

Mildner, Stormy (Ed.); Richter, Solveig (Ed.); Lauster, Gitta (Ed.)

Research Report

Resource scarcity - A global security threat?

SWP Research Paper, No. RP 2/2011

Provided in Cooperation with:

Stiftung Wissenschaft und Politik (SWP), German Institute for International and Security Affairs, Berlin

Suggested Citation: Mildner, Stormy (Ed.); Richter, Solveig (Ed.); Lauster, Gitta (Ed.) (2011) : Resource scarcity - A global security threat?, SWP Research Paper, No. RP 2/2011, Stiftung Wissenschaft und Politik (SWP), Berlin

This Version is available at:

<https://hdl.handle.net/10419/253106>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

SWP Research Paper

Stiftung Wissenschaft und Politik
German Institute for International
and Security Affairs

Stormy-Annika Mildner, Solveig Richter and Gitta Lauster (eds.)

Resource Scarcity – A Global Security Threat?

RP 2
March 2011
Berlin

All rights reserved.

© Stiftung Wissenschaft
und Politik, 2011

SWP Research Papers are
peer reviewed by senior
researchers and the directing
staff of the Institute. They
express exclusively the per-
sonal views of the author(s).

SWP

Stiftung Wissenschaft
und Politik
German Institute
for International
and Security Affairs

Ludwigkirchplatz 3-4
10719 Berlin
Germany
Phone +49 30 880 07-0
Fax +49 30 880 07-100
www.swp-berlin.org
swp@swp-berlin.org

ISSN 1863-1053

Translation by Meredith Dale

Translation of a short version
of SWP-Studie 5/2011:
Stormy-Annika Mildner (ed.),
Konfliktrisiko Rohstoffe?
Herausforderungen und Chancen
im Umgang mit knappen
Ressourcen (Berlin: Stiftung
Wissenschaft und Politik,
February 2011).

Table of Contents

5	Problems and Recommendations
7	Competition for Scarce Resources
7	Raw Materials – Scarce and Expensive?
7	Price Drivers
11	How Well Do the Markets Function?
13	Competition + Scarcity = Conflict?
13	From Competition to Conflict
15	Inter-State Conflicts
16	<i>Water: Rivalry over International Rivers</i> Marianne Beisheim, Tobias von Lossow, Stephan Roll and Andrea Schmitz
20	<i>Land Grab: Agriculture and Food</i> Bettina Rudloff and Martin Kurray
23	<i>Energy Resources: Oil Price Fluctuations</i> Jörn Richert
25	<i>Metals: The Case of Rare Earths</i> Hanns Günther Hilpert, Stormy-Annika Mildner, Gitta Lauster and Florian Wassenberg
28	Conclusions and Recommendations
30	Abbreviations

Resource Scarcity – A Global Security Threat?

In 2003, the EU's European Security Strategy identified "competition for natural resources" as a global challenge. According to the 2004 report of the *High Level Panel on Threats, Challenges and Change*, appointed by former UN Secretary-General Kofi Annan, shortages of natural resources can contribute to unrest and civil violence. The UNEP Expert Advisory Group on Environment, Conflict and Peacebuilding noted in 2009 that "as the global population continues to rise, and the demand for resources continues to grow, there is significant potential for conflicts over natural resources to intensify in the coming decades". Resource scarcity is increasingly perceived as one of the greatest security risks of the twenty-first century.

For a decade we have been living through a period of great turbulence in the commodity markets. Rapidly rising demand, in particular from the emerging economies – first and foremost China –, has led to steep price hikes, while supply struggles to keep pace. According to the European Parliament, the price of non-fuel commodities rose by 159 percent, metal and mineral prices by 285 percent and agricultural raw material prices by 133 percent between 2002 and 2008. Although this trend was temporarily interrupted by the 2008–2009 financial and economic crisis, the global recovery in 2010/2011 has caused prices to jump sharply again. Rising and sometimes highly volatile prices, strong geological and market concentration, and state intervention in the commodity markets all stoke fears of future supply bottlenecks and an expectation of ensuing international tension and violent confrontation. The list of recent incidents is long: the gas dispute between Russia, Ukraine and the EU; food revolts in Haiti, Tunisia and Algeria; China's trade conflict with the United States and the EU over export restrictions imposed on many metals; and the confrontation between China and Japan over China's export ban on rare earths to name just a few. Governments around the world are currently developing new resource strategies to address these challenges.

Without doubt, increasing competition for natural resources poses considerable conflict potential. It can further destabilise already fragile countries and regions or inject tension into otherwise cooperative inter-state relations, so conflict risks are found at different levels: within the producing and consuming countries and in relations between them. But the phenomenon of competition leading directly to conflict is not observed in every case. A clear and direct causal relationship between resource scarcity and conflict is empirically hard to prove. Sometimes we even find new patterns of cooperation emerging. The central questions of our study are therefore: Under what circumstances does resource scarcity lead to conflicts? And how can latent and acute conflicts over scarce resources be contained and regulated?

Increasing demand,
shortage of supply...

... can lead to resource
conflicts

Findings Our central findings are:

- ▶ *Distribution and access*: Conflict potential is not a function of absolute scarcity, in terms of physical reserves of a resource. Inequality of distribution and access are the decisive factors. Geographical and market concentration are strong in a number of natural resources and deposits are often located in politically unstable states. This increases the potential for conflict.
- ▶ *Dependencies and interdependencies*: Countries differ in their vulnerability to shortages and price fluctuations. Mutual interdependencies can offer incentives for cooperation, while one-sided dependency often threatens to worsen conflict.
- ▶ *Conflict causes*: Conflicts over resources are rarely driven by pure (economic) competition. However, the risk of escalation increases where resource competition becomes linked with other causes such as internal power struggles between governing elites or regional dominance ambitions.
- ▶ *Perception and “securitisation”*: Whether competition over a resource leads to conflict depends not only on objective problems with access and allocation. How the situation is presented by politics and media and how the different actors perceive it subjectively are also important. Inflamed rhetoric and fear-mongering intensify perceptions of threat and lead to a “securitisation” of economic disputes.
- ▶ *Problem-solving capacities*: Whether competition actually leads to latent or manifest conflict ultimately depends on the problem-solving capacities (and will) of the involved actors and institutions.
- ▶ *Resource management and governance*: A variety of instruments exists to reduce conflict risk and contain existing conflicts. These include national resource management, resource governance and dispute settlement instruments. While some of these instruments have already demonstrated their effectiveness, others are still in the making.

Recommendations If inter-state resource conflicts are to be avoided or contained, it is important to de-polemise the political and media discourse and improve the information situation. It is also evident that purely sectoral approaches are doomed to failure. What is needed is an integrated and inter-departmental approach to resource strategy that ties together economic and development policy, foreign and security policy, environmental and technology policy. This approach should rest on three pillars: good resource management, comprehensive resource governance and robust conflict regulation. The EU adopted a resource strategy pursuing such goals at the end of 2005, and Germany followed in 2006. The new German resource strategy for metals of autumn 2010 and the European Commission’s new resource strategy published at the beginning of 2011 offer a solid basis for a more comprehensive resource policy.

Competition for Scarce Resources

Raw Materials – Scarce and Expensive?

Natural resources are, according to the WTO, “stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption”¹, including renewable (water, land, forest, fish, etc.) and depletable resources (minerals, metals, oil, diamonds, etc.). Finite, non-renewable resources formed during the course of the earth’s history: rock formations, sediments, salts and fossil fuels such as crude oil, natural gas, coal, lignite and peat. Although they are replenished in geological cycles, this does not occur within any human timeframe. Certain finite non-renewable resources (including most metals) are recyclable, meaning that they can be physically reprocessed for reuse. Renewable resources regenerate naturally. We distinguish between those that are subject to depletion (soil, woodland, groundwater, biofuels) and those that are infinite (solar, tidal, wind, geothermal).

Defining resources

How scarce a natural resource actually is depends on the substance and its properties. The central indicators of scarcity are geological availability, the static range of reserves (static life index) and price. The static life index, which is used mainly to determine the scarcity of finite resources, is the ratio of current known reserves to current annual consumption. However, it represents only a snapshot in a dynamically changing system. It takes no account of the way rising prices make it worthwhile to exploit new reserves and develop substitutes. It does not account for innovation and recycling. And it disregards changes in underlying political conditions. A better indicator for scarcity is the price, which is not determined only by the physical availability of a resource, but much more by the relationship between supply and demand. In other words, scarcity is not the same as rarity (in terms of absolute occurrence). A rare resource is not scarce if there is no demand for it.

Measuring scarcity

Price Drivers

The turn of the century brought sharply increasing prices in all major commodity markets, including energy, metals and minerals and agricultural commodities. Between 2002 and 2008, the price of non-fuel commodities rose by 159 percent, metal and mineral prices by 285 percent and agricultural raw material prices by 133 percent.² While the prices of many

Increasing prices,
high volatility

Continues on p. 10.

¹ WTO, *World Trade Report 2010: Trade in Natural Resources* (Geneva, 2010), 46.

² “Raw Materials: Heading for a Global Resource Crunch?”, *EurActiv*, 26 July 2010, <http://www.euractiv.com/en/sustainability/raw-materials-heading-global-resource-crunch-links-dossier-188526>.

How scarce are resources?

Water

Our reserves of “blue gold” are not as large as one might think. Only 2.5 percent of global water resources are fresh water and only 0.3 percent are relatively easily accessible in lakes and rivers with short replenishment cycles. The replenishment rates of freshwater resources vary strongly between regions and depend heavily on precipitation rates in the catchment area. For example, the groundwater in fossil aquifers under the Sahara desert is millions of years old and is not renewed at all anymore. Global water consumption has increased six-fold since 1930, due to the combination of population growth and increasing per capita water consumption. Most water is used by agriculture (70 percent), followed by industry (20 percent) and domestic households (10 percent). Population growth and urbanisation will ensure that water consumption continues to increase; the strongest growth is expected in agriculture where the expansion of irrigation will lead to increased demand, above all in developing countries. The extent of resource scarcity is measured as “water stress”, which is especially severe in the Middle East and parts of Africa. The OECD Environmental Outlook to 2030 (2008) forecasts that the number of people living in regions affected by water stress will increase by one billion by 2030. That would take the total to more than 3.9 billion, affecting half the world’s population and 80 percent of the population of the developing countries.

Food

The quality and quantity of food production depends on the availability of other resources. Climate and weather, soil quality, and the availability and quality of water, fodder and fertiliser are decisive factors. While continuous (but declining) increases in production ensure that there is currently no scarcity on a global scale, three decisive factors are likely to cause food prices to rise and especially to fluctuate more strongly with periods of regional scarcity. Firstly, demand for agricultural products (driven by population growth) will increase more rapidly than supply. The area of globally available agricultural land is limited and significant research-driven productivity increases are not to be expected. Secondly, the displacement effect of biofuel cultivation (heavily promoted in OECD countries) will get worse. Thirdly, the WTO’s Uruguay Round of trade talks initiated a process of global agricultural liberalisation which has already led to cuts in subsidies and surpluses. When unexpected weather events like droughts coincide with falling surpluses there will quickly be a shortage of mobilisable reserves. Then, as we saw in 2008 and observe again now, the markets will respond with surging prices.

How scarce are resources?

Oil

Oil is currently the world's most important energy source, supplying 34 percent of primary energy. The International Energy Agency (IEA) predicts that global oil demand will grow by an average of 1 percent annually until 2030. That would take demand from 85.2 million barrels per day in 2007 to 105.2 million in 2030. Demand in industrialised countries should fall slightly, while the importance of emerging economies should increase. China alone is forecast to account for about 42 percent of growth in demand. This will create further upward pressure on the oil price, which has already risen sharply since the turn of the century. Price volatility has also increased notably, partly because of a reduction in short-term spare capacity. Speculation also causes prices to fluctuate more strongly. The increasing regional concentration of oil production represents another challenge. Whereas the OPEC states are expanding production and, according to the IEA, will probably account for 52 percent of the global oil supply by 2030 (up from 44 percent in 2007), production outside OPEC is stagnating. Only 12.3 percent of global oil reserves are in the hands of private corporations (international oil companies), while 87.7 percent are in state ownership.

Metals

There are no grounds to fear metal ores running out any time soon, but prices are likely to continue to rise. Prices are driven by long-term structural and short-term cyclical factors. The most important structural factor is the "China effect" created by strong and rising demand from China. The second decisive structural factor is technical innovation in electronic and environmental products which has pushed up demand for many metals. Increasing cost of fuels (adding to production and transport costs) and supply bottlenecks (for example following natural disasters in mining areas) also impact prices. Furthermore, dollar weakness, low interest rates and inflation fears are leading to massive investment and speculation in the metal markets. Whether a metal is classified as critical on the basis of available reserves, required quantities or functional necessity depends to a great extent on the particular country. In 2010 the European Commission identified fourteen mineral raw materials as critical for Europe: antimony, beryllium, cobalt, fluorspar, gallium, germanium, graphite, indium, magnesium, niobium, platinum group metals, rare earths, tantalum and tungsten.

commodities collapsed in the course of the 2008–2009 crisis, they quickly shot up again as the world economy recovered. Whereas a barrel of oil cost \$50 in January 2009, the price has now returned to over \$100 (February 2011).³ Developments for industrial metals such as copper are even more dramatic: Two years ago a tonne still cost about \$3,000, while the analysts from Barclays Capital expect that the average copper price in 2011 could be \$9,950 per tonne.⁴ Grain prices have hit new highs; in December 2010 the FAO's price index for the most important basic foodstuffs (such as wheat and rice) reached the highest level since it was introduced in the early 1990s. This development was exacerbated in 2010–11 by droughts in Russia and Argentina and flooding in Pakistan and Australia. Export restrictions of the kind Russia applied to grain and China threatened for rare earths inflame anxieties that feed commodity speculation. Recently the World Energy Council warned of Germany's increasing vulnerability in energy supplies,⁵ while the EU Commission classified numerous metals as critical for European industry.⁶ The FAO also warns that it expects new agricultural price shocks and supply shortages in 2011.⁷ Although the number of malnourished people worldwide fell slightly in 2010, rising food prices remain a problem.

Long-term and short-term factors

The foremost cause of the price increases of recent years has been increasing demand, whereby we can distinguish between (long-term) structural and (short-term) cyclical effects. Strong demand from the rising emerging economies (especially China) is largely responsible for the long-term surge in demand since the turn of the century, along with changes in demand structure through the growth of particular sectors such as IT and environmental technology. Other long-term trends that could lead to future scarcity of resources are demographic developments (with the global population set to grow by one third by 2050), urbanisation (and associated increases in material, water and energy use), changing patterns of consumption and mobility caused by rising incomes (especially in developing countries) and last but not least climate change. In the short term prices are determined by cyclical factors. Before the financial crisis rising production and freight costs drove prices, alongside growth-led demand. Speculation also played an increasing role.

³ Oil Price Net, <http://www.oil-price.net/>.

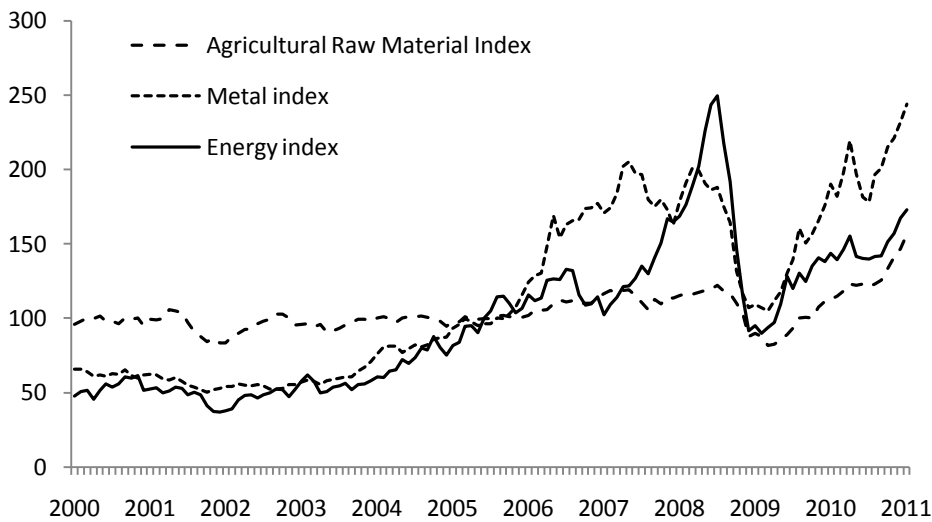
⁴ Carole Vaporean, "Copper to Stay High, Avg \$9,950 a Tonne in '11 – Barclays", *Reuters*, 9 December 2010, <http://uk.reuters.com/article/2010/12/09/idUKN0924272920101209>; London Metal Exchange, LME Copper Price Graph, http://www.lme.com/copper_graphs.asp.

⁵ Hans Georg Buttermann and Florian Freund, *Sicherheit unserer Energieversorgung – Indikatoren zur Messung von Verletzbarkeit und Risiken*, study commissioned by Weltenergierat Deutschland (Berlin, 2010).

⁶ European Commission, DG Enterprise and Competition, *Critical Raw Materials in the EU: Report of the Ad-hoc Working Group on Defining Critical Raw Materials* (Brussels, 2010), http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/report-b_en.pdf.

⁷ FAO, *Food Outlook: Global Market Analysis*, November 2010, <http://www.fao.org/docrep/013/a1969e/a1969e00.pdf>; see also Amulya Nagaraj, "FAO Warns of 'Food Price Shock' in 2011", *International Business Times*, 7 January 2011, <http://africa.ibtimes.com/articles/98112/20110107/food-price-commodities.htm>.

Figure 1
rices for agricultural commodities, energy and metals 2000–2010
(2005 = 100)



Source: IMF, *Primary Commodity Prices*, <http://www.imf.org/external/np/res/commod/index.asp>.

How Well Do the Markets Function?

Competition is not the same as conflict. If the free market functions properly, its mechanisms set a price that creates equilibrium of supply and demand, thus resolving competition and rivalry. Under a proper legal framework the price mechanism represents a fundamentally peaceful way of assigning scarce resources to different purposes (allocation). In the longer term, capacity adjusts: as demand increases the price rises and more capital is invested to expand production. Especially in the commodity markets, this mechanism, however, often fails to function adequately. As the markets for energy and metals demonstrate, the poor quality of available data often leads to a lack of transparency concerning price formation, payments and income. Strongly fluctuating prices create planning insecurity and discourage necessary investment to expand capacity. With many resources there is also strong concentration on the supply side (geographical and/or commercial ownership). Barriers to investment and market entry, oligopolistic structures and uncertainty about future demand hamper investment, as do high capital costs, long investment periods (with returns only after several years) and investment risks.

Imperfect markets

Numerous other mechanisms apart from price affect the allocation of resources: sovereign power, state rationing, illegal exploitation and brute force. The commodity markets feature strong state intervention motivated by economic, social and ecological objectives, including state stockpiling of reserves, taxes, subsidies, export restrictions, import tariffs and quotas. More and more countries are intervening in the primary commodity markets, restricting exports. According to the OECD, the number of countries applying export duties during the period 2003 to 2009 was noticeably

Allocation mechanisms

higher than in previous years.⁸ Motivations for implementing restrictions are manifold: to nurture infant industries, to underpin social policy and income distribution, to buttress government revenues, to protect the environment and to preserve natural resources. During the food crisis of 2007/2008, dozens of countries imposed various forms of export restriction to secure domestic supplies of foodstuffs. According to the FAO, around one-quarter of the sixty low-income countries surveyed had some form of export restriction in place on food-related agricultural products in 2008.⁹ While intervention at the national level is often pursued to rectify market failure, it seldom succeeds and instead creates international market distortions. This is a potential source of conflict.

⁸ Jeononghoi Kim, *Recent Trends in Export Restrictions*, OECD Working Paper 101, 2010, 5.

⁹ Siddhartha Mitra and Tim Josling, *Agricultural Export Restrictions: Welfare Implications and Trade Disciplines*, IPC Position Paper, Agricultural and Rural Development Policy Series, January 2009, 4, http://www.agritrade.org/documents/ExportRestrictions_final.pdf.

Competition + Scarcity = Conflict?

From Competition to Conflict

The Heidelberg Institute for International Conflict Research defines conflicts as: “Clashes of interest (differences of position) concerning national values (territory, secession, decolonization, autonomy, system/ideology, national power, regional predominance, international power, resources, other). These clashes are of a certain duration and scope, involving at least two parties (organized groups, states, groups of states, organizations of states) determined to pursue their interests and win their cases.”¹⁰ *Resource conflicts* arise when peaceful allocation mechanisms regulating competition for scarce resources fail and the parties seek to resolve matters for themselves without hesitating to threaten or actually apply coercive economic or political measures or use force. What begins as mere rhetoric (latent conflict), may intensify into the threat (manifest conflict) or actual use of violent force (crises and wars).¹¹ For example, the states along the Amu Darya and Syr Darya in Central Asia are embroiled in a conflict over the use of these rivers and the distribution of their resources. As well as repeated verbal threats (manifest conflict), the dispute has led to coercive economic measures such as cutting off energy supplies. Competition over access to fishing grounds can also lead to violent conflict; although in the “cod wars” of the 1950s and 1970s between Britain and Iceland force was used in sporadic incidents rather than in a systematic and organized way (manifest conflict to crisis).

Resource conflicts

In statistical terms, resource conflicts are a serious phenomenon. Although resources were the second most frequent item in the 363 conflicts recorded in 2010 (80 cases representing 22 percent; after system/ideology with 117 cases), the Heidelberg Institute’s Conflict Barometer documents only seven cases where resources were the sole cause. In almost all conflicts over resources other motives were equally important: territory (24 cases), regional predominance (24), system/ideology (14), autonomy and secession (9 each). Nor are resource conflicts particularly escalatory: resource conflicts were violent in only 44 percent of cases, while other conflict items were far more violent (secession ranked first with two thirds of the conflicts being violent, regional predominance ranked second with 58 percent). All seven pure resource conflicts in 2010 were low-intensity. In the 49 higher-intensity conflicts (severe crisis or war), resources appeared (among other conflict items) in only six cases. The Conflict Barometer

Growing conflict potential

¹⁰ Heidelberg Institute for International Conflict Research, “Methodological Approach since 2003”, http://hiik.de/en/methodik/methodik_ab_2003.html.

¹¹ Jörn Richert and Solveig Richter, “Kooperation und Eskalation: Warum Rohstoffknappheit nicht zwangsläufig zu Konflikten führt”, *Internationale Politik* 64, no. 11–12 (November/December 2009): 10–16.

shows no evidence of resources being a dominant cause of conflicts of medium or low intensity. Only in 29 of 203 crises with sporadic use of violence did resources play a role (14 percent); in 305 low-intensity (manifest or latent) conflicts without use of force, resources appeared in 45 cases.¹² Nor can we discern an escalation of resource conflicts. Only ten of 80 conflicts involving resources worsened in 2010 in comparison with 2009. In the bulk of cases the intensity remained constant (55 cases) or even fell (13); one ended, one conflict was new.¹³

Resource conflict:
distribution and access

As the Heidelberg Institute's data shows, there are three types of conflict involved here. *Resource conflicts* in the narrow sense are about the resource itself and access to it, for example where state intervention in the commodity markets or export restrictions artificially restrict the international supply. Attempts to secure access to foreign resources through direct investment can also cause conflicts. We can observe one example of such *market access and allocation conflicts* in the trade in rare earths, where the monopoly supplier China has imposed strict controls restricting exports to consumers such as the EU and the United States.

Conflict resources and
power struggles

But the term resource conflict is also frequently used as a synonym for another type of conflict. Here the conflict is not about the resource itself; instead the resource serves as a means of pressure for pursuing other objectives, or revenues generated by selling resources are used to finance conflicts driven by other motives (such as autonomy, secession or territorial disputes). Here it would be more exact to speak of resources as *conflict resources* in *power struggles*. Two typical examples of instrumentalisation of resources are the involvement of rebel groups in coltan mining in the Democratic Republic of the Congo and the trade in "blood diamonds" in Sierra Leone. Another example of the instrumentalisation of natural resources for a power struggle is China's temporary ban on exporting rare earths to Japan, imposed following a collision between a Chinese fishing boat and a Japanese naval patrol vessel. The real reason behind the export ban had nothing to do with rare earths, and everything with a festering territorial dispute over the Senkaku Islands and their oil- and gas-rich territorial waters. In this case rare earths functioned as a conflict resource that China used to apply pressure.

Regulatory conflicts

As well as market access and power conflicts, we also observe *regulatory disputes* triggered by differing ideas about how the use of natural resources should be regulated. For example, the background to the biofuel dispute between the EU and Brazil is largely that the strategies of the two sides are shaped by different and incompatible normative goals. Whereas Germany and the EU are primarily interested in achieving climate targets, and accordingly restrict the import of non-sustainably produced biofuels, the United States seeks to reduce its energy dependency and Brazil wishes to increase its exports.

¹² A single conflict may appear in several different categories.

¹³ Heidelberg Institute for International Conflict Research, "Conflict Barometer 2010", http://www.hiik.de/de/konfliktbarometer/pdf/ConflictBarometer_2010.pdf.

The dividing lines between the different conflict types are fluid, especially where economic competition over exploitation of a conflict resource becomes a cause of conflict in its own right. The case of direct investment in land in Madagascar is revealing in this respect: The more foreign direct investment impacted the food supply in Madagascar, the more successfully were social groups in a politically unstable environment able to instrumentalise this resource for power interests.

In addition, there is not always a direct causal link between resources and conflict, its duration and its intensity. Whether, when and how a conflict occurs often depends on the perceptions of those involved. Accordingly, we can observe resource conflicts that are based more on politically perceived vulnerability than any significant real economic weakness.

Finally, resource conflicts are often the result of a politicisation and subsequent “securitisation” of a supposed situation of scarcity. One party either links the scarcity of a resource together with other conflict items or interprets it as threat to its own (national) security. The consequence is that peaceful allocation mechanisms no longer resolve competition over the resource, and other goals and instruments – such as geostrategically driven policy – play a greater role. This creates complex conflict constellations that are steeped in multicausality and encompass other conflict items besides scarcity of resources.

Perceptions as
conflict driver

Securitisation of
resource scarcity

Inter-State Conflicts

Risks and potential for conflict are found at various levels both within the resource-producing and -consuming countries and in the relationships between them. Competition over resources can internally destabilise a country that is already politically fragile or inject tensions into otherwise cooperative diplomatic relations. Although the Conflict Barometer shows that most resource conflicts in 2009 were intra-state, they can also blight relations between states.

All three types of resource conflict also occur between states. In the following, we examine examples illustrating market access, regulatory and power conflicts.

Inter-state
conflicts

Water: Rivalry over International Rivers

Marianne Beisheim, Tobias von Lossow, Stephan Roll and Andrea Schmitz

Rivalry over the use of water is a problem as old as civilisation itself, and empirical studies show a history of violent conflicts over the management of this resource.¹⁴ But the idea of “water wars”, which became fashionable in the early 1990s, cannot be confirmed empirically.¹⁵ In fact, peaceful co-operation prevails.¹⁶ The latest data from the Transboundary Freshwater Dispute Database for the period 2000 to 2008 confirms this: 33 percent of events are classified as conflictual, 63 percent as cooperative.¹⁷

Even if no war between states has yet been fought exclusively over water, we do find a water component in many conflicts understood as territorial, social, ethnic or religious.¹⁸ Examples would include inter-state conflicts below the threshold of war (for example between India and Pakistan) and above all often ethno-politically charged sub-state conflicts (such as those in Africa among nomads or between nomads and settled herders).¹⁹ The issue of water affects conflicts in different ways: Initially as a cause (usually one of many), then sometimes as a catalyst acting to escalate strife or accelerate peaceful resolution. Finally, conflicts over other issues generally also have repercussions on water resources, for example where fighting leads to water shortages or pollution.

Conflict-promoting factors

The literature distinguishes various conflict scenarios and necessary conditions for the outbreak of violence.²⁰ One potentially conflict-pro-

14 The etymological roots of the term “rival” are found in competition over use of a stream or river (Latin rivus, rivalis).

15 J. R. Starr, “Water Wars”, *Foreign Policy* 82 (1991): 17–36; J. Bulloch and A. Darwish, *Water Wars: Coming Conflicts in the Middle East* (London, 1993). For the latest example see also Cleo Paskal, *Global Warring: How Environmental, Economic, and Political Crises Will Redraw the World Map* (New York: Palgrave Macmillan, 2010).

16 Transboundary Freshwater Dispute Database, <http://www.transboundarywaters.orst.edu>.

17 UNESCO and World Water Assessment Programme, *Updating the International Water Events Database*, dialogue paper (Paris, 2009).

18 Frank Biermann, Gerhard Petschel-Held and Christoph Rohloff, “Umweltzerstörung als Konfliktursache?”, *Zeitschrift für internationale Beziehungen* 2 (December 1998): 304–308; Susanne Neubert and Waltina Scheumann, “Kein Blut für Wasser: Wasserknappheit muss nicht zu Kriegen führen”, *Internationale Politik* 58, no. 3 (2003): 31–38.

19 See for example the work of Peter H. Gleick and his colleagues, who compile a comprehensive chronicle of different types of water conflict: <http://www.worldwater.org/conflict/index.html>. Also widely discussed: Vandana Shiva, *Der Kampf um das blaue Gold: Ursachen und Folgen der Wasserverknappung* (Zurich: Rotpunkt, 2003).

20 For example: Annabelle Houdret, *Knappes Wasser, reichlich Konflikte? Lokale Wasserkonflikte und die Rolle der Entwicklungszusammenarbeit*, INEF Policy Brief 3/2008 (Duisburg: Institut für Entwicklung und Frieden, 2008); Annabelle Houdret, *Wasserkonflikte sind Machtkonflikte: Ursachen und Lösungsansätze in Marokko* (Wiesbaden, 2010); Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (WBGU), *Wege zu einem nachhaltigen Umgang mit Süßwasser* (Berlin, 1997); Günther Baechler and Kurt R. Spillmann, *Ökologische Konflikte in der Dritten Welt und Wege ihrer friedlichen Bearbeitung* (Chur et al.: Rüegger, 1996).

moting factor is the marginalisation of population groups on the basis of income, social status, religion, ethnicity or political affiliations, generally preceding the actual escalation of a “water conflict”. Reduced access to the resource is then the triggering factor rather than the sole cause. It is expected that demographic trends will heighten the potential for conflict. Forecasts for the most susceptible regions – Amu Darya and Syr Darya, Ganges, Jordan, Nile and Tigris/Euphrates – predict population growth of 30 to 70 percent over the coming 25 years.²¹ The degree of asymmetry (in terms of the balance of power between upstream and downstream countries) also has a bearing on the chances of conflict resolution.

Globally, 263 international watercourses pass through the territory of 145 states which hold 40 percent of the world’s population and 60 percent of its fresh water.²² Nineteen of these transboundary rivers pass through more than five states. Conflicts between upstream and downstream countries are often sparked by dam-building projects such as China’s Three Gorges Dam on the Yangtze river or Ataturk Dam on the Euphrates.²³ Analysis of the constellations on the Amu Darya and Syr Darya (the two main rivers flowing into the Aral Sea) and on the Nile reveals many of the aforementioned conflict risks; the regions through which these international rivers pass are extremely risk-rich.²⁴

These two examples show how conflict potential grows in proportion to the sensitivity of the distribution issues between upstream and downstream countries. In both cases the conflict constellation is characterised by an asymmetrical dependency between upstream and downstream countries that gives the upstream countries the power to instrumentalise water as a conflict resource. Corresponding fears permeate the perceptions of the downstream countries. Although in the past arrangements have usually been found to prevent further escalation, neither river system has yet found a lasting and sustainable solution. Institutions of resource governance are rudimentary at best, and in both cases they largely ignore the issue at the heart of the conflict: water distribution and its importance for power generation and food production.

In both cases the cause of suboptimal resource governance is the lack of political will to set aside national self-interest for the sake of a comprehensive solution to the resource problem. Heavy politicisation hampers constructive problem-solving, in particular in connection with the colonial and Soviet legacies and through instrumentalisation of the high-profile

Competition over use of international watercourses

Amu Darya and Syr Darya, Nile

Resource nationalism

²¹ Sandra Postel, *Der Kampf ums Wasser: Die Chancen einer bedarfsorientierten Verteilungspolitik* (Schwalbach am Taunus: Wochenschau-Verlag, 1999); see also Sandra Postel and Brian Richter, *Rivers for Life: Managing Water for People and Nature* (Washington, D.C.: Island, 2003).

²² UNESCO, *First UN World Water Development Report: Water for People, Water for Life* (Paris, New York and Oxford, 2003), 303.

²³ WBGU, *Wege zu einem nachhaltigen Umgang mit Süßwasser* (see note 20), 185f.

²⁴ Maplecroft, *Water Security Risk Index 2010*, <http://www.maplecroft.com/about/news/water-security.html>. Maplecroft names the following criteria for this assessment: “access to improved drinking water and sanitation; the availability of renewable water and the reliance on external supplies; the relationship between available water and supply demands; and the water dependency of each country’s economy”.

issue of “water” to stir up nationalism and distract from domestic problems or state incompetence. In Central Asia formerly effective compensation models (electricity for water) have lapsed and acute problems are tackled ad hoc through bilateral channels. Similarly, we observe on the Nile that any regional reorganisation of water use rights is overshadowed by arrangements dating from the colonial era. Existing cooperation agreements are thus often one-sided to the detriment of one partner or a third party, and tend to mask or worsen the problem rather than offering sustainable solutions.

Interdependency as opportunity

One central difference between the two cases lies in the specific type of asymmetry between upstream and downstream countries. In the Central Asian case we find an increasingly one-sided dependency of the downstream countries and growing autonomy of the upstream countries, while on the Nile the trend is towards mutual interdependence in terms of regional economic relations as a whole (for example in the agriculture and energy sectors as opposed to purely water-related matters). Thus on the Nile there is more room for broader benefit-sharing. The conflict in Central Asia will therefore tend to be increasingly difficult to regulate, whereas there is a basis for future cooperation in the Nile basin to develop more positively. The danger of a conflict moving from latent to manifest is accordingly greater in Central Asia.

Quality of governance institutions

A further difference consists in the institutional quality of the multi-lateral regional governance institutions, specifically the *Nile Basin Initiative* (NBI) and the *International Fund for Saving the Aral Sea* (IFAS). In both cases international organisations such as the World Bank have intervened energetically to promote cooperative regional conflict-resolution, but with differing degrees of success. In both cases the provision of neutral negotiating forums has heightened awareness of problems and improved mutual recognition as negotiating partners. Both institutions also play a role in organising the transfer of technical expertise and coordinating projects to improve water resource management. In direct comparison the NBI is institutionally better equipped for such tasks in terms of the participation and coordination of the relevant actors and organisations and also the development of implementation and financing instruments. The NBI has established a regional governance institution that offers all the Nile states a broadly recognised forum for negotiations. Even if the NBI has yet to resolve the central distribution conflict, it has produced a number of regional arrangements and embedded bilateral negotiations in a regional framework. Even at that level, the IFAS in Central Asia has little to show for itself. Lacking clear decision-making powers and suffering from inadequate participation, coordination and financing, the IFAS has failed in its efforts to promote regional resource governance and contain interest-driven unilateral and bilateral actions.

The limits of international engagement

In both cases the limits of international institutions and their mediation efforts are exposed when we touch on the heart of the conflict: the lack of political will to compromise on resource-sharing. Although the internationally recognised concept of Integrated Water Resources Management

emphasises the ecological necessity of regional arrangements for trans-boundary rivers, this is often difficult to achieve politically, so in the short term it can certainly make sense to supplement regional negotiations with bilateral agreements. Uncoordinated unilateral or bilateral initiatives that compete with regional resource governance, slow its development or even set out to prevent it offer no route to adequate long-term solutions, however. The political will of the affected states is an indispensable precondition for overcoming such deficits. International governance can assist by improving the framework for regional and inter-governmental negotiations.

Land Grab: Agriculture and Food

Bettina Rudloff and Martin Kurray

Land use and trade conflicts

The growing relative scarcity of the resource land is driving a trend of increasing price volatility for agricultural products (characterised largely by peaks), making strategies to protect against temporary food shortages increasingly important. One such strategy is foreign direct investment (FDI) in land.²⁵ Compared to unrest sparked by food prices and hunger,²⁶ the conflicts and risks associated with FDI in land have received scant public attention, with Madagascar being the only widely known example.

Foreign direct investment in land takes the form of outright purchase or long-term leases of up to 99 years. It is estimated that about 12 million hectares of foreign land were bought or leased globally in 2009, corresponding to a little under 1 percent of the total land used for agriculture. These estimates are subject to great uncertainty, because there are no official recording bodies or reporting duties.²⁷

FDI in land as attractive supply strategy

From the investor perspective, FDI in land is a way of guaranteeing the supply of food or biofuels at home, and is especially attractive where high and rising prices restrict other strategies by making imports more expensive and food aid scarce because of high cost or unattractive to donors because of the possibility of alternative export revenues.²⁸ China is the country with the greatest involvement in FDI in land worldwide, accounting for 20 percent. The main motivation for the Chinese is to grow food, as their country is home to 20 percent of the world's population but possesses only 12 percent of its cultivable land.²⁹ The EU occupies second place with 15 percent of worldwide FDI in land. The main reason for EU members to seek foreign land is not any shortage at home, but the low cost of purchase and cultivation, and their main motive is to produce biofuels.³⁰

Motives for target regions

The regions where most FDI in land takes place are comparatively rich in land and water or possess great potential for increasing agricultural production. Sub-Saharan Africa (including Sudan and Ethiopia) is the most

²⁵ Although the term "land grab" is widely used in the media, we refer the neutral economic term "foreign direct investment in land".

²⁶ Bettina Rudloff, "Aufstand der Ausgehungen: Preisexplosionen, Versorgungskrisen, Brotkrawalle: Wie sie entstehen und was wir dagegen tun können", *Internationale Politik* 64, no. 11/12 (November/December 2009): 38–44.

²⁷ The following estimates are based on the data collected by the NGO Grain (2008), which covers confirmed press reports of FDI projects involving more than 5,000 hectares of land. http://www.grain.org/front_files/landgrab-2008-en-annex.pdf.

²⁸ Apart from the objective of supplying food or fuel, FDI in land can also serve the purposes of capital investment or speculation.

²⁹ ODDO Securities, *Economic Report – Land Grabbing: Myth or Reality?* May 2010, 7f, http://farmlandgrab.org/wp-content/uploads/2010/06/Ece_148506a.pdf.

³⁰ Own calculations using data from the Grain database (see note 27).

important region, with 33 percent of global FDI in land, followed by Asia with 29 percent (including Cambodia and Laos).³¹ The main motivation for these countries is to attract foreign capital. Especially in developing countries, the declining attractiveness of agricultural investment in the long period of comparatively low agricultural prices that lasted until about 2003 has left the agricultural sector increasingly undercapitalised. The agriculture-related share of official development aid fell by two thirds between 1990 and 2008;³² in the aftermath of the financial crisis a rapid recovery is unlikely. In this situation FDI in land offers an opportunity to channel capital into the agricultural sector.³³

From the perspective of the receiving countries, FDI in land can both cause resource conflicts over land – and turn land into a conflict resource. It can cause or worsen shortages that lead to resource conflicts. FDI in land can also have diverse negative ecological effects, for example on biodiversity or on the water cycle, that are not immediately relevant to the question of supply. On the other hand, the strategic instrumentalisation of land and FDI can represent a conflict resource. This instrumentalisation can be pursued by individual social groups or the political elite in order to enforce their own power interests. It is likely that the conflict types are dynamically connected, meaning that the more strongly identifiable the characteristics of a resource conflict the more successful the instrumentalisation of the resource land.

Whether supply problems arise in the receiving country depends on whether foreign investment displaces existing domestic uses. The countries involved are usually characterised by a surplus of agricultural land that is partly unused. The share of agricultural land as a proportion of total land area in these countries varies between 19.4 percent in Cameroon and 86.2 percent in Nigeria.³⁴ Which of these areas pass into foreign ownership is crucial for the local food supply. As a rule the most productive land will be most attractive for investment. In certain countries the proportion of agricultural land affected by FDI is already very high, with the proportion in Laos estimated to be 26 percent.³⁵

Property rights for farmers are typically underdeveloped in the main target countries for FDI in land, with a lack of both land registry systems and actionable land rights. Where such areas can be advertised and sold as officially unused land there is a great risk that FDI in land will displace existing domestic agriculture.

Resource conflict and conflict resource

Factor 1:
Supply risk

Factor 2:
Displacement risk

³¹ Based on Joachim von Braun and Ruth Meinzen-Dick, “‘Land Grabbing’ by Foreign Investors in Developing Countries: Risks and Opportunities”, IFPRI Policy Brief 13, April 2009, and Grain database (see note 27).

³² OECD, ODA database, http://stats.oecd.org/Index.aspx?DatasetCode=ODA_SECTOR.

³³ Other objectives are new sources of taxation, technology transfer and additional investment in rural infrastructure. See ODDO Securities, *Economic Report* (see note 29), 15f.

³⁴ World Bank, *Agricultural Land*, 2007, <http://data.worldbank.org/indicator/AG.LND.AGRI.ZS>.

³⁵ Own calculations using data from the Grain database (see note 27).

Factor 3:
Great poverty As well as supplying food, the agricultural sector in these countries is often a crucial source of income, with the agricultural workforce representing up to 80 percent of total employment.³⁶ This means that changes in agriculture have a huge impact and any loss of this source of income directly affects a large part of the population which is already very poor anyway. Many of the countries involved are “least-developed countries” (LDCs) with annual per capita incomes below \$900.³⁷ The share of the population living below the absolute poverty threshold of \$2 per day is often also very high.

Factor 4:
Social risks In addition to the economic risks, FDI in land also influences the social situation of the rural population. Although there may be improvements in training infrastructure and health care if the investing company builds its own facilities and allows them to be used by the local population, inequalities can just as well arise if foreign staff receive higher incomes than local employees, if they enjoy better access to goods and if immigration leads to large cultural and ethnic differences in the population. Altogether, the extent to which the local population is able to participate in positive changes is decisive for the social risks involved.³⁸

Factor 5:
Governance deficits Whether these risks actually occur depends not least on the governance structures in the target countries. The protection of enforceable property rights or a good health system can minimise economic and social risks. But many of these countries suffer poor-quality governance, with high rates of corruption and weak legal institutions.³⁹

³⁶ World Bank, *Employment in Agriculture*, <http://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>.

³⁷ On the criteria for LDCs see: UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, “The Criteria for the Identification of the LDCs”, <http://www.un.org/specialrep/ohrlls/ldc/ldc%20criteria.htm>.

³⁸ ODDO Securities, *Economic Report* (see note 29), 15ff.

³⁹ *Ibid.*, 22f.

Energy Resources: Oil Price Fluctuations

Jörn Richert

The history of the global oil trade demonstrates the limits of the “oil weapon” as an instrument of conflict. The possibility of cheap transport by sea allowed a flexible global oil market to emerge in response to the oil crises of 1973 and 1979/80.⁴⁰ This market allows physical supply shortages to be bridged by procuring oil from other sources, causing a rise in the world market price but by no means concrete physical scarcity in individual states.

Oil and conflict

Whereas the global market has reduced the risk of outright failure of supply, increasingly strong price fluctuations represent the new market risk. Does this increase the risk of conflict or might incentives for cooperation also emerge? The persistent mistrust that characterises relationships between oil exporters and importers creates potential for conflict. The political structure of global oil trade is a product of past conflicts between suppliers and consumers. Although both groups are united by an interest in a stable market and predictable price developments, transposition of this insight into concrete political activity is hampered by existing conflicts of interest. There are disagreements over the appropriate price level for oil and very different perceptions regarding the causes of oil price volatility.

The traditional major oil importers – the OECD states – have been joined together since 1974 in the International Energy Agency (IEA).⁴¹ The IEA defines energy security as “the uninterrupted physical availability at a price which is affordable, while respecting environment concerns”.⁴² To defend against the risk of interruption of supplies, IEA members hold strategic oil reserves equivalent to 90 days of net oil imports. The IEA avoids setting price targets but warns that high oil prices and strong fluctuation could threaten the economies of its members.⁴³ It estimates that past fluctuations caused importing states “losses that potentially range in the tens and even hundreds of billions”.⁴⁴ Economic investment is espe-

Vulnerability and
problem awareness

⁴⁰ Enno Harks, *Der globale Ölmarkt: Herausforderungen und Handlungsoptionen für Deutschland*, SWP-Studie 11/07 (Berlin: Stiftung Wissenschaft und Politik, May 2007); Lutz Zündorf, *Das Weltsystem Erdöl: Entstehungszusammenhang, Funktionsweise, Wandlungstendenzen* (Wiesbaden, 2008).

⁴¹ This study focuses on the members of the IEA as the long-standing organisation of major importers. But the risk of oil price fluctuations also affects big new consumers like China and India, which are members of the International Energy Forum (IEF).

⁴² IEA, “IEA by Topic: Energy Security”, http://www.iea.org/subjectqueries/keyresult.asp?KEYWORD_ID=4103.

⁴³ IEA, “Interview with IEA Executive Director Nobuo Tanaka about Rising Energy Prices”, 14 October 2009, <http://www.iea.org/multimedia/mmByCat.asp?cat=TV>.

⁴⁴ Raphael Sauter and Shimon Awerbuch, *Oil Price Volatility and Economic Activity*, <http://www.awerbuch.com/shimonpages/shimondocs/Oil-price-Volatility-03.doc>, 2.

cially vulnerable to volatility, because uncertainty about future prices makes it difficult to calculate ahead and leads to the postponement of important decisions. This weakens economic growth.⁴⁵ The IEA identifies production issues as the main cause of oil price fluctuations.

The most important oil exporters are organised in OPEC, whose defined objectives are to generate “fair returns” for its members’ (largely state-owned) petroleum industries and ensure stable revenues for producers. Although OPEC shares the IEA’s interest in stability in the oil market,⁴⁶ the cartel is ultimately designed to maximise profits by rationing supply. Oil export revenues are vital for the OPEC states, accounting for almost half of their total GDP in 2008.⁴⁷ In many oil-exporting states government legitimacy depends heavily on the provision of public goods and services that are largely funded by oil exports, so strongly falling prices place governing elites under severe domestic political pressure.⁴⁸ With respect to price fluctuations the OPEC states assert that their own investments are adequate and blame speculators instead.⁴⁹

A shared understanding of the problems is an essential precondition for joint action by importers and exporters. The International Energy Forum (IEF) provides a valuable locus of cooperation to tackle oil price volatility. Unlike OPEC and the IEA, the IEF brings together states that are responsible for more than 90 percent of both consumption and production of oil and gas (globally). The IEF’s biggest success to date has been in improving market transparency, but it has also helped to promote mutual understanding in the field of investment. In both cases existing efforts are likely to be intensified. The example of the IEF demonstrates that new challenges such as price fluctuations possess the potential to overcome old (and new) lines of conflict. Political practice shows that increasing relative scarcity of oil need not automatically lead to conflict. It also opens up possibilities for cooperation which must be grasped politically.

⁴⁵ J. Peter Ferderer, “Oil Price Volatility and the Macroeconomy”, *Journal of Macroeconomics* 18, no. 1 (winter 1996): 1–26; Lutz Kilian, *Oil Price Volatility: Origins and Effects*, background paper for the WTO’s World Trade Report 2010 (Geneva, December 2009).

⁴⁶ Organisation of the Petroleum Exporting Countries, ed., *OPEC Statute* (Vienna, 2008).

⁴⁷ IEA (ed.), *World Energy Outlook 2009* (Paris: OECD/IEA, 2009), 126.

⁴⁸ Edward L. Morse and Amy M. Jaffe, “OPEC in Confrontation with Globalization”, in *Energy and Security: Towards a New Foreign Policy Strategy*, ed. Jan H. Kalicki and David L. Goldwyn, 65–95 (70ff) (Baltimore, 2005).

⁴⁹ OPEC, “Getting to Grips with Price Volatility”, *OPEC Bulletin*, July–August 2008, http://www.opec.org/opec_web/en/press_room/833.htm.

Metals: The Case of Rare Earths

Hanns Günther Hilpert, Stormy-Annika Mildner,
Gitta Lauster and Florian Wassenberg

Discussion about ore deposits and international market developments is no longer a matter of interest only to experts. Metals are far more than just economic commodities traded according to the laws of supply and demand. They have also become a politically relevant strategic factor both in the mining regions themselves and at the international level. Decisions about extraction, trading and use of metals do not simply obey anonymous market laws; they are also the subject of political intervention. Rising prices and growing importance for advanced technologies have politicised the metal markets. Although that could increase the risk of inter-state conflicts it also offers openings for cooperative problem-solving by enhancing general awareness.

Mineral extraction is the most important source of national income for many developing countries and emerging economies. Control of mining and participation in its profits is therefore always a question of power, one which is sometimes contested violently. For decades minerals and metals have played a role in civil war economies as *conflict resources*, where the profits from rich reserves are used to fund warfare (*resource curse*). Most conflict resources are easy to extract (*lootable*) with a high value/volume ratio making them easy to transport and smuggle (for example gold). One of the best-known examples is coltan mining in the Democratic Republic of the Congo. The ore coltan contains the very rare metal tantalum which is used in metallurgy and in electrolytic capacitors (found in mobile phones, computers and digital cameras); substituting it involves increased cost or loss of quality.⁵⁰ The lucrative trade in coltan and other “lootable” natural resources like copper, gold, diamonds and tropical timber has for many years inflamed one of Africa’s most brutal conflicts.

In recent times we have also increasingly been seeing inter-state conflicts over metals (especially allocation conflicts). The fact that many metals are technologically indispensable for particular manufacturing processes is hugely important, because power over them grants the ability to produce IT, environmental and defence products. Supplies of critical metals and access to sources thus become strategic questions subject to political interventionism and economic calculation. Although politics cannot replace the market, it does exert crucial influence. Direct commercial involvement of the state in metal ore mining is rather the exception. Much more widespread are partial state ownership; preferential regulation of products, trade and consumption; state subsidisation of mining; and various trade and development policies. Commercial rivalries and conflicts

Conflict resource

Resource conflicts
over metals

⁵⁰ Larry D. Cunningham, “Tantalum”, in *Metals Prices in the United States Through 1998*, ed. USGS, 143–45, <http://minerals.usgs.gov/minerals/pubs/commodity/niobium/231798.pdf>.

of interests very quickly attract state support, and in view of the strategic importance of metal supplies for economic profitability, industrial development and defence capability, growing competition could quickly escalate into conflict. Examples of such conflicts include China's diplomatically charged price negotiations with Australian mining companies over iron ore and numerous investment and ownership disputes over deposits and resources.⁵¹

A classical market access and allocation conflict is currently unfolding between the EU, the United States and China over Chinese export restrictions imposed on many metals, in particular rare earths. The political executive in Europe, America and Japan has identified this group of metals as a critical resource, fearing that domestic supplies are endangered.⁵² China possesses an almost complete monopoly, accounting for 95 percent of global production, as well as dominating the refining processes and seeking a major market position in downstream manufacturing industries such as wind turbines and electric vehicle motors. Western industrialised countries, on the other hand, have slipped into a critical situation of supplier dependency. Things could get even worse with a long-term global supply shortfall forecast for individual rare earths (especially neodymium) and the possibility that China will take advantage of its monopoly.⁵³

China's industrial policy merits fundamental criticism. Naturally China has the exclusive right to exploit the finite reserves of rare earths within its territory, and to set its own extraction quotas and prices.⁵⁴ The Chinese also have the right to establish rare earth refining facilities close to the deposits and to develop ancillary and downstream industries.⁵⁵ The problem is China's price discrimination against foreign customers and the threat to stop deliveries. These measures drive up raw material prices and create a market divided artificially between China and the rest of the world in a sector that is absolutely central for advanced technologies and environmental industries. China is plainly seeking to use trade and indus-

51 "Reichhaltige Bodenschätze Afghanistans wecken Begehrlichkeiten (SB): Washington und Kabul lancieren spektakuläre Meldung", *Schattenblick*, Asien/664, 15 June 2010, <http://www.schattenblick.de/infopool/politik/redakt/asiae-664.html>.

52 In Europe: European Commission, Enterprise and Industry, *Critical Raw Materials for the EU: Report of the Ad-hoc Working Group on Defining Critical Raw Materials* (Brussels, June 2010); in the United States: *Rare Earth Supply-Chain Technology and Resources Transformation Act of 2009*, <http://www.govtrack.us/congress/bill.xpd?bill=h111-4866>; in Japan: Ministry of Economy, Trade and Industry (METI), *Strategy for Ensuring Stable Supplies of Rare Metals*, http://www.meti.go.jp/english/press/data/20090728_01.html.

53 Harald Elsner et al., "Elektronikmetalle – zukünftig steigender Bedarf bei unzureichender Versorgungslage", *Bundesanstalt für Geowissenschaften und Rohstoffe Commodity Top News*, no. 33, 22 April 2010, 9.

54 This is ultimately a decision about an intertemporal distribution of income and wealth.

55 For this "producer-friendly" position see also Paul Collier and Anthony J. Venables, *International Rules for Trade in Natural Resources*, WTO Staff Working Paper ERSD 2010-06 (Geneva: WTO, December 2009), 1–4, 10–11.

try policy to force a shift of production and economic returns in its favour, and is willing to violate international trade rules to achieve that end.⁵⁶

Whereas at the economic level China's mining policy intensifies scarcity and reduces the allocative efficiency of the markets, at the political level it provokes a resource conflict with industrial consumers overseas. China's concern to maximise domestic added value stands diametrically opposed to the American, European and Japanese interest in security of supply. And the crucial role rare earths play for the production of certain important military products lends the dispute a not insignificant security aspect in the context of the Sino-American balance of power. In essence, however, it is an economic conflict over participation in economic profits that is played out in the markets. The actors directly involved are the rare earth producers and consumers inside and outside China. Because the allocation decisions still take place in markets, state agencies are ultimately only indirectly involved; they enjoy influence but are not themselves commercially active. China's industrial policy and the trade policy responses of Western importing countries influence only the broad framework.

Dismantling trade obstacles and export restrictions remains a prime concern that needs to be properly addressed in negotiations over bilateral trade agreements between major resource producers and consumers (above all China) and in the multilateral context. The most obvious venues are the G8 and G20, which France leads in 2011. Understandable worries about our own security of supply must not lead to the perspective of the developing countries being forgotten. History shows that a wealth of resources can turn out to be a huge opportunity or a dreadful curse. The resource partnerships outlined in the German government's resource strategy paper, which it presented in late 2010, can provide a suitable instrument for linking together economic interests and development policy goals. Nonetheless, until we see how these are taken up by businesses and potential partner countries a close and coordinated dialogue should be conducted under the auspices of a single body.

Resource conflicts
between China and rare
earth importers

⁵⁶ Anyway, the export tariffs China imposed on rare earths contravene its promises to the WTO; see James Bacchus, "Hoarding Resources Threatens Free Trade", *Wall Street Journal*, 19 May 2010. The export bans announced in August 2009 (but later withdrawn) would have violated the WTO's anti-discrimination rules.

Conclusions and Recommendations

By no means does a situation of scarcity always and immediately trigger (latent or manifest) conflict, crisis or war. Quite the contrary: counter to popular belief, conflict is rarely a result of scarcity of a resource alone. This finding is backed up by our case study of the global oil market. For a long time the geopoliticised discussion about the global oil trade obscured the incentives for cooperation. Nervousness about the oil price has led not only to escalation but also to the founding of the International Energy Forum (IEF) as an institution that encourages all market participants seek cooperative solutions for their shared economic interests. The example of the Nile Basin Initiative also shows the potential for cooperation between rivals for the scarce resource of water.

Situations where competition over resources escalates into conflict or crisis are almost always those where the issues become politicised and the distribution problem becomes linked with other questions. Power ambitions and regional dominance play an important role in disputes between the Nile states and among the countries along the Central Asian rivers Amu Darya and Syr Darya. Territorial disputes and a national struggle – linked in part to ethnic differences – lie behind the conflict over land in Madagascar. Disputes over energy and metal resources are generally intertwined with confrontation over territory and/or international power. This linkage with other causes makes it especially difficult to resolve such disputes.

Whether conflicts break out depends ultimately on numerous factors, including: prices, perception of scarcity, state intervention, politically instrumentalisable conflict intensity and governance mechanisms. Increasingly, the challenge is to avoid or contain resource conflicts through effective governance mechanisms and regulatory instances.

Recommendations *We recommend the following:*

- ▶ *De-polemicising:* If inter-state resource conflicts are to be avoided or contained it is important to de-polemicise the discourse. Fighting talk and aggressive rhetoric can only be detrimental to sustainable, conflict-free resource management; the same applies to political action based on inadequate information.
- ▶ *Improving the information situation:* In many commodity markets there is a lack of transparency because the available data is exceptionally poor. Founding the German Resources Agency – with a remit to set up a raw material information system – in October 2010 was therefore a step in the right direction. It is equally sensible, as planned in the European Commission's commodity and raw material strategy published in February 2011 to improve the international exchange of resource data.

There is also a need for systematic resource- and market-specific risk analysis, and the introduction of an early warning system would be conceivable. Attention must not focus exclusively on economic risks; political, social and ecological factors must be considered too.

- ▶ *Comprehensive resource strategy:* It is evident that purely sectoral approaches are doomed to failure. What is needed is an integrated inter-departmental approach that ties together economic and development policy, foreign and security policy, environmental and technology policy. The EU adopted a resource strategy pursuing such goals at the end of 2005, and Germany followed in 2006. The new German resource strategy for metals of autumn 2010 and the European Commission's new resource strategy published at the beginning of 2011 offer a solid basis for a more comprehensive resource policy.
- ▶ *Resource management:* Resource management is an important pillar of the German and European resource strategy. It encompasses all (state and commercial) measures in the fields of analysis, monitoring, development and implementation that are designed to maintain stocks and supplies of resources within desirable bounds. Examples include improving material and resource efficiency, increasing the share of recycling, developing substitutes, greater use of domestic reserves and backward integration (by taking over suppliers and investing in the resources sector). But it is important that resource policy should not be solely domestically orientated; it needs an international component with an eye to the repercussions on producers and other consumers and to the ensuing conflict risks. This applies especially to the resource partnerships envisaged by the German government.
- ▶ *Resource governance:* The second pillar of a promising resource strategy is resource governance, which includes building regional and international institutions that serve to increase transparency, regulate access to resources and their allocation, and contain the negative social and ecological effects of extraction. Not all conflict scenarios are amenable to global approaches. Regionally restricted conflict risks should be managed regionally wherever possible, which means that German and European politics should continue supporting national and regional governance projects to develop a framework that facilitates the negotiating process between affected states by ensuring fair access to resources. International conflict risks, on the other hand, must be tackled at the international level if there is to be any hope of success. Responding to the challenge of developing a resource-specific yet inter-sectoral international resource policy means, most of all, expanding existing formal and informal institutions and their instruments (such as the International Energy Forum and the United Nations *International Panel on the Sustainable Use of Natural Resources*).
- ▶ *Conflict regulation:* If, despite resource management and governance efforts, competition over scarce resources escalates into conflict, the third pillar of the comprehensive resource strategy becomes relevant: conflict regulation. This ultimately comprises all measures designed to

prevent latent conflict breaking out in the first place or to contain and de-escalate existing conflicts (including crises and wars). Conflicts over export restrictions on metals or foreign direct investment in land show that existing institutions like the World Trade Organisation are not adequately equipped to contain the growing conflict potential. Here, too, existing institutions must be adapted – not least in order to create security in a situation where Germany and the EU depend heavily on imports for many raw materials. A long-term transformation of economic and political structures represents the most comprehensive and sustainable approach to conflict prevention.

Abbreviations

EU	European Union
FAO	Food and Agriculture Organisation
FDI	Foreign direct investment
IEA	International Energy Agency
IEF	International Energy Forum
IMF	International Monetary Fund
NBI	Nile Basin Initiative
OECD	Organisation for Economic Co-operation and Development
OPEC	Organisation of the Petroleum Exporting Countries
WTO	World Trade Organisation

Further Reading

Kirsten Westphal

The Energy Charter Treaty Revisited.

The Russian Proposal for an International Energy Convention and the Energy Charter Treaty

Berlin: Stiftung Wissenschaft und Politik, March 2011, 8 pages

www.swp-berlin.org/fileadmin/contents/products/comments/2011C08_wep_ks.pdf

Konkurrenz um knappe Ressourcen

SWP-Themendossier

www.swp-berlin.org/de/swp-themendossiers/ressourcenkonkurrenz.html