themselves in far greater intensity then we are currently used to.

Risk 6: Lack of Infrastructure

The sixth resource risk has to with the energy infrastructure needed to move energy resources from where they exist to where the markets are. The geopolitical risks are well understood but availability of domestic infrastructure to ensure resource security is often not even discussed.

Again, while port, rail and road capacities come to mind, there is little talk of the grids that would be needed to transmit and distribute almost two thirds of the fossil based energy by 2030. Making this infrastructure available raises the same issues that are raised by the need for land and water to support resource security.

Risk 7: Increasing Terrorism and Shortage

The seventh resource risk is of terrorism or sabotage. This risk may be born out of inequities or geo-political drivers but it is a fact that most energy assets are tempting targets. Breaching a dam such as Tehri could wipe out Delhi and everything that is in between. Even the most sophisticated controls cannot account for more than 99% of the active ingredient when one reprocesses fissile material and thorium, which we were told is the answer to our energy supply needs, and would need such reprocessing at several stages.

Quick and Quixotic Short term Fixes

I could go on but let me stop here and leave you to challenge me like I challenge the people framing our resource policies today. The risks I have highlighted are real and require equally serious and informed effort which incidentally is missing and short term policies of imposing a cess or a tax on energy which already is the costliest in the entire world are seen as good fixes; where Rs.50 cess on coal is termed a carbon tax; where the energy sector collects in taxes over twice what it pays out in subsidies and often taxes and subsidises the same product, and finally, where the publicly listed resource providers are asked to carry the Governments subsidy burden in their books.

Discussant

Ravi K Batra

It is amazing how a session can be so focused if the speaker says he is got leave in about half an hour; the presentation is focused, the discussion is focused and we get a lot of meat out of it and that is what has happened when the Chairman of Coal India spoke. But there is one important point regarding his presentation, which has also been raised by Mr. Sethi, is this whole question of what are our coal reserves, what are our resources and finally what are our extractible resources? Even the Red Herring prospectus put out by Coal India gives a very expansive kind of projection on coal availability in India. That is not the case even in the Integrated Energy Policy document of 2006, where it is said that if we continue to extract coal at 5% per annum every year we will run out of coal in 45 years. Now this concern has been expressed time and again; TERI has said it a number of times but yet that message remains unheard. We all need to be genuinely aware of the fact that we have a hit critical point on extractable coal and it is much more serious than what is made out to be. Why we have turned a blind eye to it, is inexplicable. There seems to be a tacit acceptance by all that we have plenty of coal, despite the fact that the assessment of resources includes all the coal that has already used up, apart from many other inequities and inexcusable errors. It is the elephant in the room.

On uranium there was a detailed presentation, not only on uranium mining, but also on the whole nuclear fuel cycle but from the point view of the subject under discussion today the problem is with uranium tailings. Public hearings don't seem to go down well, they appear to be politically motivated and NGOs seem to be playing a game. How can the system be corrected and how much of it needs more public awareness, are issues that need to be comprehensively addressed.

Mr. Sethi has been at his trenchant best in his excellent seven point presentation on resource security risks, taking into account both domestic and international dimensions.

The point I wish to make in this overall discussion is that, since we met in Goa a year ago, there has been a sea change in looking at risk, particularly in exploration and producing areas. It was triggered, of course, by the BP oil spill in the Gulf of Mexico. It was amazing how a break in a deep sea pipeline could cause so much pollution, so much delay in rectifying it and required enormous technical ingenuity to stop that leak. Then there was the Chilean mine disaster. These two environmental issues certainly raised public awareness, and the media went to town on it. Within India itself the Bhopal gas tragedy resurrected itself from hibernation after 26 years, and became the flavor of the month. Then we had the Vedanta and Posco controversies. All these go to show that a lot more needs to be done with regard to rehabilitation, displacement of people, sharing of the profits that accrue to the companies that get the mining lease, etc. Much more needs to be done with regard to transparency in government dealings in award of mining leases and so on and so forth. I think a sea change is taking place. Hopefully we will see better implementation of laws, greater transparency and less of dispossession of those people who have every right to live comfortably, and at least have enough light and energy to meet their daily needs.

IV

Frameworks for Sharing Value and Avoiding Conflict in the Resources Sector

Chair: Marianne Osterkorn

Sharing Value and Avoiding Conflict

Working with Local Communities

Nik Senapati

Introduction

Rio Tinto is a leading global business, employing approximately 60,000 people in over 40 countries. We find, mine and process diverse metal and mineral resources fulfilling vital consumer needs and improving living standards. Wherever we operate across the globe, safety is our key priority. Sustainable development is at the heart of our business. As a global mining leader, we understand the importance of ensuring that mining is conducted responsibly, in a manner which protects the environment and which positively contributes to communities in the many landscapes we operate in around the world. Today, I'd like to share with you some of my own experiences working with local communities.

Social License to Operate

Respecting the environment and building constructive relationships with communities is fundamental to ensuring the long term future of mining and processing activities. Investments are long term, often spanning 30 to 40 years, and are capital intensive. Access to resources, people, land and capital are four critical elements of the success equation. What is basic is to be allowed to be there in the first place – 'our social license to operate' as many working in the industry like to call it. What this 'social license to operate' means is the support of stakeholders which translates into permission to undertake our activities.

Providing genuine long term benefits to the communities in which we operate and building effective working relationships with all

stakeholders in line with our values and principles is one of our strategic business drivers worldwide. Importantly, we recognise we cannot be all things to all people and before we commence any project we carefully research the expectations the stakeholders have of us, and issues of concern and/or interest. We don't always have the skills internally to address these issues and we overcome this by working in partnership with community, environmental and non-government organisation's at all levels. Let me share some examples with you.

The Diavik Diamond Mine

This diamond mine is located in the remote Northwest Territories of Canada. Production started in 2003 but work with local communities began years before the first carat was produced. Diaviks commitment to community development and investment is documented in the Diavik Socio-Economic Monitoring Agreement (SEMA), formalised in 1999 with the Government of Northwest Territories. It provides for training, employment and business opportunities and has been ratified by five local aboriginal communities with whom individual participation agreements were signed. The local community is involved in monitoring and providing advice to the mine, through formal mechanisms established under the SEMA and the participation agreements.

The Argyle Diamond Mine

This mine is in the East Kimberley region of Western Australia, which we have operated for about 15 years. The signing of an Indigenous Land Use Agreement and Participation Agreement in 2004, between the mine and traditional owners of the mining lease area, was a vital element to enable us to operate in this region. It provided for delivering long term economic benefits to indigenous communities in the local region, while protecting their cultural and environmental interests throughout the life of the mine. The signing of the agreement was a culmination of extensive dialogue, and the building of trust between the mine and its traditional owners.

The Wisconsin (USA) Gold Mine

It took 18 years to commence operations at this mine and it had a short life of only eight years. There was a lot of concern about mining and the

potential environmental impact. The closure plan to determine how a mine ends, was actually decided with the communities before we started. So closure planning was part of the process of obtaining support for what we intended to do. After closure, 85 per cent of those surveyed said they would have us back if there was such a possibility. While it took a long time to gain approval, and of course we would have liked it to have been quicker, nonetheless we ended up with a majority in support of our presence.

The Key to Success

The framework for making an agreement is an important tool to work together with others. First, the basic premise for any participation agreement is that it is an institution-to-institution relationship, not a company to an individual. The community is represented by some sort of institution in discussions and it is the company that is the signatory to the agreement. Second, the agreement is not rights based, but based on the interests of both parties. This is not to say that there isn't a legal framework of rights in the background but the participation agreement is based on the sharing of common goals and mutual interest.

Essential for any process like this are resources – the right people, the right structure and the right skills – to enable both the effective making and implementation of the agreement. When I was general manager at our Weipa bauxite mine in Australia, we actually provided negotiation training for a number of aboriginal community leaders. This was undertaken by an independent company, and was an important part in making sure that there was a certain level of equal standing in the discussions. Other legal and training support was also provided. Importantly, the amount of resources and time needed to make these types of agreements shouldn't be underestimated. They can take years because there are number of different interest groups and planning and approval stages involved.

Monitoring the Implementation

Such extended timeframes requires a structured process of monitoring to ensure implementation. This may be undertaken by an independent party or, as in the case of the Diavik mine, have all parties involved in this process. At Weipa, we had various land councils involved as well as the government. The Western Cape Communities Co-existence Agreement

is actually a tripartite agreement between the company, traditional owner groups and the government. Both the government and the company contributed financially in this case.

Respect and Recognition

The last point in relation to the agreement making process is the importance of respect and recognition. The earlier examples focussed on agreement making with traditional owner groups yet these same principles apply to the broader community as well. Fundamentally, there must be acceptance that all parties are on an equal footing throughout the whole process. Listening to what is important to the others is critical. Similarly, knowing how a company can make a difference – whether it be to include the other party or parties in the site environmental management and/or cultural heritage processes; provide employment and training; support supply chain participation; or other such priorities – is the key.

In summary, achieving a good agreement rests on listening, understanding and respect.

International Experiences in Sharing Value in the Resources Sector

Nitya Nanda

Introduction

The issue of sharing value in the resource sector is relatively new in development literature. Not too long ago, the primary concerns for the policy makers have been issues like macro-economic policy making, foreign exchange management etc. For example, there have been concerns that too much of resource money makes a government profligate and indulgence in public spending and it affects long term growth adversely. The mineral sector gets priority and that squeezes out other sectors, which is also related to governance problems and more importantly it induces rent seeking behavior (a term euphemistically used by the economists to describe corruption) which has very negative impact on the quality of institutions which in turn aggravates all these problems (Sachs and Warner 1995; Sarraf and Jiwanji 2001).

Awareness on these environmental damages was pretty new in developing countries and affected people were poor anyway and hence the opportunity cost, the cost of acquiring the properties of these people, is very low. It is unimaginable to shift the whole city of Delhi if resources were found beneath it, not just because the politically powerful live there, but shifting itself would be economically unviable and would not give value for money. But for the places where poor people live, economic calculations become different. Some countries went in for nationalization of mining assets not because foreign companies or private companies were not doing enough in these areas, but primarily because they thought they are not getting adequate share of the revenue. For example, energy resources were being taxed in consuming countries, which essentially meant markets could bear higher prices than at which they were being

sold in producing countries. Hence the producing countries wanted to tax it in their own countries.

If one looks at displacement only from the perspective of how much land or other immovable assets have been lost by the families affected, it would be a huge underestimate. The actual loss is much more, because it de-links a family from the support system which they may not own directly like forest products, fish and aquatic resources, medicinal substances etc. Policymakers did not account for all these losses, apart from the value of the land and other immovable assets that they are parting with. Often protests by affected communities were taken as a merely law and order situation but gradually things became difficult. Events like the violent closure of mining in Papua New Guinea, in Bougainville and other places raised the importance of the issue. Events like the execution of Ken Saro Wiwa and others in Nigeria in 1995, who were vocal against the environmental degradation due to oil mining in Nigeria, shook the conscience of the global community.

But things changed very fast. WDR-2003 for example recommended: 'Ensure some distribution of wealth to affected communities'. But a few years before that the ILO Convention 169 (Indigenous and Tribal People Convention, 1989) came into force in 1991, its Article 15 provided, "The rights of the peoples concerned to the natural resources pertaining to their lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources. In cases in which the State retains the ownership of mineral or sub-surface resources or rights to other resources pertaining to lands, governments shall establish or maintain procedures through which they shall consult these peoples, with a view to ascertaining whether and to what degree their interests would be prejudiced, before undertaking or permitting any programmes for the exploration or exploitation of such resources pertaining to their lands. The peoples concerned shall wherever possible participate in the benefits of such activities, and shall receive fair compensation for any damages which they may sustain as a result of such activities." But very few countries ratified the Convention. Nevertheless, it is now well accepted that the resource development framework needs to ensure equitable sharing of value with the people, in particular the affected communities.

Experiences in the Developed World

One of the oldest examples of sharing value is the Alaska Permanent

Fund in the USA and it ensures revenue streams for the state and the people and even for the time when resources would be exhausted. It actually converts non-renewable resources into permanent wealth that gives returns years after the resources are gone. The principal component of the fund cannot be used by the government, except without statewide plebiscite and there was an instance (1999) when government tried to do it and the proposal was rejected. Fifty percent of oil revenue goes to the fund and all residents directly benefit. For example, the 2010 dividend was US $ 1281 per citizen. So this is a kind of benefit they get and approximately 1/8th of oil revenue is dedicated towards benefits sharing to the people of the State.

Another notable example is the Alberta Heritage Fund in Canada which is not as good as the Alaska Permanent Fund in terms of making their fund but it also goes into projects like healthcare, education, roads, and tax rebate in the State. This will also continue like the Alaska Fund and even if the resources are not there people will have the benefits accruing to them. It also makes cash transfers, not on a regular basis like Alaska Fund but from time to time, at the discretion of provincial government. It made direct cash payments of $400 to each of the citizens in 2005. However, it has often been criticized because some people thought the governance is not as strong as it should be (Warrack 2005).

The Norwegian Petroleum Fund has been praised quite a lot, as among the best examples. The defining feature of this is that almost 3/4th of resource revenue go to the fund. This is quite unique as no other fund allocates that kind of money. This was possible, because Norway was already a developed country and did not really require that money to pursue their development or other goals. They strengthened the sustainability angle by converting to it permanent fund which will give returns year after year. And they exclusively invest on foreign assets which give them high returns. Though this was not the primary objective, it helped in preventing the Dutch disease kind of problem, because investing in foreign funds means the local currency does not appreciate. The money is not earmarked for any particular project or people. But it should be noted that this fund is not for sharing value with the affected people but for sharing with future generations. This was also possible because in Norway, the resources were found off-shore and there were no project affected people.

Australia has one of the oldest examples of taking prior informed consent. The 1976 Act mandates that prior consent is needed and the

aboriginal population have the right to veto if a project involved forest land owned by them. Government can undo the veto but it has never done so and there have been many cases where the community rejected the proposal for mining exploration. The Act has been weakened over time so there are some concerns now. The Land Rights Act created a framework in which the land councils, aboriginal people affected by mining and the broader aboriginal population in the territory receive a share of the mining royalties. The Act also established the Aboriginal Benefits Reserve (ABR) to receive and disburse mining royalties. But this is quite different from the Alaska Permanent Fund or the Alberta Heritage Fund as it mainly works as a clearing house for giving royalty to the aboriginal population. In addition to this there are also arrangements for private royalty payments and gate money which are negotiated directly by the community with private companies. The amount of money distributed to aboriginal people varies due to fluctuations in commodity prices. An important point to note here is that the aboriginal population is deemed to own the resources. Monies given to land councils for distribution in affected areas have mostly been used for infrastructure and other development projects in the communities. But questions have been raised about weak governance and accountability in land councils.

In the US there are other kinds of funds which are used as insurance cover for environmental and health problems associated with mining activities and generally called Liability Funds. Such arrangements were necessary as some environmental and health problems are difficult to attribute to activities of a particular mining firm. For example, there are many abandoned mines for which liable firms cannot be found. To deal with such a problem there is the Abandoned Mine Reclamation Fund in the US. Incidentally, the problem of abandoned mines is quite prevalent in India.

Developing Country Experiences

In the developing world, Papua New Guinea has a long and interesting history with respect to value sharing and currently has a comprehensive framework for benefit sharing. It instituted Mineral Resources Stabilization Fund in the mid-1970s. However its objective was to prevent large fluctuations in public expenditure as mining revenue constitutes about 70 percent of the total revenue in the country, which depended heavily on commodity prices known for their volatility. However, the government bypassed the constraints imposed by the Fund and started borrowing

against the Funds reserves by making legal amendments. Fund returns were also quite low due to weak management and the fact that it invested locally, unlike the Norwegian Petroleum Fund. Eventually the fund was closed and the reserves were used to retire a part of the country's high cost domestic debt.

For quite some time, the issue in benefit sharing was how much the central government should share with the provincial governments and sharing with the communities was not taken seriously until violent protests led to the closure of the Bougainville mine in 1989. Bougainville is a special case because there is also a demand for independence from Papua New Guinea. So in 1995 a law established a framework that provided development forums to be established in the locality, which includes central and provincial governments, local land owners and companies and they would decide on all issues including royalty payments and equity shares. Interestingly, the framework has provision for compensating the children and future generations of the landowners. This has certainly brought down protests on mining projects in most parts of Papua New Guinea but this does not mean that all is well there. Studies have revealed that the benefits paid to the government authorities or clans for distribution are not reaching all the potential beneficiaries. Benefits have gone to a few powerful clans and land owners but poor people, many of whom do not own land, are left out. There have also been extensive environmental damages (PINBio 2006). So even if it is possible to buy peace by appeasing a section of the population, the problems can continue.

In Latin America, most countries have a framework for sharing mining revenue among central, provincial and local governments. They also have funds earmarked for specific budget items. Some of them also have stabilization funds. Some countries allocate money for pension funds, universities and other social support measures. However, with the exception of Colombia, a large part of the resource revenue is retained by the central government, though it has been falling over years. Colombia also has a provision for sharing the revenue with indigenous communities. Interestingly, most Latin American countries have ratified the ILO Convention 169. But problems range from weak institutional development to lack of transparency. Corruption and misappropriation/mismanagement of funds have been reported from several countries in the region (UNDP/ World Bank 2005).

In Peru the distribution of funds between regions, provinces and districts is generally determined on the basis of population and unsatisfied basic needs and resource producing areas get the overwhelming share of funds distributed to local bodies. The distribution arrangement is defined by law as:

(i) 10% allocated to the municipalities where the natural resource is being extracted;

(ii) 25% divided among the local government authorities of the province where the natural resource is being extracted;

(iii) 40% divided among the local government authorities of the region where the natural resource is being extracted; and

(iv) 25% to the regional government, of which 20% is for universities in the region.

It also establishes that districts hosting extractive activities should allocate 30% of resource related revenues (Canon funds) to investments that promote sustainable local development (Le Blanc and Kjöllerström 2008).

Among the African countries, Chad, with the support of World Bank, established a comprehensive legal framework for the management of oil revenues in 1999. The framework is quite similar to the models followed in Latin America and money earmarked for priority sectors and five per cent of the revenues to go to the oil-producing region. A joint government-civil society supervisory body was to be established to ensure transparent management of the country's oil wealth. Instead, a Provisional Committee for the Management of the revenues was put in place, comprising representatives of the main Ministries involved and representatives from the local level (Le Blanc and Kjöllerström 2008).

Botswana is very often considered to be one of the better examples in the developing world. However it does not have a comprehensive framework for benefit sharing for resource development. Instead, it has gone for broad-based development. There are no specific projects, but the government manages all the money. Improved infrastructure and high growth performance through public institutions has made a lot of difference (Sarraf and Jiwanji 2001). Per capita GDP figures saw an increase from about $1600 in 1980 to about $10000 in 2006 which is very significant. It is well accepted that there is very little corruption in Botswana. But there are some serious concerns as well. Even today

about 47% of the population live below the poverty line which is $1 per day and the poorest 20% of the population get 4% of the total national income and richest 20% get almost 60%. It is often said that the people who benefited mostly are politicians, business, professional people and the civil servants (Konopo 2007). Poor people still suffer despite three decades of corruption free economic development.

There is huge rural-urban divide with rural people earning substantially less and so do the female-headed households. They are in a very precarious situation because Botswana is highly affected by AIDS and HIV. The number of female headed households is very high and these females are in turn pushed into prostitution which again leads to a circular problem and about 1/3rd of the population is affected by HIV (Selim 2003). Botswana has not yet been able to do anything to address the future situation when the resources are exhausted. They do not have any permanent fund even today.

In India there is no uniform policy or framework for benefit sharing, which differs across states and owners of the mining companies. Some states have clear practices of royalty sharing. For example, in Gujarat, 90% of the royalties from the minor minerals flow back to the source district. The government-owned Coal India, which dominates the coal sector, has a policy of giving jobs to people who lose more than two acres of land in a mine project apart from the compensation for the land at market prices and assistance for relocation and rehabilitation. But this could address some of the impacts of only people with more than two acres of land. For many other resources, private companies operating trucks for movement of minerals and employing casual labour, are regarded as contributing to benefit sharing. But those benefited are often not the most affected people.

The famous 'Samatha Judgment' of the Supreme Court of India in 1997 ruled that mining in Schedule V (tribal inhabited) areas should not be allowed without the participation of the local people. It also suggested that 20% of net profits to be set aside as permanent fund for establishment and maintenance of waters resources, schools, hospitals, sanitation and transport facilities, reforestation and maintenance of ecology and so on. It also suggested that state governments organize cooperative societies composed of scheduled tribes to undertake mining operation in these areas. But the judgment is yet to be implemented. In the meanwhile, a new Mines and Minerals (Development and Regulation) Act envisages benefit-sharing with people especially in tribal areas, with

mining companies giving 26 per cent of their equity or their profits to communities.

Limits of National Governments

In a globalized world there are limits to what national governments can do to ensure equitable sharing of benefits. There are issues beyond institutional effectiveness, governance, and corruption that affect resource development and its impacts. Oil prices are relatively less volatile compared to other mineral resources because of OPEC but in other mineral resources volatility is endemic. At the national level some countries have tried to deal with this problem by creating a stabilization fund. But this is mainly to deal with fluctuations in government revenue. An outcome of such high volatility is that mining companies or industries do not perform consistently well and that has created problems.

The experience of the Zambia in copper mining is worth noting. Around 2000, when sustaining the industry became difficult, it went for privatization under the Frederick Chiluba government which was doing extremely well and got both domestic and international support. The private foreign companies took the mines over and, as expected, at very low prices. However, they found that buying them was easier than managing them. So the mines were changing hands. Finally around 2003-04, when commodity prices were getting relatively better, companies from Australia, Canada and China joined the party. But Zambia was gaining very little as the Development Agreements (DAs) that were signed with the mine owners provided little scope for taxation. In 2008, the government took a bold step and repealed the Mines and Minerals Act of 1995 which led to effective cancellation of the DAs. Government raised corporate tax from 25 per cent to 30 per cent, and tax on profits went up from a miserable 0.6 per cent to 3.0 per cent (Lungu 2008). This unilateral move by the government unsettled the investors some of whom threatened to pull out or take the government to court. Around the same time the global economic crisis also struck Zambia as the copper prices again went down and the mining sector sustained massive job losses. The Zambian government pursued the foreign companies, particularly the Chinese to somehow manage the mines as the primary objective of the government was to protect employment. President Rupiah Banda announced: 'We must ensure that we do not kill the goose that lays the golden egg. There is little point in taking in a few million dollars in tax if thousands of jobs are lost as a result' (Servant 2009). Obviously, in such a situation a government may

not able to collect enough revenue to take care of social and environmental needs. No wonder environmental and safety regulations are quite weak in Zambia, which witnesses frequent accidents.

With this kind of fluctuation and uncertainty in income, it is extremely difficult for a national government to protect those interests. In these resource industries marginal costs do not really signal the right price. Oil has been a different case as it maintained relatively steady prices though it also saw fluctuations sometimes. Unfortunately there is no global framework which addresses this issue. Often people have talked about, for example, the Energy Charter Treaty (ECT) as an institution of global governance in the energy sector. But ECT is only about making markets work so that governments have less intervention capability. The ECT has also to some extent lost its purpose because everything that the ECT can do, can be done by the WTO as well. A permanent fund is also probably not suitable for developing countries because it may not address a country's own development requirements. That is why the Botswana experience may not be the best thing but still has relevance for other developing countries.

There has been some suggestions like making cash transfers. For example, Salai-i-Martin and Subramanian (2003) argued that revenue received as royalty on resources in Nigeria would amount to 43% of purchasing power parity GDP and if this money were distributed to people then this would essentially mean that nobody would be poor in the country. However, transferring huge sums to such a large population may breed corruption and the intended people may not get the benefits. Moreover, giving money to people will not create the infrastructure that is necessary for development. Cash transfer can create another problem as has been observed in countries like Papua New Guinea and Nauru where people gave up their productive activities.

Extractive Industries Transparency Initiative (EITI) is considered to be a global initiative. But response to EITI has not been very encouraging and what it can do is also very limited. It only talks about transparency. So even if one accepts that it can improve transparency, to what extent will that help? Managing resource wealth in developing countries also needs to consider what is the best policy that would help the country and the society as a whole. Just a transparent system alone will not ensure that everything is in place. As has been seen in Botswana the management of resources has been quite transparent yet unable to promote sustainable and inclusive development.

Conclusion

There are several models of benefit sharing around the world. The Norwegian model is suited for the protecting the interests of future generations, while the Alaska and Alberta models try to strike a balance between present and future generations. The PNG and Australian models are good for sharing benefits with the affected communities. The Botswana model is good for overall economic development but inadequate to address sustainability issues. So the countries themselves have to understand what is the best for them, and evolve their own framework. So, may be a judicious combination of these models can be the way forward, which should take care of the following major concerns: Overall socio-economic development, protection of the environment, and interests of affected communities and of future generations.

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Discussant

Dipankar Banerjee

I see the role of a discussant in a seminar such as this is to comment on the papers, and perhaps make a few additional recommendations/ suggestions or highlight certain issues that have not been discussed. The papers have been really very good, approaching the session theme from two different dimensions: one, the international dimension looking at specific experiences in countries around the world, many of them developing countries, poor countries, and two, the perspective from a natural resource development company, one of the largest in the world with enormous resources and experience in doing all that. Perhaps we have not had many examples of this processes within India itself, whether we have addressed this, not addressed this effectively enough, both in the case of harnessing river waters and the enormous displacements that they have caused and with regard to the exploitation of natural resources in tribal belts and such remote areas, where without a very complex negotiating process perhaps over a period of time a successful conclusion of any of these mega projects is unlikely to be possible. That remains as a very significant challenge facing India today.

For example, take coal, and the topic of that session was also conflict, and in that conflict situation we see how it is impacting severely on domestic conflict which then gets exploited by political forces, by other elements and the prime example of this is the naxalite movement in India. Much of the heartland of India, and this of course is a much more complex situation and I do not want to delve into any aspect of it at this closing stage, is a region that has been impacted severely by the procedures of extraction, exploitation of resources, legitimately of course. The lack of a negotiating process within that 'legitimate' process and the exploitation of that situation by a political movement, which of course

leads to enormous violence and considerable potential for disturbance for the whole nation. This was highlighted yesterday as well.

On the question of uranium extraction, one of the major problems in India was the uranium availability. We do have some uranium, and based on that certain projections were made of the energy production capability of nuclear resources. But the absence of a negotiating mechanism means that uranium, wherever found in large quantities in India today cannot be extracted, because this negotiating process has not been put in place, and as a consequence there are severe objections to extraction, and therefore we have suffered so severely in our earlier nuclear energy programmes.

There is a good example in river water sharing. Hydroelectricity is an important source of energy and an important resource for the topic that we are discussing today. A success story is that of collaborating with Bhutan. The Bhutan Project was developed in 1975, of course through a process of negotiations between governments, essentially as an aid project substantially from India to Bhutan, but the Bhutanese were deeply concerned as to how that project would help or impact the nation in all its various dimensions. The Bhutanese were extremely careful and conscious of those impacts, and the king made his sisters responsible to oversee that project and then waited ten years after the completion of the project to analyze the impact of that project. They then came to the conclusion that adverse impacts were minimal, and that they could allow it to go ahead, and now of course Bhutan is in the forefront of cooperating with India in developing hydroelectric resources in the country. We have not had any such success in Nepal, why is that? One of the reasons is of course that there has been no negotiating process either with the Nepalese government or with the Nepalese citizens. And here it is the responsibility, if you want to develop such cooperative relationship, for perhaps the government to take the initiative on such processes. It is unlikely, perhaps impossible, as of now. Perhaps certain other companies could do that. But even that has not developed. So there are lessons in that as to how one goes about negotiating and discussing and evolving a process of cooperating between nations and also between different stakeholders.

Another dimension of conflict around resources which, we have not really dealt with in this session, perhaps if Siddharth Varadarajan were here, he would have highlighted those issues, is the question of international security and the impact of energy on international security. We have the question of water resources being shared between two

countries through bilateral mechanisms or in the absence of such mechanisms for resolving the water issues, which in turn create tensions and in the future perhaps even conflict. You see the potential of that even in South East Asia. You also see the problems of transportation of such resources whether it is through underground pipelines for oil and natural gas transportation, the great game that is going on currently now in Eurasia and perhaps in East Asia, also in the sea lines of communication. Here the necessity of international frameworks is relevant. Take the international Convention on the Law of the Sea, and the different interpretations that are beginning to emerge. There is also the question of the South China Sea islands, and there again these are related to energy questions as well. So I think we have got a very challenging situation ahead of us, both internationally, and within the nation itself, as to how do we explore and exploit these natural resources legitimately for our economic development and progress, yet be able to do it in a manner that sustains the nature of the earth and our own future.

V

Concluding Session

Reflecting on Earlier Themes

Chair: C Dasgupta

"Globalizing Energy Demand and Re-nationalization of Energy Supply"

Friedbert Pflüger

One of the issues we need to discuss a bit more is the tension between the globalised energy demand and the re-nationalization of the supply side. There is a growing competition with globalised offers of energy almost without frontiers and the possibility to transport from one end of the world to the other. Yet countries are in more and more competition with each other and saying 'me first'. When projections are made about the energy needs for the next few decades there is an enormous gap between what is possible, what the world can offer and what countries need. We might even say that this century will not be epitomized by the clash of cultures as Samuel Huntington has predicted: that the Cold War was characterized by a fight of ideologies and the next century by a clash of religions, civilizations and cultures. If you look at the numbers, it will be probably be epitomized by the fight over energy, raw material, and water resources and that this is to be the guiding conflict of the next century.

According to the International Energy Agency (IEA), global energy demand will increase by 40% by the year 2030 mainly because of the 73% increase in countries that are not OECD members. Despite an assumed growth of the renewable energy by 7% annually in the medium term, fossil fuels are expected to account for approximately 80% of this growing demand. The average consumption of crude oil will rise by 30% by 2030 and IEA highlights the global development of energy policy is not sustainable neither in regard of climate change nor in terms of supply security. The gap between available resources and demand by countries to meet the needs of their citizens is simply too large. No state in this world will decrease its growth in the light of this prognosis. The moment

countries understand that their very survival is at stake, they will question how far they can be responsible in terms of international law, in terms of finding compromises and consensus with the world around them.

China, for example, must grow about 10% annually in order to maintain the stability of its society, but the domestic supply of energy and raw materials necessary to sustain this growth was long ago outstripped by demand. China under one party rule will tend to use all possible means, legitimate or not, to get enough energy, raw materials and water. Perhaps the most important geopolitical change in the last decade is of China aggressively pursuing its interests. But you can say the United States has done so before and that's probably true. It also has tried everything worldwide to secure its energy needs. But that has been a development which we all are used to. The new development in the last decade is this enormous rise of the Chinese especially when you look to Central Asia. I have just visited Kazakhstan and people there ask as to when will the Europeans be ready with the Nabuko pipeline which one day should transport gas from the Caspian Sea from Central Asia via Turkey to Europe. Well, we have been talking and talking but nothing has happened. On the other hand in December 2009, Hu Jintao and his counterparts from Turkmenistan, Uzbekistan and Kazakhstan inaugurated a 1833 km long gas pipeline linking Turkmenistan, Kazakhstan with China's western regions, and which can pump 40 billion cubic metres of gas to China annually, a quarter of which will come from Kazakhstan. The Chinese buy shares of Kazakh oil and gas companies and bring their workers to built the trans-national pipelines. The same can be seen in Africa, especially in countries like Sudan, Zimbabwe and Angola, with whom the western world is very reluctant to do business with. The Chinese feel it is legitimate to do businesses even with countries where you have genocide, as in Sudan. Everywhere in Africa the Chinese are involved in great infrastructure projects. They built a big stadium in Khartoum, the capital of Sudan, they built palaces for the President and they built streets and towers and invested enormously in infrastructure. The same is true in Latin America and that is a new factor in world politics and it challenges all of us, but it also challenges the USA.

We are already facing a G2 world where there is a growing bipolarity but this time between China and the United States. Europe still plays a big role, India is there, Brazil is an enormously rising power but the European Union has not been able to formulate its energy security interests. The individual countries have different ideas about their energy

mix, about what they want and what they don't want etc. The European Union as a global player is very weak; it is cultivating its own garden and has a lot of problems within itself. So it is not really on the global theatre and unable up till now to formulate its policy. India also is not yet the player; it needs to be in the future when it will be able to secure its energy demands. It has limited reserves and even if everything is done to develop renewables, save energy and implement energy efficiency, it still needs security of energy supplies.

Basically that is my message and that is what our Institute will deal with. I believe that the democracies of the world, India, Australia, US, Europe and Japan, where there is a basic value system that everybody shares, will have to cooperate much more closely develop and do everything to secure energy and raw materials for their citizens.

I am not saying that we don't want to be partners with China or Russia and that we should not do everything in the world to find compromises. My fears are that there will be also elements of confrontation and of conflict in the world economy when it comes to the very existence of their societies and economies will be less responsible and more sovereign. Therefore we should not be naïve and see that the rule of international law is maintained. One of the things to minimize these dangers is to develop all the sources within a country. The Desertec project, whether it is feasible technically or not, shows it is proceeding in the right direction. In India there is the enormously big desert, Thar, which is much closer than the Sahara desert is to Europe. So it is possible to think of major solar thermal projects but we need a lot of technological progress for that as well. We need smart grids, and the ability to store energy from renewable sources. The hope is that we have enough time to manage with the old conventional resources so that we are able to develop the renewables and the energy efficiency potential and one day overcome this gap between the global capabilities and the needs of our various societies.

"Legal Contract and Social Compact"

Manish Tewari

I would just focus my presentation on a very narrow prism essentially dealing with the privity of legal contract and the imperative of social compact as the basis of sustainable development in a situation when the tensions between globalization and resource nationalism seem to be increasing almost on a daily basis.

Resource nationalism in its many forms such as control over ownership, production cuts, or export tariffs constitutes a foreign policy of resource poverty for important countries. Resource pressures for energy, water, and food must be met with innovation and adaptation and certainly not resource nationalism. The much misunderstood idea of sustainable development is possibly the key means of addressing this growing challenge of resource nationalism. Recently the International Institute for Sustainable Development took a bold step in developing a model international agreement on investment for sustainable development. The Model Agreement provides at Article 16A that 'investors and their investments should strive to make the maximum feasible contributions to the sustainable development of the host states and local communities through high levels of socially responsible practices.' The agreement states, that 'in accordance with customary international law and other general principles of international law, host States have the right to take regulatory or other measures to ensure that development in their territory is consistent with the goals and principles of sustainable development and with other social and economic policy objectives.' If the investment law applied to instances of resource nationalism were to be redesigned, to place sustainable development and not investor protection at its heart, there would be a need to ensure effective protection of beneficial foreign investment. Clearly this would demand sophisticated

balancing acts as many resource nationalist countries move against foreign investors precisely because their projects are not considered beneficial for the interests of the country. An international investment agreement for sustainable development would necessarily need to leave considerable sustainable development policy space to the host states.

The challenge really is how to arbitrate between the demands of sustainable development at different levels from local to the national and craft rules which can possibly operationalize it. Many investment projects are very difficult to define as either good or bad from a sustainable developmental point of view. Even in those cases where resource nationalism is *prima facie* justiciable, there are two broad sets of legal principles which may be in opposition, when investment contracts changes are proposed. On the one hand is the maxim that a contract is a contract and must be respected under all circumstances, and on the other is the idea that contracts are valid as long as circumstances remain the same. Since the investor protection afforded by international investment law are designed precisely to protect investors against changing circumstances, investment law is a mechanism for transforming commercial and political accord over the terms of investment into effective contractual promises.

Many investors have been faced with the spectre of resource nationalism and they have invariably agreed to the demands to renegotiate their contracts. They have chosen not to stand on their rights but to arrive at a perceived equitable settlement. In Venezuela, for instance, most but not all the companies accepted renegotiated terms on the premise that it is better to continue to have a smaller piece of the action in the more profitable petroleum assets then to be left out, with the consequence of full exit and a compensation claim which may require prolonged international arbitration under the available contractual terms. The clear implication is that legal rights are just one part of the picture. Any investor knows this but the implications and opportunities for civil society based organizations seeking to promote sustainable development have clearly not been explored.

The international law on investment is currently of limited value in (a) ensuring that resource nationalism, where it is practiced, is supportive of sustainable development and (b) protecting investors on the basis of their contribution to sustainable development in host states. Yet the general trend is clear; sustainable development even in economic law negotiations is moving from a contentious form of conditionalised

developed country protectionism to a core value of international law on a broader global basis and that is a very welcome sign. In very pragmatic terms, by tightening control of access to natural resources for arriving at rational determinations, there is more value if national resource assets are kept in the ground than as sources of revenue today. But producer state governments have the potential to drive pro- sustainable development innovation in consumer countries. Ironically resource nationalism has the potential to stimulate reuse or recycling of mineral resources or to quicken the pace of investment in renewable resources thereby helping to combat the whole spectre of climate change.

There is an argument which has been oft-repeated not only in India but around the world and that is the 'bottoms up' decision making tends to prioritize the interests of citizens and communities closest to where natural resource development takes place. In almost all resource rich countries there is a greater need for participation by affected citizens in decision making over natural resource investments, since natural resource project agreements are typically concluded away from full parliamentary scrutiny, let alone local scrutiny of participation. For governments, two mechanisms for achieving this balance include social investment projects on the part of resource companies and a legal framework for the sharing and allocation of revenues between national and sub-national levels. There are three very broad trends which we have witnessed in India over the past five years. One is the battle which has been going on in most Indian states with regard to the acquisition of land. Land acquisition has possibly become the most contentious issue insofar as the location of infrastructure and other projects is concerned. The absence of community participation in these decisions has often sparked off very violent and prolonged agitations which has not only derailed projects but more importantly increased social tensions to a level whereby, at times, they become unmanageable.

The second trend is that with the increased amount of awareness and thanks to a pro-active minister, environment impact assessments or environmental clearances were given to projects in the past have been revisited aggressively. There are situations where projects which have been set up or are in the process of being set up, had their environmental clearances cancelled. Some of them are in courts trying to fight those battles, but the interesting question that it raises is that (a) is it not advisable then to possibly have more pro-active local participation before all these environmental clearances are given, rather

than the sham we often conduct when we have public hearings and then use that as the basis of moving further up the regulatory chain, and (b) in juxtaposition, is it really advisable to unravel contracts which have been concluded and revoke, clearances which have been given, because that brings into question the entire efficacy and the integrity of governance structures and it has a very negative impact in terms of these kinds of signals which you want to send out to the investment community. It creates a whole degree of uncertainty as to the privity of contract, which really forms the basis of any kind of a commercial transaction. We are at an evolutionary stage in India. The next few years would definitely be a learning experience in helping to refine as to how do we look at the whole question of infrastructure *qua* sustainable development and of course located in the larger context of resource nationalization because there have been increasing demands from legislators. In the last session of parliament we had a very animated debate on the whole question of illegal mining but one of the important things which came up during that debate was whether it is in India's long term interests to export natural resources, or even if export take place, should there be a mandated value added component. In many respects it is because of the increased global demand that the entire debate has opened up. The next couple of years should see the crystallization of some of these issues which would possibly set us on a more even trajectory as this period is critical to India's development.

As regards the kind of governments that are there in Africa, the question has been brought up as to whether it is ethical to be doing business with them. It is very important to address it because in the context of India we share a boundary with a country which is the cause of global concern, or global interest, if not concern. I don't think that India is in a position or has the luxury of being able to take or make those ethical choices any longer. India requires a 10% growth in its GDP and that growth obviously is going to be financed or is going to be underwritten by the energy resources that we are able to access. Possibly India's energy security lies in the very large reserves of coal that we have and if we had followed a more pragmatic policy we would not have been in the situation that we find ourselves today. India needs to see how it can broaden access to energy resources which are available around the world and we should not allow the ethicality of doing business with countries which are rogue states or non-democratic or have problems of their own stand in the way of pursuit of our own enlightened national

interest, howsoever crude that may sound. From our point of view that is the reality.

The other issue is this whole business of G2. The communiqué which came out from President Obama's visit in September 2009 to China did raise the spectre of some kind of bipolarity again emerging, but let me disabuse that notion once for all. Notwithstanding the fact that China has been growing at a very rapid rate, not only around the world but more specifically in East Asia and North Asia, there are enough synergies being built which would ensure that the coming two decades would see a tangible movement towards multipolarity. I don't think that the world, notwithstanding its pessimism, would really have to confront a G2 scenario.

"Domestic Compulsions Around Energy Consumption"

Prabir Sengupta

I would like to address the issue of India's domestic compulsions. Whichever way we look at it whether for India, for China or for the world as a whole, there is going to be a tremendous pressure on increasing the energy resources for growing consumption which brings in the concept of sustainability which is not necessarily related only to environment and climate change concerns per se. It also includes societal and ethical considerations.

The concerns of climate change and greenhouse gas emissions have brought about a plethora of legal measures. In particular the Environment Act in India has undergone substantive changes and will be of growing importance in the coming years when resource exploitation will be subjected much more to environmental requirements and increasing concern of stakeholders. By stakeholders I mean the NGOs, the judiciary, the public, apart from the government. We have had cases like the Bombay High oilfields where over exploitation led to the reduction in the overall reserve of the basin. There is the recent case of the BP oil spill and spills elsewhere which have really caused serious problems about the manner in which we exploit resources. Offshore drilling was banned in USA; now the ban has been removed and there is talk about the exploitation of the Arctic where the resources are immense. Today the global daily consumption is hovering around 85 million barrels. The interesting part is that there have been no major discovery of a new field in the last 10 years and the fields in Saudi Arabia and elsewhere are declining. So the pessimists say that we have already reached 'peak oil' whereas the OPEC Secretary General says that we have got enough oil for the next three generations. Whichever way one looks at it, there

is going to be huge demand on new resource exploitation and environmental factors will come in much more severely than in the past.

The second one is that societal factors have become much more important in the last decade than earlier. There have been problems of land availability elsewhere in the world. We have had problems in respect of the steel mines in Orissa, export zones in special economic zones, coal mining areas etc. In Assam exploitation of oil in certain areas is affected because of the local opposition to oil drilling production. So we now have to take the community along with us when we talk about energy exploitation. Gone are the good old days when an oil major makes a deal with a sheikh and gets on with the job, with everything else put into the background. But today if one has to go for the oil production and energy exploitation the societal factors have become also extremely important.

The third factor is ethical which means we have to now develop a set of norms and values which will ensure a high degree of transparency about oil exploitation. So sustainability includes the environmental, societal, and ethical considerations which will in some way or the other influence resource exploitation in the coming years, particularly in this country and possibly in all democratic countries. In China nobody really knows how many people die every month in coal mines though it is a huge number. Many things happen in China that one doesn't get to know but in the democratic countries these factors will become much more aggressive, and important than in the past.

So, can we have some sort of a global compact in respect of sustainability and related issues? By global compact I do not mean a definite set of guidelines but it is necessary now to have much more of global dialogues, particularly between the producing and the consuming nations to optimize the relationships that are necessary for smooth availability of energy. It is going to be much more difficult in the coming years but the solutions will have to lie at the national level along with certain global underpinnings.

The other global issue of which we do not see much today, is a real sharing of experiences as regards of the movement away from fossil fuels. Renewables, including solar energy have got a great future but by all estimates they are not going to form a major percentage of the total requirement in the next 15 to 20 years. Can't we have much more of experience sharing and much more of technology exchange? We need to

think and talk much more what sort of formats can we have for ensuring that there is an overall acceptance of the concept of sustainability in a much wider form than I have indicated; concepts of sustainability as far as resource extraction is concerned as also a movement away from the fossil fuels and to renewables. Finally, to what extent can we have discussions between particularly the oil producing countries and the oil consuming countries which have not really worked excepting for certain bilateral discussions. After the price shocks of the last two years the price of oil has stabilized at $ 80 per barrel but there is a clear possibility of exceeding $ 100 per barrel in the next 5 to 10 years. So the price shocks that are likely to re-visit the world will lead to much more unsustainable extraction of our natural resources. In the mid-70s when the first oil shock came, there was a mandate for increased production and it was done at the cost of sustainability as there was over exploitation with the result the overall reserve in the Bombay High and other basins came down (referred to earlier). These issues will exacerbate in the coming years, particularly when energy availability will very clearly become acute.

We must also remember that US accounts for nearly 25% in the total consumption; so if we are talking about the incremental energy requirements of the developing countries like India and China, we must at the same time see to what extent energy consumption in the developed countries can be stabilized and even reduced. The two most important factors are energy efficiency and fossil fuel alternatives. In respect of both the scope is very large. Energy security for a country or for the world as a whole would hinge very considerably on these factors and this is where the global exchange of information, the global compact and the global dissemination of technology is very relevant. Unfortunately transfer of technology becomes extremely difficult because of the IPR issues. I don't know the answer to that, but in some way or the other we have to see that technology dissemination is much faster in the world as a whole, if we have to make energy security a lesser problem than it is likely to be in the coming years in a business-as-usual scenario. At the end let me again say that we do need to look at sustainability in holistic terms, not merely in environmental terms, and seriously address issues relating to a global compact, global discussions of energy efficiency and the movement away from fossil fuels.

"Africa as a Last Resource Frontier"

Daniel Bach

I am basically more a political scientist than an Africanist and what I would like to do is take my own lens, i.e. the series of reflections that have been made episodically pertaining to Africa and discuss whether the perception of Africa as one of the new frontiers will turn into a process where Africa will be not just on the periphery of Europe but on the global periphery.

The idea of Africa as a new frontier of course started in late 1990s and it was presented as the last frontier but since then we have heard that the Arctic and Central Asia are other ones. There are plenty of new frontiers in fact, but what is characteristic of Africa is that we have never seen such a broad range of commodities and it extends of course to fossil fuels, the subject of this conference but it goes off course now that there are issues of acquisition of land, 'land grabbing' as the World Bank itself puts it etc.

The development of the fossil fuel industry has been linked to ultra-deep offshore drilling. Until the BP oil spill in the Gulf of Mexico, there had not been much discussion of the risks in deep offshore drilling whereas in Nigeria the world's largest oil spill has been going on for the last 20 years with dramatic climatic effects. This illustrates some of the risks and problems associated with the possible transformation of the new global frontiers into global territories where the attraction is not so much the importance of resources, as conditions of access. Africa, after all, has only 10% of world oil, and gas is not that significant either. In the late 1990s, at a time when the barrel was extremely cheap, African states were willing to give extremely favourable fiscal conditions of access to these resources. This is changing now and we have debates in a number of African countries that relate to resource nationalism and clearly,

as we have seen in Zambia and Nigeria, these debates fluctuate in relation to the state of the valuation of the assets and this is also reflected in the Zambian government's attempt to change fiscal law.

The issue of Africa as a new frontier raises the question of a possible deepening of the dependency on commodity exports. This is a big challenge for many African states, at least those producing commodities and exporting them on extremely favourable terms of exchange. This is reinforcing their insertion within the international economy and may be contributing to what used to be called the commodity trap. It seems that boom and bust cycles are now considered to be a trend in increasing the ongoing demand for Africa's commodities. This is the first challenge because the new 'great game' is leading to accelerated pilfering and exploitation of Africa's natural resources.

On the positive side, however, it is very clear that we are witnessing development of infrastructure in Africa as never seen before. This is compelling the World Bank to change its attitude towards infrastructure such as harbours, railways etc. needed to export commodities. Bharti Airtel has just acquired the Zain Africa assets in 15 countries. These new technologies and infrastructure are contributing to transform Africa into a more united continent. Indian and Chinese companies have a global vision of the continent, unlike many European companies. There is an underlying assumption that being in Africa does not make sense unless you can access several markets. So, that is I think a very positive sign because the capacity of African states to negotiate the construction of infrastructure is something that is well worth taking note of.

The other issue is the empowerment of regional groupings. It is not about trade. The fact is that the trade agenda, which all African groupings have been stressing, has never been implemented by them. The regional groupings in Africa are about state construction and reconstruction. Their objectives are basically political and the African Union is about region building in some ways but it is basically about contributing to society pacification, reconstruction and to improvement of governance. But it still remains to be seen whether this new frontier that Africa has become will turn into a process where we see the emergence of new BRICs. It is certainly true that there is a lot of money to be made in Africa, and a lot of companies who have got involved in Africa have had very high profit margins. As a young lecturer I happened to be in Nigeria in 1979 when the so called Jumbo Loans were negotiated and everybody scrambled to be on these loans. No one thought there was any risk there. But what is

interesting is that these Jumbo Loans were negotiated by General Obasanjo who was then the Head of State of Nigeria and it is the very same Obasanjo who is President of Nigeria when the legacy of these loans has been eventually sorted out with the Paris Agreement, because from 1981 onwards the boom and bust cycle was really affecting Nigeria. Nigeria is definitely a country where the benefits of the pursuit of oil have not trickled down and therefore the paradox of plenty fully applies. I don't like the term 'commodity curse' because it gives the idea that there is some sort of spiritual dimension in the process but commodity trap is really a challenge. The risk is clearly that we will no longer be talking about Africa as being on the periphery of Europe but Africa as being a global periphery in itself.

It is very clear that the capacity of the State to introduce regulatory framework is an absolutely central issue. Can the African State be developmental? Earlier, there was a total confusion between State and private interest. Now clearly there has been an evolution on that line and there is a distinction to be made between States within which there are elements of corruption and criminalization (which is the case of every State basically) and cases where there is an integral, comprehensive, total criminalization and corruption. In fact the whole debate which has been taking place in Asia on the developmental State clearly shows that to be developmental does not mean necessarily that there was no corruption. In Africa, there has been an over emphasis on the relationship between the public and private interests and the institutions which were inherited from the colonial period. There was never any negotiation except for South Africa on the Constitution. In India, the Constitution was negotiated after independence. It is only since the last decade or so that constitutions have been negotiated among Africans.

The curse of Nigeria is the way it has managed its resources but it is also what has made Nigeria survive because in the late 60s when there was a civil war (where one or two million people died), it got over this period by completely redefining the revenue allocation formula. This enabled it to go from 3 regions, as they were then called, to 35-36 states. It enabled the minorities get political representation. It enabled nation building. The problem that we are seeing is the boomerang effect of what was initially a very positive move. All sorts of elements which are now entering in the electoral campaign and the idea mooted that the Presidency should be allocated to different parts of the country. The

problem for Nigerians is how to get out of such a system without the unity of the country unravelling but it raises the more general issue of the incentive to be less dependent on taxation and rely more on royalties. One way democracy progresses is through taxation because there is no taxation without representation, as we all know.

One of the problems of the oil companies operating in the Niger delta is that they were expected to fill demands that were not being met through the normal state channels. So, besides the domestic issues there is the international dimension. The revival of resource nationalism which we are witnessing in Africa right now is, in many ways, evocative of what happened in the early 80s. But at the same time we also have this new great game and the case of Rio Tinto in Guinea is not an isolated one. There is increasingly cut-throat competition to get access to resources especially in weak or failing states. It is becoming extremely dicey to evaluate the capacity of a company to uphold global governance standards especially since they are increasingly getting diluted into global networks through merger and acquisitions. Western companies are extremely happy to sub-contract some of their activities to Chinese corporations that can import labour and do the job cheaply. So, this is the challenge and the role of civil society is absolutely central there. Nigeria has been a clear case of double standards by the oil industry; the way Niger was treated, the delta was treated. The first time I went to the delta was in 1980 and I was absolutely baffled by the lack of respect for environmental issues but also by the total lack of publicity over what was going on.

"Challenges to the Common EU Energy Policy"

Frank Umbach

Let me begin by making some points to the EU energy policies: what has been achieved, where are the loopholes, etc. We are insufficiently prepared, we are not speaking with a real common voice, and we are not ready to tackle the major challenges at the global level. Nonetheless, I will put some more positive connotations to the EU policies because sometimes as experts we overlook what we have achieved. We should remember that until the first Russian-Ukranian gas crisis we did not have any common EU energy policies. The only institution which was pushing in that direction was the European Commission. It published a green book at the end of 2001 and hoped to stimulate debates on the future EU energy supply security because it was rightly concerned that the conventional oil and gas resources on which we rely today in the North Sea, belonging to countries such as Great Britain and Norway, were depleting. This meant that Europe, more than ever, would have to rely on imports from very unstable political regions such as the Persian Gulf. It also meant we have automatically to compete with other countries and regions for the ever declining remaining conventional oil and gas resources.

Unfortunately, European governments, including my own, were not taking any kind of action. That changed only in 2005 and had a lot to do with China because that was the very first time that the industry was discovering that it faces major competition from much larger state owned Chinese companies, specifically for non-energy resources in Africa and elsewhere. It set up three Presidential Groups to work on non-energy supply resources but they were unable to deliver for a variety of reasons. Now the issue is up again in the context of the rare earth metals debate but it stimulated for the very first time debates on our side, on China

becoming a major economic competitor in respect to energy and non-energy resources. The real key factor which really changed our perceptions was the very first Russian-Ukranian gas crisis in 2007. Remarkably the Europeans were able to come up, in just a year, with a most ambitious integrated climate and energy security concept. By the year 2020 there is a major time target in respect to three objectives: expanding renewables from approximately 9% to 20%, reducing EU emissions by 20% in comparison with 1990, increasing energy efficiency by 20% and reducing the energy demand by 20%. This ambitious policy is still in the process of being implemented but much more progress has been made than was foreseen. Just a year ago many experts were quite skeptical whether we are able to reach these 20% objectives at least in respect to the expansion of renewables. It is now been agreed between European experts including the Energy Commission but also including with the industry that we will definitely reach this 20% norm. That has tremendous implications because it will mean that the energy mix will change considerably and even if we are able to reach just 15% by the year 2020 it will have a larger effect in respect of reducing the overall energy demand and also the situation at the import front, especially in respect to the gas demand of Europe. Summarizing the goals, I would argue that the glass is half full rather than half empty. In respect of speaking with a common voice I would argue it is still insufficient when we speak to China and Russia.

With regard to local acceptance of energy policies, not just Germany but maybe the EU is running into deep problems. What we had in the past and to some extent today are 27 national energy policies, 27 different national energy mixes and 27 different energy foreign policies between the individual 27 member states. That is the reason why it is also difficult to reach a consensus on the way ahead. The Russian-Ukranian gas crisis in 2009 confirmed the policy of building new infrastructure, transmission grids, gas pipelines, oil pipelines, within the EU 27 market. Without that kind of infrastructure and by not building pipelines from Central Asia to Europe, we won't be able to create common markets. The EU Commission took a decision to invest 4 billion Euros in a common infrastructure programme to help to create a common market. During the Russian-Ukranian gas crisis, Germany was able to provide gas to two or three neighbouring EU member countries supplemented by LNG from Norway. However, we were not able to do it in respect to many other countries because the lack of infrastructure. In five years, if we were to face a similar crisis, we would much better prepared.

Still in January this year, we had more than 24000 MW of wind power available, more than we could use, but could not export to neighbouring countries because there were no transmission grids. Now we have a situation where people at the local level, who were protesting against the building or the extension of nuclear power or coal plants, are now protesting against the building of these transmission grids from the Baltic Sea, to Bavaria in the very south. If they succeed we definitely have to face major problems in respect to national supply security. But it also means it would have a huge impact on our EU common energy policies because this national grid system will be part of the overall European grid system. We had electricity blackouts in 2005 and 2006 in Germany caused by minor technical and human failures but this had a cascading effect and impacting more than 11 EU member States and more than 50 million people.

In conclusion I think we will face major problems with the ever increasing global demand challenges in terms of secure supply, problems with the implementation of the common EU energy policies including the infrastructure projects-a precondition for a real united energy market in the EU – and finally local acceptance. Basically many of these people say we have nothing against renewables and transmission but not in my neighbourhood. That is really challenging the European energy integration policies. This is a huge concern in the industry and also in the political quarters, but no one really has a solution in hand.

Contributors

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Major General (Retd) Dipankar Banerjee served in the Indian Army for 36 years before pursuing a full time career in strategic affairs. For the last two decades he has held senior Directorial level positions at leading think tanks in India and the region. For the last 7 years he has been heading the Institution of Peace and Conflict Studies (IPCS), a leading independent, autonomous think-tank in Delhi which is currently ranked among the leading think tanks in Asia. Mr. Banerjee was a member of the International Advisory Group of the ICRC, Geneva, and a consultant

to the UN Group of Government Experts on Conventional Arms. He led the campaign for global elimination of land mines and addressed the plenary session at the Treaty signing conference at Ottawa in Dec 1997. Mr.Banerjee was involved with the UN Secretary General's High Level Panel in 2004 as an international advisor in Asia. In this capacity he participated in major international consultations at Singapore, Hangzhou and Kyoto and others. He convened and organised the South Asian consultation of the High Level Panel at Delhi. He is a member of many international organizations promoting peace and disarmament. His current work involves examination of Indian strategic options, China's policies and military potential, confidence building measures, arms control, disarmament and related issues.

Mr. R.K. Batra is a Distinguished Fellow at The Energy and Resources Institute (TERI), New Delhi. He joined TERI in 1992 after having spent 35 years in the petroleum industry. In TERI, he has coordinated various projects in the oil and gas sector, and has advised on a number of studies for national and international oil and gas companies. He has served as Secretary General for the Indian Oil and Gas Conference held biannually in New Delhi over a period of 10 years. He coordinated and edited TERI's flagship energy and environment study on sustainable development, named DISHA, which was released by the then Prime Minister on 7th February 2001. Mr. Batra's current interest and work are in the area of integrated energy policy for India and global/Indian energy security issues. Mr Batra is a gold medalist from the University of Roorkee (now designated as IIT Roorkee), India, where he obtained his Bachelor's Degree in Mechanical Engineering in 1956. He started his career in Burmah Shell in 1957. His last position was in Bharat Petroleum (a Fortune 500 company) as Marketing Director.

Commodore C Uday Bhaskar, currently Director, National Maritime Foundation, New Delhi retired from the Indian Navy in early 2007 after 37 years of service. He is concurrently contributing Editor, South Asia Monitor and a Reuters columnist. He was formerly associated with the Institute for Defence Studies and Analyses (IDSA) where he served as the Deputy Director (1996-2004) and later headed the Institute till late 2005. Subsequently he was appointed Member-Secretary of the GOI Task Force on 'Global Strategic Developments'-a report submitted to the PM of India. Cmde. Bhaskar is Editor, Maritime Affairs; and on the Editorial Board of Contemporary Security Policy. He has edited books on nuclear and international security related issues and has contributed over 60

research articles to journals in India and abroad. He is a guest lecturer at the Indian NDC and other military colleges. He is a Life member of the USI; and on the Governing Council of the ICWA and the RIS, as also on the Advisory Panel of the India Habitat Centre (IHC) in New Delhi.

Mr. Partha S Bhattacharyya was Chairman, Coal India Ltd until 2011. He received his MSc (Physics) from Jadavpur University and joined Coal India as a Management Trainee in 1977 and rose to become its Chairman in October 2006. In his tenure, CIL has grown from strength to strength. He has spearheaded a number of major strategic initiatives for opening coal washeries, new large underground mines, reopening abandoned UG mines, introducing a system of monitoring land reclamation in Opencast mines using Satellite imagery etc. He introduced Integrity Pact in high value procurements leading to increased transparency and speed. During his tenure, Mr Bhattacharyya placed Coal India on a global map by acquiring coal assets in Mozambique and initiating the process of creating strategic partnership with coal mining companies abroad. Mr. Bhattacharyya is the recipient of several awards: in 2009, he received, on behalf of CIL, the coveted 'SCOPE GOLD TROPHY AWARD' for excellence and Outstanding Contribution to the Public Sector Management– Institutional Category 2007-08 from the Hon'ble Prime Minister of India. Mr. Bhatacharyya was conferred the 'CEO with HR Orientation' award by Hon'ble Prime Minister of Bhutan during World HRD Congress in February 2010. Before joining CIL as Chairman, Mr. Bhattacharyya was CMD of Bharat Coking Coal Ltd. (BCCL) from Nov 2003 to Sept 2006 While in BCCL, Mr. Bhattacharyya introduced sale of coal electronically, which was later extended to all Coal Companies. This is a transparent internet-based mode of sale of coal that enabled every consumer in the country to access coal supply. CIL annually generates additional revenue over Rs.2000 crores on sale of 10 per cent of its produce in this mode. Before joining BCCL, he was Director (Finance) of Western Coalfields Ltd. from 2001 to 2003 where he introduced the Group gratuity scheme benefiting the company and its employees substantially.

Amb. Chandrashekhar Dasgupta was a member of the Indian Foreign Service for 38 years, before retiring in 2000. He has served as High Commissioner to Singapore and Tanzania and as India's ambassador to China, the European Union, Belgium and Luxembourg. He led the Indian delegation in the negotiations leading up to the UN Framework Convention on Climate Change and the Rio Summit on Environment & Development (1992) and served as a vice-chairman of the UN preparatory

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Pricing, Gas Valuation, Wellhead pricing & Royalty committees, Framing of gas pipeline policy, PNGRB Bill & setting-up of the PNGRB. He has a long experience of 15 years in Oil Coordination Committee & Petroleum Planning & Analysis Cell. He has also made key contributions in OCC/ PPAC- Expert Technical Group on Pipelines & Marketing Operations for full dismantling of APM, Dr. Nitish Sengupta Committee on Restructuring of the standalone refineries & marketing company – IBP , synergy in energy committee and studies on international regulatory regimes & economics of energy security. He is also a visiting faculty for various institutes like Rajiv Gandhi Institute of Petroleum Technology, UPES Dehradun, TERI University, Indian School of Petroleum, JIMS, etc. He also regularly speaks in various conference and seminars and has also written on downstream oil and gas regulatory issues.

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Dr. Inge Kaul is Adjunct Professor, Hertie School of Governance, Berlin, Germany since 2007 and External advisor to various multilateral agencies and other organizations on international cooperation financing, public-private partnerships, global governance, and global issue diplomacy since 2006. Formerly, she was Director, Office of Development Studies, United Nations Development Programme (UNDP), New York (1995-2005); Director, Human Development Report Office, UNDP, New York (1989-1994); Senior evaluation officer and policy analyst, UNDP, New York (1986-1988); Deputy resident representative of UNDP in Afghanistan and Laos (19981-1985). She is a member on several boards, panels and commissions such as the Advisory Board on International Cooperation, Ministry for European and International Affairs, Government of Austria (since 2007), Advisory Board,

Journal of Global Policy (2009 -), Advisory Group on Technical Assistance and Cooperation, International Atomic Energy Agency (2008-), Commission on Macro-economics and Health, Working Groups 2 and 6 (2000-2002), Editorial Board, Global Governance Journal (2000-), Expert Group on Financing International Cooperation (2009 -), External Advisory Panel, Human Development Reports (2006 and 2007), Governing Board, Economists for Peace and Security (2000-2005), International Task Force on Global Public Goods (2002-2006), Scientific Advisory Board, Cournot Centre for Economic Research (2003-) and the Scientific Advisory Board, International Network for Economic Research (2003-). She has several well-known books and articles to her name.

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Ms. Sudha Mahalingam is Member, Petroleum and Natural Gas Regulatory Board, Govt. of India. She was formerly Senior Fellow at the Nehru Memorial Museum and Library. An economist and lawyer by training, she specialises in reforms and energy security. Her focus areas are energy regulation, tariff setting and the geopolitics of energy security. She has also served as Senior Fellow at the Institute for Defence Studies and Analyses, New Delhi, where she headed a Cluster on Energy, Environment and Economy. She has several publications in refereed journals and books and writes regularly in national newspapers on energy-related issues.

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Dr. Ligia Noronha is Director of Resources, Regulation and Global Security Division at TERI. She was Secretary of the Asian Energy Institute (2005-2011) a network of Asian and non Asian institutes, Coordinator of Renewable Energy and Energy Efficiency Partnership (REEEP) South Asia from 2005-2009, and the Michael Hintze Energy Security Senior Fellow at the Centre for International Security Studies, (CISS) University of Sydney, Australia, 2009-2011. She serves on several expert panels of the Government of India. She is also on the Advisory Board of the European Centre for Energy and Resource Security (EUCERS), King's College London (since 2010); She has a Masters in Economics from the University of Bombay, a Masters in Sea Use Law, Economics, and Policy, and a PhD from the London School of Economics. She has several publications on energy and resources issues and is active in national and international resources policy fora.

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Dr. Nik Senapati is the Managing Director of Rio Tinto India. Nik's experience with Rio Tinto spans 30 years having worked in a wide range of exploration, mining, strategy, business improvement and operating roles. He has run Rio Tinto's bauxite operations in Queensland and its coal operations in New South Wales both of which had a high focus on the community relations and sustainable development. Nik's schooling was in Dehra Dun and initial degree was in Geology from St Xavier's College, Bombay University. He has further degrees from Oxford University and a PhD in Geology from Wollongong University, Australia. Nik is based in Delhi where Rio Tinto India has a corporate office.

Mr Prabir Sengupta is Distinguished Fellow at TERI. He has a Masters Degree in Economics, joined IAS in 1965 and held a number of important positions. This is the second stint of Mr Sengupta in TERI. From TERI he went to the Planning Commission in 1995 as an Additional Secretary. He was the Adviser, Energy & Project Appraisal Divisions there. Thereafter,

he was Secretary, Deptt. of Heavy Industries & Chairman, Maruti. His next assignment was Secretary, Defence Production. He moved then as Secretary, Petroleum & Natural Gas and was able to sign an MoU with the Energy Minister of Qatar for supply of LNG to Petronet LNG, a joint sector organization which was made active & functional during his time. He was also instrumental in dismantling the Administered Pricing Mechanism in Petroleum. His last posting in Government. was as Commerce Secretary and he led the delegation of officers to Doha Ministerial Meeting of WTO in 2001. India fought against inclusion of Singapore issues (four clearly non-trade issues introduced in the Singapore meeting in 1996) in the Trade Negotiation charter and was able to have its way inspite of being isolated. After retirement from Government, he was Director, Indian Institute of Foreign Trade, a Deemed University, which significantly improved its ranking among business schools in India in the last few years. He retired from IIFT in January 2007. Apart from being in TERI, he is also associated now with CII as Principal Adviser.

Mr. Surya Sethi was formerly the Principal Adviser (Energy) with the Planning Commission. He completed his engineering and business management degrees in 1974, and has worked in some 30 countries worldwide in the field of infrastructure, capital markets and industrial enterprises across a variety of sectors. Most recently, as Chief Investment Officer at the International Finance Corporation (IFC), Mr. Sethi's Energy Portfolio included Power, Hydrocarbons, Energy Efficiency, Renewables and Climate Change initiatives. Mr. Sethi started his career in the Tata Administrative Services and was head of International Projects at Tata Enterprises Overseas prior to joining IFC in 1984. Mr. Sethi's worldwide experience covers private and public sector industrial/financial institutions, multilateral and bilateral agencies, governments and their agencies, and non-governmental organisations. Mr Sethi was earlier Additional Secretary to the Govt. of India (Adviser, Power & Energy, Planning Commission).

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Dr. Frank Umbach is Senior Associate and Head of the Programme "International Energy Security" at the Centre for Euro-pean Security Strategies (CESS) GmbH, Munich-Berlin (since 2008) & Associate Director des European Centre for Energy and Resource Security (EUCERS), King's College London (since 2010); previously he worked at the German Council on Foreign Relations (DGAP) in Bonn and Berlin (1996-2007), at the Federal Institute of East European and International Affairs (BIOst) in Cologne (1991-1994), at the Japan Institute for International Affairs (1995-96) and the Office of the Secretary General of NATO (1992). He's an energy security expert with a regional expertise on Russia, the Caspian Region, Asia-Pacific (i.e. China and Japan), EU and Germany – i.e. energy (supply) security, energy foreign policy, geopolitical risks, global energy challenges and unconventional gas. Consultancy work for the German Ministries of Foreign Affairs and Defence Policies; European Commission and European Parliament, US-State Department, US Energy Department, U.S.-China Economic and Security Review Commission (US-Congress), the Lithuanian Government, the House of Lords (British Parliament), NATO, the OSCE, and the Polish Foreign Ministry. Author of more than 300 publications in more than 25 countries, including the co-authored study ""Strategic Perspectives of Unconventional Gas in Europe: A Game Changer with Implications for the EU's Common Energy Security Policies", EUCERS-Strategy Papers, Vol. 1, No. 1, May 2011, London, 59 pp. and regular author for the "Geopolitical Information Service" (GIS;).

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