Main Feature Topic

1 Natural Resources in Foreign Economic Strategy

The global economic boom in recent years has been accompanied by sharp price fluctuations of natural resources – fossil fuels first and foremost, but also metals and agricultural raw materials. Most of these goods are traded in global markets, and this makes foreign trade particularly important to Switzerland – given its dearth of raw materials. Some important products, such as crude oil, are 100% imported.

The foreign economic policy strategy approved by the Federal Council on 12 January 2005 makes no specific reference to natural resources as a particular category of product. The present text describes how the supply of and trading activities in natural resources fit into the Federal Council's foreign economic policy strategy. As will be shown, the three core elements of activities of this strategy are also well suited to guide the most important approaches of our foreign economic policy in the field of resource procurement. These core elements are: (i) foreign market access and an international set of regulations, (ii) Swiss domestic market policy and (iii)the contribution to economic development in partner countries.

This chapter examines the issues raised by the increase in raw material prices. After describing the background, it turns to the consequences in the field of stability policy – and to the challenge to economic policy that access to natural resources poses from a Swiss point of view: pushing back preferential agreements between countries in favour of multilateral trade rules for raw materials. The fourth section examines these considerations in greater depth, exploring the interests of Switzerland as a direct investor and service provider in the field of natural resources. It is followed by sections devoted to the two other core elements of the foreign economic policy strategy: Swiss domestic market policy, and the contribution that Switzerland can make to its partner countries. The chapter closes with a section on the consequences of raw materials shortages for long-term growth and sustainability.

1.1 Background

1.1.1 Definitions

The term *resource* denotes means of production: labour, capital and natural resources. The term *natural resources* can be understood in a broad or a restricted sense. Natural resources within the meaning of this report are *raw materials obtained from nature that are traded internationally*, also referred to as *natural raw materials*. These are:

- energy carriers, like crude oil and coal
- metals, like copper, lead, nickel and zinc
- agricultural raw materials, like cereals, powdered milk and meat.

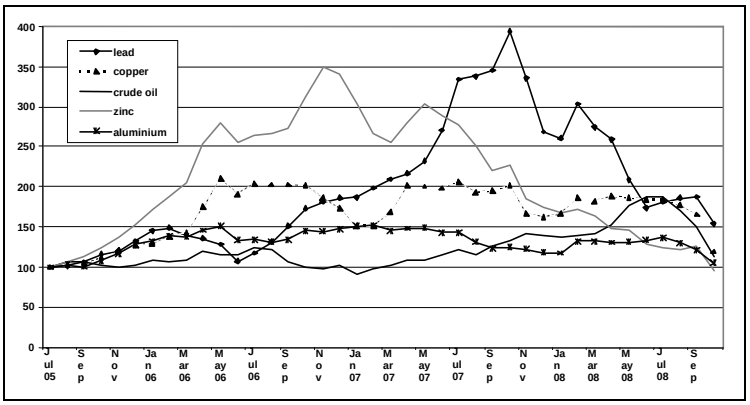
Natural resources in a broader sense are all natural and mineral resources that are obtained in the primary economic sector (agriculture, forestry, fisheries, mining, quarrying, rare-earth extraction). Building materials and precious stones are not included, and nor is water – even though water usage is a major potential cause of international tension, as waterways are no respecters of national frontiers. Natural resources such as land, air, soil fertility, biodiversity and the availability of natural habitats are not covered either, as these environmental assets have only an indirect role in the production process. Because this chapter focuses on foreign economic policy, the ecological strain of the environment – the economic significance of which is often disregarded – is not considered.

1.1.2 Movements in the prices of selected raw materials

Recent years have seen sharp increases in the prices of crude oil and metals (see fig. 1) and of agricultural raw materials (see fig. 2). After peaking, the prices of most of these raw materials stabilised – and some even posted sharp falls. World market prices for lead and zinc, for example – and also for wheat, rice and soybeans – are currently far below the record levels they reached a few months ago, though still distinctly above their levels at the graph's starting point in July 2005. Contrary to international practice, which generally prices raw materials in dollars, this graph shows price movements in Swiss francs.

Figure 1

Price increases for fossil and mineral raw materials (July 2005 = 100, in CHF)



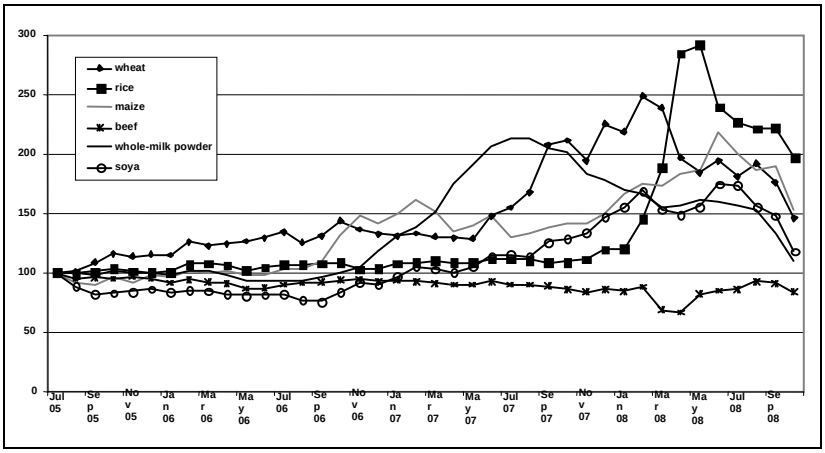
Source: SECO calculations, IMF and SNB data

The price of crude oil, to which particularly close attention is paid, reached its peak of 146 dollars a barrel in the first half of July 2008. By the end of December it had fallen back to about 40 dollars a barrel.

The prices of natural raw materials have not all risen to the same extent. Metal prices rose at different times. In agricultural products – meat, for example – the price trend was actually downward.

Figure 2

Price rises in agricultural raw materials (July 2005 = 100, in CHF)



Source: SECO calculations, IMF, ZMP and SNB data

1.1.3 Reasons for the price movements

The rise in raw materials prices in 2007/2008 was fundamentally different from the oil crisis of the 1970s. What triggered that was a sudden decision by the OPEC cartel to reduce the supply, while in the present situation it is demand that drives prices. Experts agree on the factors underlying price movements, which are summarised in the table (see below).

It should also be noted that some important producers of agricultural raw materials responded to higher prices in the global market by taking steps that actually had the effect of reducing prices in those countries in the short term. Export duties were imposed on meat, then on wheat, soybeans and maize. Countries that are normally major suppliers of rice imposed an export ban. Only between five and seven percent of rice production is traded in the global market, so these export restrictions generated particularly sharp price distortions. This sparked a competitive cycle in which each country was imitated by another. Measures like these reduce the global market supply, and not just temporarily but in the long term as well – because they reduce the incentives to expand production in those countries.

Table

Demand-side factors	Supply-side factors
Strong global economy over several years.	The production of many natural resources reached short-term capacity limits, while stocks fell to record lows.
Sharp increase in the demand for raw materials and foodstuffs in newly industrialising countries, particularly China and India, as incomes rose.	Harvests failed in important agricultural exporting countries.
State measures to promote biofuels, helping to accelerate growth in the demand for agricultural raw materials.	Possible or actual supply bottlenecks in politically unstable oil-producing countries. Declining extraction volumes in more stable regions contribute to a reduction in supply.

In addition, the weak US dollar led to an increased demand for agricultural goods in the global market. On the supply side, conversely, agricultural production was curbed by high production costs (inorganic fertilisers, for example) and energy prices, principally oil.

1.1.4 The influence of the financial markets

If we follow the movements of the world's key currency – the US dollar – against others, it is evident that higher raw materials prices were partly a reflection of its devaluation. From the viewpoint of the Swiss franc, the US currency lost 17% of its value between January 2007 and July 2008. Since January 2001 it has fallen by as much as 37%. But figures 1 and 2 show that even expressed in Swiss francs, raw materials prices posted sharp movements.

A weakening dollar doesn't just mean that capital looking for a home flows into other currencies. It can also be invested in securities such as equities, in real assets like houses or in tradable raw materials, which thus take on a value-preservation function. In the past few months these trends have reversed, with resource prices falling as the dollar rose.

But what will be the consequences if players enter the raw materials markets to buy goods purely as a financial investment? Numerous studies have considered whether this will make price fluctuations more extreme and more frequent. The consensus view is that there can be no conclusive answer. Since most of these players, having made their economic

calculations, would ultimately wish to dispose of their financial investments, these must be expected to move in line with the market. In other words, they will sometimes anticipate the effects of the fundamental price-driving factors set out in section 1.1.3, and sometimes reflect them only after a delay.

Even if the forces driving the futures markets require closer study, what lies behind the trend in the last two or three years is more than just a temporary phenomenon ("speculative exaggeration"). This is why the theme of high and fluctuating raw materials prices will retain its relevance to foreign economic policy in the medium and even the long term.

1.1.5 Will the prices of natural resources stay high?

Most market observers agree that the continuation of a vigorous growth trend in many parts of the world, China and India among them, will mean that the international prices of fossil fuels, metals and agricultural raw materials will stay high: short-term fluctuations are neither here nor there. This is supported by the fact that the availability of many natural resources is declining. However, price elasticity – on both the demand and supply sides – is substantially greater in the longer term than the short, and prices may not immediately regain their recent record levels.

Agricultural raw materials

In their joint *Agricultural Outlook 2008–2017* of June 2008, the Organization for Economic Cooperation and Development (OECD) and the UN Food and Agriculture Organisation (FAO) state the view that the long period during which nominal raw materials prices in dollars remained more or less stable has come to an end. According to their calculations, a rise in global production will take the pressure off world agricultural markets in the medium term – provided that climatic conditions remain stable and there is no sharp rise in fossil-fuel prices. Price volatility could remain high, however, if the current ratio between inventories and consumption does not significantly improve, as it is forecast to do. The EU Commission, the Food and Agricultural Policy Research Institute (FAPRI) at Iowa State University and the United States Department of Agriculture (USDA) all come to similar conclusions. Over the next few years, according to the EU, the price of wheat could well be 75% above its average level in the last decade.

Fossil fuels

Rising numbers of energy experts believe that several factors are currently constraining the supply of cheap oil, i.e. crude oil that can be extracted at relatively low cost, and this means that the price range of the 1990s – 20-30 US dollars a barrel – has gone for good. These deposits can typically be

exploited with conventional drilling and extraction technology. In contrast, working deep-sea deposits – in the Gulf of Mexico, for example – and unconventional deposits such as bitumen, oil sands (like those in Canada) and oil shale is much more costly. It is estimated that we have so far consumed roughly one third of the conventional crude oil contained in the earth's crust, but less than one percent of the non-conventional crude oil.

Metals

Where the extraction of metals is concerned, the key role goes to investment in mining facilities. Aluminium and iron, for example, are the third and fourth most common elements in the earth's crust – though they only occur locally in concentrations that currently justify mining. Both metals are now recycled much more than they used to be. Although known geological deposits of these metals are far from having been exhausted, their prices have also risen – because investment activity has not increased in line with demand. A liberal investment regime in those countries where deposits exist could generally improve the match between investment and demand. For the time being the extraction of individual minerals is heavily concentrated in those countries where the requisite real assets are available or can be easily expanded.

1.2 The direct consequences of high raw materials prices

1.2.1 Shifts in global purchasing power

If products are sold in countries other than where they originate, rises in the prices of imported relative to exported products lead to shifts of prosperity towards the countries where imports originate. For many countries that import raw materials, price increases have led to a significant deterioration in their real exchange ratios, known as "terms of trade". Switzerland, with its lack of natural resources, is one example. If we set the second quarter of 2005 equal to 100, then by mid-2008, according to quarterly estimates of the Swiss gross domestic product, prices of exports had risen by almost 5% less than those of imports (total 1 in each case, i.e. imports and exports excluding valuables such as jewellery and antiques).

A glance at movements in the Swiss balance of trade is sufficient to illustrate the effect of the rise in the price of oil alone: In 2007 Switzerland bought 13.9 billion litres of crude-oil products for CHF 8.6 billion. In 2003 it had bought 15.3 billion litres for CHF 4.6 billion. So in 2007 Switzerland spent CHF 4 billion more and got 1.4 billion litres less.

1.2.2 Limited negative effects on prosperity in Switzerland

This did not put the Swiss balance of payments under particular strain, however - because its exports were worth CHF 135.5 billion in 2003, and CHF 197.5 billion in 2007. So even though imports rose during this period, Switzerland's balance of trade still improved – because exports rose by CHF 5 billion more. Exports to the OPEC states alone rose by CHF 2.7 billion to CHF 6.6 billion. The structure of Switzerland's economic sectors is thus relatively favourable, enabling it to benefit from increased spending by the rich oil-producing countries. This rise in exports contributed to the positive economic situation and to growth in employment in recent years, partly making up for the higher oil bill.

In terms of contribution to gross domestic product (GDP), Switzerland has also benefited considerably from wholesale trading in raw materials. Switzerland is among the most important locations for companies active in international raw materials trading, which is categorised as transit trading in the balance of payments. The volume of transit trading has risen by a factor of six in just a few years, and its share of the Swiss gross domestic product has now grown to over 2%.

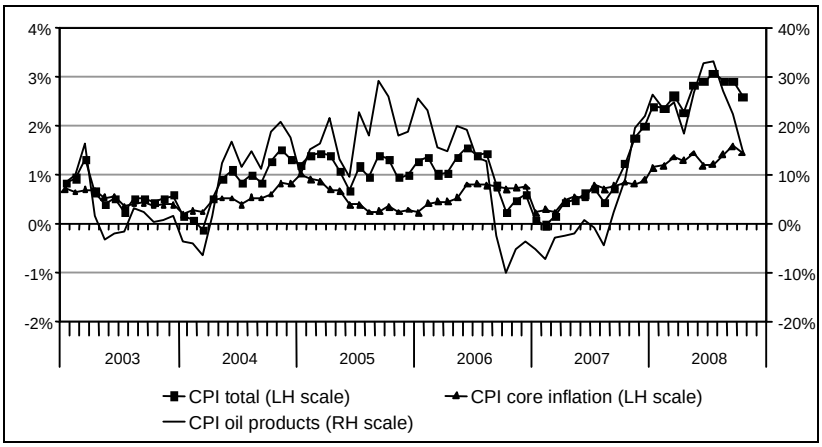
Inflation in foodstuffs has been kept in bounds by the fact that access to agricultural-product markets continues to be subject to tariff-rate quotas and duties, which means that although the world-market prices of nearly all agricultural products have risen, they are still higher in Switzerland. As for foodstuffs produced in Switzerland, we have seen signs of a rise in the price of cheese, for which a more integrated international market exists. In general, though, liberalised agricultural trading would continue to push domestic prices down.

1.2.3 Effects on price stability and future economic growth

For the industrialised world, the most serious problem caused by soaring raw materials prices is price stability. The question arises as to whether businesses can absorb their loss of purchasing power by restricting rises in real wages and corporate profits, or whether they will attempt to pass on these relative falls in income to customers. The present economic environment holds out little prospect of achieving the latter.

Figure 3

Inflation rates (percentage change in the CPI national consumer prices index over the previous year)



Source: SFSO

Wages and prices were under a certain amount of pressure even before turmoil in the financial markets broke out in the autumn of 2008. But core inflation stayed low, and it was the OECD view that long-term inflation expectations in Switzerland and other industrialised countries had hardly risen at all. Since then, falling raw materials prices and fears of recession in the wake of the financial crisis have pushed concerns about rising inflation still further into the background. But it is still important to increase productivity, if future deteriorations in real exchange ratios are also to be absorbed without too much pain. As this depends, however, on structural changes in the national economy, structural reform must be continued.

1.2.4 Setbacks in the fight against poverty, growing budget and balance-of-payments problems in developing countries

Soaring raw materials prices have created food insecurity for poor people throughout the world. The FAO estimates that the number of people suffering from hunger has risen to 923 million. Countries dependent on food imports have had particular difficulty in meeting the demand for foodstuffs. Examples of these include states in sub-Saharan Africa. In the spring of

2008, having identified 33 countries that had been seriously affected, the World Bank called for donations of USD 500 million to the UN World Food Program (WFP).

The emergency measures taken by the international community during the period under review have taken the pressure off the national budgets and balance-of-payments accounts of those countries that are compelled to import large quantities of food, and that dedicate a significant proportion of the national budget to combating poverty among their own peoples. These financial measures bring short-term relief, but they do not solve the problems in the countries affected.

There are several reasons why numerous developing countries fail to produce enough food themselves. The poor often have no access to capital, technology, education and knowledge. Rural areas either have no roads or infrastructure, or what they have is woefully inadequate. The incidence of HIV/AIDS reduces the agricultural workforce, and the political situation is often unstable – with wars and other violent conflicts. Government is sometimes ineffective. The insufficient increase in agricultural production can also be attributed to a failure to invest in agricultural innovation, and to problems with the availability of land and water. Subsidies from the OECD countries have made a significant contribution to price erosion on the international agricultural markets: cheap imports into developing countries displaced local production, which was no longer there when prices soared.

1.2.5 More expensive agricultural raw materials: an opportunity for developing countries?

As we have seen, nearly a billion people lack food security. Given that circumstance, the prospect of rising food prices is a sombre one. The UN millennium objective of halving the number of the starving by 2015 must be regarded as increasingly unrealistic. But as well as countries that are net importers of agricultural raw materials, and that will therefore remain in need of substantial support, there are also plenty of developing and newly industrialising countries that are – or could (again) become – significant agricultural producers themselves. For these countries the rising price trend is also an opportunity.

The FAO Conference of 3–5 June 2008 in Rome on food security, global warming and biofuels highlighted the ambivalent effects of rising agricultural prices on the developing countries as a whole. UN Secretary-General Ban Ki Moon summarised the outcome of the conference as follows:

The conference found that the most urgent measures included the expansion of food aid (either as food stamps or in cash), incentives for smallholders to

increase food production, changes in trade and fiscal policy to increase the direct availability of foodstuffs, changes in general economic policy, improvements in rural infrastructure and links to markets, and the expansion of microcredit programmes.

In the long term, he said, the availability of foodstuffs must be sustainably increased by incentivising smallholder production. There must also be efficient social-security systems, improved risk management in food-supply chains, improved access to international agricultural markets and a coherent international biofuels policy.

The reason why the conference called for special support for smallholders is that they and their family members account for around one third of the population of the world: two billion people. This fact alone makes them a principal target group for development-policy measures.

In its contribution to the conference, Switzerland stressed the importance of the efficient, coherent and well-coordinated organisation of international efforts to combat hunger. It reaffirmed that the strategic mainstays of future food security must be multifunctional agriculture, with local, sustainable production based on family businesses, the progressive opening-up of agricultural markets on terms that are fair to developing countries, and the promotion of research and innovation.

Switzerland went on to say that biofuels would only have a future if their ecological and social implications, as well as their effect on food security, were fully taken into account in the sustainability assessment. Against this backdrop, Switzerland drew attention to the need to define an international framework and internationally recognised sustainability criteria.

1.2.6 Conclusions for price stabilisation policy

Rising trends in raw materials prices made preserving price stability and avoiding recession central concerns in the industrialised countries. Now falling raw materials prices and the slowdown in economic momentum are giving rise to a degree of uncertainty with regard to price stability. A recession can no longer be ruled out. But if it happens, it will be due primarily to the crisis in the financial markets and the normal investment cycle rather than to falls in purchasing power following the latest trends in raw materials prices. Once it had become clear that the threat of a wages/prices spiral arising from soaring raw materials prices had more or less receded, monetary policy could concentrate on facing current challenges: stability in the financial markets and its effects on the real economy.

Emergency measures include contributions from the industrialised countries – in the form of balance-of-payments and food aid – to the developing countries that are most affected. Such contributions were made in 2008.

1.3 Foreign economic policy challenges

Besides stability policy, rising raw materials prices also challenge trade policy – creating a number of problems for which solutions have to be found in the medium and long terms.

These relate primarily to the availability of natural raw materials, particularly as many states have adopted policies that discriminate against key economic players in other countries. Examples of these include export restrictions recently imposed by various important producer countries, and the emergence of strategic partnerships. Small and medium-sized trading nations like Switzerland must secure continued, non-discriminatory access to natural raw materials. This factor is central to the comments that follow.

The growing need for raw materials, however, also gives Switzerland a market opportunity. Though Switzerland will never be much of an exporter of oil, ore and the like, it can make profitable use of its capital resources and its expertise. We now look at the opportunities which Switzerland has to exploit emerging new market circumstances.

1.3.1 The central contribution of market forces

The following comments on foreign economic policy necessarily recognise the roles of policy and market forces. The principal contribution to alleviating the shortage of natural resources can be expected to come from market forces: as global market prices rise, the supply will expand and utilisation will become more efficient. On the supply side, higher expected earnings will stimulate exploration for as yet unknown reserves, new deposits will be developed faster and more intensively, and in the agricultural sphere land that is lying idle or not being intensively cultivated will be used to grow agricultural products. In parallel to this, technical advances will be stimulated in the areas of both harvesting and utilisation. On the demand side, new ways will be found to increase processing efficiency and thus reduce consumption.

In virtually all raw materials, however, the supply is extremely slow to respond to increased demand. An expansion in supply thus takes place in the medium rather than the short term, for technical reasons. The same applies to the response on the demand side to increased resource efficiency and shifts in consumption to raw materials in more plentiful supply. In all

the affected markets – but particularly that for crude oil – the reaction time in the private sector is not the only problem: so are government attitudes. There are significant obstacles to investment in the form of specific ownership factors (state monopolies of mineral resources) and regulatory barriers, such as nationality requirements applying to the construction and acquisition of extraction or transport infrastructure.

1.3.2 The emergence of strategic resources policies

The prospect of natural resources remaining expensive and in short supply for the foreseeable future is leading many countries to adopt a strategic resources policy. One example in the area of metals is the free trade agreement concluded between China and Chile, one of the largest copper producers in the world. Other examples are to be found in Africa. If a country that badly needs natural resources pursues a strategic trade policy, perhaps by forgiving African nations substantial volumes of debt, that does not necessarily mean that it gets the resources it needs at lower cost. But it can secure long-term supply contracts and investment opportunities for its own companies in the extraction and processing of minerals. It may also influence internal policy in the target country. This is also an important factor in policy relating to all aspects of the gas supply and gas prices in eastern Europe and central Asia. Another point: following the oil producers, several gas-producing countries are now deliberately seeking to adopt monopolistic extraction policies, and to coordinate important aspects of extraction among themselves. To form a “Gas OPEC”, in other words.

Strategic resources policy is not confined to extraction: it also applies to logistical facilities like transportation and storage. Many of the gas pipelines that lead to and pass through Switzerland originate thousands of kilometres away. So it is not only the producers who have the means to exert political pressure – so has any country that the pipeline passes through. The importance of control over pipeline routes is highlighted by the recent conflict in and around Georgia, and by the gas dispute – still unresolved – between Russia and the Ukraine.

The strong presence of state-owned enterprises, both in Europe and elsewhere, is another typical feature of strategic resources policy. Mergers – between utility companies, for example – encourage oligopolistic tendencies. In the past individual states have exerted enormous pressure on competition authorities, or employed other means to ensure that such mergers came to fruition.

1.3.3 Switzerland's commitment to a rules-based international economic order

Switzerland is a medium-sized trading nation with globally active companies, heavily dependent on imported raw materials – so it is of the utmost importance to us that trading in these goods should be rules-based and non-discriminatory. Given its membership and its field of activity, the WTO is the most suitable organisation to extend the rules of international trade to cover raw materials and their production. It is by no means certain, however, that the current Doha Round will be brought to a rapid conclusion, and many of the questions it has raised will not be discussed as part of this round of negotiations, but later – if at all. Avenues outside the WTO must therefore be explored as well. We consider these below.

The sections that follow consider how the foreign economic policy strategy adopted by the Federal Council on 12 January 2005 applies to Switzerland's interests as an importer, with particular reference to access to natural resources. In addition we consider Switzerland's interests in access to natural resources as an exporter, as companies based here are among the world's leading traders in the most important raw materials.

Foreign economic policy strategy of the end of 2004

As we shall see, foreign economic policy strategy distinguishes three different fields of activity: trading in the international arena, where trading rules are agreed and economic treaties concluded; domestic trading, which is in need of targeted reforms if Switzerland is to maintain its international competitiveness; and finally influencing partner countries so that they prosper, rather than slip into crisis – and thus destabilise the global economy. Five objectives have been defined for the first field of activity. It transpires that the foreign economic policy strategy of the end of 2004 applies equally to the raw materials issue where these objectives are concerned.

The three core elements of activity of Switzerland's foreign economic strategy

Foreign market access and an international set of regulations	**Swiss domestic-market policy**	**Contribution to economic development in partner countries**
Objectives: – Participating actively in strengthening the global economic system – Improving access to important foreign markets – Effecting access to foreign markets for all economic categories (goods, services, capital, labour, knowledge) – Improving access to foreign markets for companies of all sizes – Ensuring that existing agreements are implemented and utilised	Strengthening the international competitiveness of the Swiss economy by conducting timely internal reforms	Increasing the prosperity of trading partners, and integrating them into the global economy Avoiding developments tending to destabilise the global economy (mainly by involving international organisations)

The three fields of activity – market access and international regulations, domestic-market policy, contribution to economic development in partner countries – are dealt with in the following three sections. The five objectives in the field of market access and international regulations are discussed as follows: Section 1.4.1: Strengthening the international economic system and improving access to foreign markets for all economic categories. Section 1.4.2: Ensuring that existing agreements are implemented and utilised. Section 1.4.3: Improving access to important foreign markets. Section 1.4.4: Improving access to foreign markets for companies of all sizes.

1.4 Foreign market access and an international set of regulations

We first consider how the supply situation varies in the fields of agricultural raw materials, fossil fuels and metals. Mention is also made of cantonal exclusive rights, which govern the ownership of natural resources in Switzerland.

The supply of agricultural raw materials

Unlike fossil fuels and metal ores, Switzerland produces its own agricultural raw materials. In future these are likely to be influenced even more by the international regulations that may emerge from the current negotiations – both the WTO Doha Round and those on a free trade agreement with the EU in the agricultural area. 76% of the agricultural goods and food imported by Switzerland in 2007 (CHF 8.6 billion) came from the EU. The question of shortages of agricultural raw materials is especially relevant to domestic production inputs such as seed and fertilizers, and to the segment of the food industry that specialises in processing agricultural raw materials imported from countries outside Europe. Access to cocoa, coffee, tea and to certain oils, spices and other essences is crucially important to these companies.

The supply of fossil fuels

Crude oil and natural gas are not only important energy carriers, they are also the raw materials for fertilisers, chemicals and plastics. Where crude oil and natural gas are concerned, a distinction is drawn between direct and indirect dependence. Direct dependence is determined by the country of origin as defined in customs statistics, i.e. for crude oil the place where it is extracted, for oil products the place where they are refined. Indirect dependence, on the other hand, is defined in terms of the country of origin (i.e. of extraction). The oil supply, both direct and indirect, is much more broadly diversified than that of natural gas. This is partly due to the fact that as natural gas is pipeline-dependent, its transportation and storage are subject to restrictions. In the longer term, an increased concentration of low-cost crude-oil deposits can be expected in the Middle East. This creates problems for business, as crude oil is an indispensable fuel that is very difficult to replace at short notice.

The supply of metals

Switzerland has never been able to meet a large proportion of its metal-ore requirements from deposits within its borders. As well as the extraction and utilisation of secondary raw materials (such as the production of steel from scrap iron), metal imports are therefore of central importance. Deposits of base metals can be found throughout the world, though ore deposits are increasingly subject to monopolistic trends and power politics. There are often technical alternatives that permit metals to be replaced. In some fields, however, where the properties of a metal give it a particular function (like the electrical conductivity of copper, for example), substitution is difficult.

Cantonal exclusive rights

Most of Switzerland's natural resources are owned by the cantons. Notable examples are the salt prerogative and cantonal rights to fossil fuels and

water resources. The cantons have enacted various instruments to enable them to exercise these prerogatives, such as the 1956 intercantonal concordat on the extraction of fossil fuels in Switzerland. This constitutes the basis for the exploitation of these resources, at the same time restricting the access of foreign investors in the ten cantons involved by awarding exclusive exploration and exploitation rights to a single company, *Schweizerische Erdöl AG (SEAG)*. So far, however, no significant deposits have been discovered.

1.4.1 International regulations governing raw materials trading, direct investment and resource-related services

This section examines possible ways of securing access to natural resources. What is at stake here in terms of foreign economic law are the criteria for most-favoured-nation status, national treatment and the absence of volume restrictions, for example with regard to the number of extraction and transportation companies, that ought to be fulfilled by the countries from which Switzerland obtains its natural resources.

Equal access to resources under trading law, however, by no means guarantees that Switzerland will be physically supplied with these products. Trading partners retain their sovereign rights to determine the rights, location, nature, timing, volume and the financial terms on which natural resources can be extracted or cultivated on the territory where they lay down the ownership rights.

Subject to this, we may distinguish three levels of international treaty relating to the non-discriminatory procurement of natural resources:

a) guaranteeing that a legitimately acquired natural raw material may be traded with a view to its resale, but not necessarily transported

b) guaranteeing that the legitimate acquirer of a natural raw material is entitled to transport it to its home country

c) guaranteeing that the legitimate acquirer of a natural raw material may if necessary provide and operate, either solely or jointly, the infrastructure for its transportation.

Paragraph a) relates to intermediary activities, paragraph b) to guaranteed third-party network access, and to the non-discriminatory obligation of state-owned or state-appointed companies in a legal or effective monopoly position to provide transportation services. Paragraph c) relates to the right to construct or operate one's own pipeline or equivalent facilities.

Multilateral rules: WTO

a) Movement of goods and export restrictions

Duties on exports are fundamentally permitted by the WTO, by analogy with those on imports. They are also subject to the most-favoured-nation principle (Art. I GATT 1994). This means that treaty states must as a general principle extend to each other all trade-policy privileges (primarily tariff advantages) that they grant to third-party states. Whereas import

duties must generally be fixed (i.e. they cannot subsequently be unilaterally increased) and are a topic of the GATT negotiations on progressive tariff reduction, GATT does not subject export duties to comparable disciplines.

Volume-based export restrictions are generally prohibited under GATT Article XI. As raw materials prices rose, however, various countries – citing the WTO exception clauses – imposed export restrictions in a number of variants (bans, volume-based restrictions, duties etc.). By doing so, these countries further destabilised global markets. At the agricultural negotiations of the WTO Doha Round, Switzerland is therefore calling for export restrictions to be made more transparent.

b) Services

The WTO *General Agreement on Trade in Services* (GATS) governs international market access for service providers (e.g. cross-border access from Switzerland and through branches located abroad). The GATS also applies to resource-related services.

Resource-related services

The term "resource-related services" used here refers to logistics (haulage, storage, transportation – by pipeline, for example) as well as trading and distribution services. As a rule the buyer of goods wishes to transport them itself. From the viewpoint of companies whose main activity is trading, however, access to well-functioning commodity exchanges is also important. Then there are the interests of companies wishing to engage in other resource-related services by providing cross-border services abroad, such as geological prospecting, mining-support activities, engineering services, and the planning, construction and even operation of turnkey power stations.

Trading and transportation services – by pipeline or rail, for example – are treated as independent service sectors in the GATS, and are of particular interest from the viewpoint of security of supply. Where WTO members have entered into market-access obligations, the GATS provides for non-discriminatory market access for service providers abroad (national treatment, most-favoured-nation status and the elimination of volume-based restrictions). This means that the independent operation of, or participation in, a distribution network in a foreign country for the transportation of natural raw materials is only possible under the GATS if that country has entered into market-access commitments for the transport services involved. As for the utilisation of existing transportation systems, the obligation under the GATS to treat domestic companies equally applies to service sectors for

which market-access commitments exist, as well as to access to and the utilization of infrastructure services that are necessary for the delivery of a required service (such as trading services) and that the legislation of the target country stipulates must be offered to the public at large. Taking trading services as an example, this means that a Swiss company trading in commodities abroad on the basis of a market-access commitment must be able to connect to the public electricity, gas and telephone services on non-discriminatory terms. Experience has shown that states that are rich in resources are not always prepared to undertake to provide distribution services relating to trading in natural resources. This enables them to deny foreign companies access to public networks. Switzerland has not yet entered into any commitments under international law in relation to pipelines or other transmission networks that require a licence and that are sometimes operated by monopoly companies.

c) Capital investment

As yet no GATS-style agreement on capital investment exists at global level. The objective of reaching an investment agreement as part of the WTO Doha Round was abandoned in 2003.

Multilateral rules: Energy Charter Treaty

a) Capital investment

The 1994 Energy Charter Treaty is a sector-specific agreement that combines the legal fundamentals underlying the WTO with investment-protection provisions. An additional protocol contains environmental provisions relating to energy. Its principal members are countries belonging to the EU, EFTA, the Commonwealth of Independent States (CIS) and Japan. Russia and Norway, however, which are both rich in natural resources, have not yet ratified the Treaty – and this weakens it. Article 18 of the Energy Charter recognises the sovereignty of each state and its sovereign rights over energy sources. Every state has the right to decide how and at what rate to extract or otherwise tap energy sources. On the other hand the contracting parties undertake to facilitate access to energy sources, *inter alia* by granting permits, licences, concessions and private contracts to find, research, exploit and extract energy sources in a non-discriminatory manner on the basis of published criteria.

b) Services

Since the beginning of 2000, Energy Charter member states have been negotiating a transit protocol with key provisions on the construction and utilisation of cross-border energy-transport systems, mainly gas pipelines and power lines. These negotiations have made no progress for several years because of the energy-policy conflict between the EU, which is liberalised, and Russia, which is monopoly-oriented. If the transit protocol

to the Energy Charter Treaty were to be signed and ratified, that would enable a number of conflicts in connection with the interruption of oil and gas deliveries to be resolved by the independent arbitration procedure (see section 1.4.2). The transit protocol would guarantee the network access raised in paragraph b) above.

Another important treaty in the field of natural resources is the United Nations Convention on the Law of the Sea, which came into force in 1994. It contains provisions relating to virtually all areas of international maritime law, for example governing the utilisation of the various ocean areas by shipping, overflying, pipeline and cable laying, and setting out provisions on mining the ocean bed. The Convention also contains provisions for the resolution of disputes. It has created three new institutions: the International Tribunal for the Law of the Sea in Hamburg, the International Seabed Authority in Kingston, Jamaica, and the Commission on the Limits of the Continental Shelf. Switzerland has signed the Convention, but has not yet ratified it.

Bilateral rules: Investment Protection Agreements (IPAs)

IPAs create legal certainty for foreign investments, principally by prohibiting discrimination in the investment field and protecting investors' property (protection in the post-investment phase). Effective mechanisms for resolving disputes, particularly direct access to international arbitration procedures in cases of specific disputes, make sure that states fulfil the treaty obligations they have entered into. The benefit of an IPA should also be seen in the light of the fact that private investors often have opportunities to secure access to a particular resource through direct negotiation with the state that owns it. The role of the IPA is to protect what private investors have achieved through that sort of negotiation in the event of a subsequent regime change. For example, IPAs give private investors direct commitments in the fields of tax, the supply of raw materials for a production process, and the transfer of payments. However, such protection is restricted to the obligation to pay compensation in the event of expropriation. Investors are thus not absolutely guaranteed the right to extract or export a natural raw material.

Bilateral rules: Free Trade Agreements (FTAs)

a) Trade in goods

Most of the free trade agreements that Switzerland has concluded to date prohibit the imposition of export duties, which goes well beyond the corresponding obligations under the WTO in that it gives an improved guarantee of access to resources. While the agreement with Mexico does not prohibit export duties as such, it does prohibit the imposition of new ones and any increase in existing ones. Undertakings like these can generally be

agreed as long as the existing legislation of the partner country contains no provisions to the contrary.

b) Services and investments

In comprehensive FTAs two regulatory areas are relevant to permits for cross-border investment in natural resources. The section on services, by analogy with the GATS (see section 1.4.1), governs commercial branches in service sectors, while the section on investment governs branches of companies outside the services sector. Here, given a willing contracting partner, the principle of non-discriminatory access to licences or concessions for the extraction of raw materials (e.g. mining rights) or the cultivation of agricultural produce can be agreed. However, countries that are rich in natural resources often exclude resource sectors from the authorisation obligations of the sections on investment and services. Even Norway, Switzerland's partner in EFTA, is unwilling to give such undertakings. Experience has shown that such undertakings in the field of natural resources go no further than the GATS. Member states of the Gulf Cooperation Council (GCC)[1], for example, in effect refused to give such undertakings with regard to trading in raw materials in their FTA with the EFTA states.

International rules in summary

Switzerland has four objectives on the basis of the considerations explored above, and in pursuit of its foreign trade strategy of "playing an active part in the formulation of international rules":

- the continuing liberalisation of trade in goods, including energy carriers, in the WTO (GATT)
- the liberalisation of market access for resource-related services in the WTO (GATS)
- investment protection in the primary sector (IPAs)
- integrated solutions in free trade agreements (market access for investments in the primary sector and for resource-related services).

Agreements at the multilateral level, i.e. the WTO, and those at plurilateral and bilateral levels should be seen as complementing each other. Provisions in the rules section of free trade agreements might in principle be suitable for inclusion in subsequent multilateral arrangements, i.e. as WTO law (regional agreements as the building blocks of a new world trade system). One of the main reasons for the interest in extending rules agreed bilaterally or plurilaterally to the multilateral plane is that bilateral enforcement mechanisms are not all equally effective. Another factor is the problem of deciding with whom to conclude preference agreements (see section 1.4.3).

[1] Bahrain, Qatar, Kuwait, Oman, Saudi Arabia and the United Arab Emirates.

Multilateral, plurilateral and bilateral rules do not ensure that the owners of existing transport capacities (pipeline capacities first and foremost) can be compelled to provide transportation services, and – when capacities are limited – to allocate them in a transparent, non-discriminatory manner. For the buyer of a raw material to be afforded access to pipeline networks in order to take its gas or oil production home, market-access undertakings would be required for distribution services in the relevant sectors, permitting the buyer to take an equity stake in a distribution network, to utilise it on a non-discriminatory basis, or to operate one of its own. As governments are not always prepared to restrict their sovereign rights in the natural resources and energy sector, however, market-access undertakings rarely cover it. Switzerland and the EU are exceptions: it is an objective of the bilateral power negotiations that are currently in their initial stages to enshrine internal network access in international law.

Direct access to resources could ultimately only be achieved by means of instruments such as agreements on extraction, transit and consignment – of gas, for example – such as are currently concluded only in the private sector. Even so, IPAs improve the enforceability of privately agreed supply agreements where these are connected with a direct investment, though as a rule "only" because they entitle the injured party to compensation.

When Switzerland calls for certain principles of access to natural resources to be adopted in the international arena, it must accept that it will also be bound by them. If our commitment to the targets we set ourselves is to be seen as credible, the intercantonal concordat on the extraction of fossil energies should be amended to include clauses on the treatment of domestic companies and the prohibition of volume-based restrictions on the number of extracting companies. Even then the legislature will still be free to determine when these come into force.

1.4.2 Recourse to arbitration mechanisms

Functional arbitration mechanisms help to ensure that multilateral and bilateral agreements are observed and that conflicts can be resolved in accordance with the rules. One current example in the natural resources field concerns China, which is not entirely delivering on the undertakings on export restrictions that it gave as part of its accession protocol to the WTO. On 20 May 2008, for example, China increased the export tax on yellow phosphorus, the uses of which include the production of fire-retardant materials, from the maximum WTO-agreed level of 20% to 120%. This affects a number of Swiss, European, American and Japanese companies. Negotiations with China have so far led to nothing. Before Switzerland and other states lodge any complaint about China with the WTO, attempts are being made to clarify the question of export taxes

bilaterally and within the framework of the review of China's market-access undertakings for which the WTO accession protocol makes provision.

In addition to state-to-state dispute-resolution procedures, the IPA and the sector-specific Energy Charter Treaty provide for the possibility of investor-to-state arbitration, which enables the investor to take a dispute directly to an international arbitration tribunal. Private companies have brought several hundred investment-protection cases before international arbitration tribunals in the last few years. Since the Energy Charter Treaty came into force in 1998, twenty actions have been brought on the basis of its protection and arbitration provisions – one of them by a Swiss company. Some of these have already been resolved. We also know of several international arbitration proceedings that have been conducted on the basis of Swiss IPAs. The pressure of an (impending) arbitration hearing often leads to an amicable resolution.

In free trade agreements the initial stage of state-to-state arbitration is conducted by consultation, normally in a committee consisting of representatives of the contracting parties. If this consultation leads to nothing, the party complaining of a breach of an undertaking can appeal to an ad hoc arbitration tribunal. But since these free trade agreements and IPAs can be terminated, their enforcement mechanisms cannot be judged equally effective as those of the WTO. Terminating FTAs and IPAs is a genuine option. Leaving the WTO is not.

1.4.3 Improving market access in countries with significant natural resources

Multilateral treaties contain obvious omissions, and state enforcement mechanisms in bilateral and plurilateral agreements – where these contain any provisions at all that are relevant to natural resources – are not exactly draconian. Great importance is therefore attached to the maintenance of good relations with treaty partners in the field of natural resources policy.

This maintenance process also includes sounding out the possibilities of circumventing situations in which domestic-policy stalemates prevent internationally-agreed rules from coming into force or being effectively enforced.

Another mechanism that can be utilised in a direct dialogue with particularly important countries in the natural resources field is the *Memorandum of Understanding* (MoU). As a rule this is a declaration of intent.

For Switzerland the question arises as to how relations should be maintained with states that have substantial natural resources and what they are expected to achieve. Because of the supply situation described at the

beginning of section 1.4 it is not metals or agricultural raw materials that occupy centre stage, but fossil fuels. Because the economy is so broadly dependent on crude oil, fossil fuels enjoy a particular significance in this connection.

Where agricultural raw materials are concerned, a combination of domestic production, mandatory stockpiling and close trade relations with reliable partners such as the EU means that the security of supply is hardly under threat even in the long term (see section 1.5). There is thus no need to take supplementary strategic measures in this field. Nor is the supply of metals, from a combination of primary and secondary sources, under any real threat. In any case, metals can often be replaced by other materials. As with agricultural raw materials, what matters most is that the ground rules of trading and the market should be observed at international level. Within this framework, however, it is for the private sector to ensure a secure supply of metal raw materials. In this field, unlike energy, there is no particular reason to pursue a policy of international agreements.

Implementation in energy foreign policy

On 20 February 2008 the Federal Council formulated its energy foreign policy in the light of geopolitical developments affecting the supply of fossil fuels. The three central challenges – security of supply, efficiency and environmental sustainability – are to be approached not only with measures relating to the domestic economy, but also by means of foreign policy, both bilateral and multilateral, in accordance with the following maxims:

1. security of supply: long-term participation and importation agreements with the protection of international law
2. efficiency: liberalisation of the Swiss energy sector, electricity and gas first and foremost; negotiations with the EU on electricity supply, free trade agreements covering energy
3. environmental sustainability: promoting the efficient, climate-friendly use of energy.

Like the first two, the third objective is to be pursued not only in Switzerland, but throughout the world – including the developing and emerging countries. The prime objective here is to combat global warming by promoting technology transfer. But efficiency in the utilisation of resources can also reduce the economic vulnerability of less developed countries. This objective is also not without interest to Switzerland, as we are competitive in terms of energy technology.

At the same time as it approved the energy foreign-policy strategy, the Federal Council defined three other mainstays of its long-term energy strategy. Action plans for energy efficiency and renewable energies are

mentioned in section 1.5.3, as are measures for streamlining construction procedures for major power plants.

Only a limited number of campaigns could be conducted in the 2008 reporting year. Prominent among them were power negotiations with the EU, gas-storage negotiations with France, the inception of closer comprehensive cooperation in the energy field with Azerbaijan and Turkey, and the conclusion of a private-sector Memorandum of Understanding (MoU) between the Iranian state gas company NIGEC and a Swiss company (EGL).

The EU remains the most important partner for Switzerland's energy foreign policy. Good relations with the EU in the field of energy are therefore a high priority. On 10 January 2007 the EU adopted an energy policy with objectives similar to those of Switzerland: sustainability (particularly environmental sustainability), competitiveness and security of supply. Given this initial situation, it would be entirely conceivable for an agreement in the field of electricity to be followed by other energy-specific agreements. Before agreements like this are negotiated, however, the effects on Switzerland of the EU's emerging energy policy towards third-party states – like Russia, for example – must be clarified. Given what we know now, a conclusive assessment from the viewpoint of a third-party state is not yet possible.

1.4.4 Opportunities for the private sector

As we have seen, particularly with regard to metals, the private sector bears the main responsibility for the supply of raw materials. The BDI – the Federation of German Industry – comes to similar conclusions. In a March 2007 paper on the security of natural resources, the BDI noted that the international markets for metal raw materials were being increasingly affected by a fall-off in competition due to concentration processes and material shortages, with interventions distorting both trading and competition. But it reasserts that even when raw materials are becoming scarcer and more expensive, securing supplies of them is in the first instance a matter for companies themselves.

Private companies can take action on the following lines:

- backwards integration (e.g. taking over supplier companies) and equity stakes in the raw materials field
- long-term contracts and partnerships
- supplier diversification

– cooperation on purchasing, financial hedging transactions against rising prices
– early detection of and reaction to restrictions on the availability of raw materials
– increasing energy, material and production efficiency, establishing partnerships between different links in the output chain.

Companies in the engineering and metals industries are currently complaining more and more about heavy concentration in the raw materials field. In the steel sector, more than one third of all the iron ore mined throughout the world in 2006 was produced by the three largest players. The structure of the raw materials market, as regards both extraction and trading, is growing increasingly oligopolistic. Whether this becomes a problem will largely depend on how competition authorities deal with prominent cases of planned corporate amalgamations.

Competition policy: the scope for action

Mergers in the raw materials field raise major, often cross-border problems, so they are most effectively dealt with at multilateral level. However, it would be unrealistic to expect the WTO to return to the Singapore topic of competition until the Doha Round has been completed – so a multilateral solution appears to be a long way off. In partial compensation for this, efforts should continue to include in free trade agreements provisions for competitive principles and for the establishment of cooperation mechanisms between different competition authorities. Most free trade agreements concluded by Switzerland to date do so, to a greater or lesser extent – particularly the agreement with Japan, though this has not yet been signed, let alone come into force.

The impact of such provisions, it must be said, is limited. Another factor: on a strict reading, Swiss antitrust law is relatively lenient compared with that of other countries. Even if the principle of consequence applies in antitrust law, in cases of mega-mergers – especially in the fields of raw materials and utilities – the attitude of the competition authorities in the US and the EU is far more important.

1.5 Domestic policy

This section examines the precautions that can be taken within Switzerland to improve security of supply. As well as liberalising trade policy in the field of agricultural products, holding stocks of various categories of raw materials and expanding the supply infrastructure, we also consider fiscal mechanisms to encourage the efficient use of resources. Possible implications for domestic legislation are outlined.

1.5.1 International rules and agricultural policy

Security of supply in liberalised agricultural markets

The federal government's strategy for ensuring security of supply has three mainstays: domestic food production, food imports, and stockholding. Liberalised agricultural markets are no obstacle to security of supply, particularly given import diversification. Liberalisation brings consumers more and more product varieties, generally at lower cost. Finally, market liberalisation enables the food industry to reap the benefits of specialisation and economies of scale. Imports also make up for any poor harvests at home.

Implications for domestic policy

The proposed bilateral free trade agreement with the EU in the agricultural and food sector will have the effect of diversifying import sources. Switzerland is becoming more and more closely interlinked with the EU in many economic fields. We can assume a high degree of security of supply from the rest of Europe, whatever the circumstances.

As for the rest of the world, we must expect global warming to create additional threats – of drought, for example – that will have significant effects on agriculture. The latest crisis has led many countries to impose export restrictions, aggravating the global market situation. Switzerland therefore has a keen interest in the conclusion of the WTO Doha Round, so that multilateral rules can be strengthened with regard to agricultural products too. The WTO still has the most convincing enforcement mechanism.

The WTO's arbitration procedures progress very slowly, however. In view of the cascade effects of export restrictions, such as we have seen in the case of rice, the diversification of import sources is not enough to achieve food security on its own. In addition to domestic food production and imports, we also need mandatory stockpiling to bridge any gaps created while new import sources are opened up or domestic production increased.

1.5.2 National economic supply as a bulwark in an acute crisis

As we saw in the last section, domestic food production and stockholding are important to our security of supply when imports dry up. But national economic supply strategy also considers and plans possible shifts in production patterns. In two of our three raw materials categories (energy and food), Switzerland has mandatory stockpiles – established in accordance with the National Economic Supply Act – to deal with a crisis in

the short term. It must be stressed that price is not a factor in their release. The trigger is the failure of physical sources of supply.

Energy

Mandatory stockpiles of fuels and heating oil are sufficient for four-and-a-half months, of aviation fuel for three. The use of these stockpiles is not limited to political crises: they are also available if the supply is interrupted, for example by natural disasters. Today's close trading interconnections require Switzerland to cooperate with the 28 other members of the International Energy Agency (IEA) on questions of releasing its mandatory stockpiles of crude oil. The last internationally coordinated release of stockpiles was triggered by hurricane Katrina in the Gulf of Mexico in 2005.

Agricultural raw materials

Companies in Switzerland that trade in or process agricultural raw materials maintain mandatory stockpiles. Four months' consumption of breadstuffs, durum wheat, rice, sugar, edible oils and fats, coffee, and corn fertilisers is kept permanently in stock. Where private-sector guarantee funds have been established, companies are compensated by these. The funds required are levied on imported goods or on products when they are first marketed, and the costs passed on to the consumer. This security of the food supply costs about CHF 6 per head per year. In addition the Office for National Economic Supply also maintains mandatory stockpiles of products used in food production, such as fertilisers and antibiotics.

Fertile land in Switzerland – the basis of agricultural production, in other words – is under great pressure for settlement and transportation development. Spatial-planning measures to protect cultivated land are therefore also extremely important to the security of supply. A special crop-rotation programme (*Sachplan Fruchtfolgeflächen)*, for example, took effect as long ago as 1992.

Metals

After being progressively reduced, the voluntary stockpiling of metals is finally being abolished at the end of 2008. This is because our policy on mandatory stockpiling is focused on the fields of food, energy and medicines. Export permits and duties on scrap iron were ended as long ago as the 1990s.

Implications for domestic policy

The National Economic Supply Act still acts as a firm foundation in the current situation. In order to identify any amendments that may be needed to individual clauses of the Act (such as funding by import levies on

agricultural goods), a detailed interpretation guide in connection with liberalisation (also with the EU) is currently in preparation.

Securing transport capacities

Even though it is landlocked, Switzerland maintains a fleet of ocean-going ships in order to ensure that it has sufficient maritime transport capacities in the event of a crisis. The federal government issues guarantees covering the funding of ocean-going ships by Swiss ship-owners. The result is a diversified commercial fleet of dry-bulk ships, container ships and tankers. During the year under review the global guarantee credit was increased and extended, one objective being the creation of a fleet of tankers suitable for a variety of products.

1.5.3 The implications of energy scenarios for the expansion of the utilities infrastructure

Network-based resources require an infrastructure before they can be transported and traded. This particularly applies to electricity, crude oil and gas. Cross-border infrastructure bottlenecks hamper imports, especially at a time when volumes in transit through Switzerland are still increasing. As much electricity as Switzerland consumes currently transits the country – and five times as much gas. It is easily the largest transit country in Europe. This makes it essential to review the relevant infrastructure networks, expanding them if necessary to facilitate and diversify imports to the maximum possible extent.

One important factor limiting the availability of pipeline and power-line capacities is the complexity of the associated approval procedures.

Implications for domestic policy

In accordance with instructions issued by the Federal Council under the Swiss energy strategy, initial measures to speed up these approval procedures have been drawn up. The consultation process began in October 2008. Additional measures will be investigated by the year-end. Adequate staffing for the approval agencies has proved to be an important factor.

1.5.4 Increasing energy efficiency

As part of the implementation of its new energy policy, the Federal Council approved the action plan for energy efficiency at the beginning of 2008. Some of the measures it contains require amendments to the Energy Act and

the Energy Directive, and the Federal Council initiated the consultation process on these in October.

The subjects of these amendments include the creation of a unified nationwide voluntary Energy Performance Certificate for buildings, and the possibility of extending the uses of global contributions to include information, education and training. They also amend the consumption regulations for household appliances, lamps, electronic equipment and electric motors, the objective being to remove power-hungry appliances from the market after a transitional period.

These measures are designed to make Switzerland less dependent on supplies from abroad, to increase security of supply, to give industry and commerce new stimuli by developing efficient technologies, and to increase added value and competitiveness.

Implications for domestic policy

Because energy prices are high, investments in energy-efficient solutions pay off within a relatively short time. Even so, energy efficiency still has to be supported by policies that improve information and training, set minimum requirements and promote the development of new technologies.

Though encouraging biofuels – i.e. fuels derived from renewable resources, in other words - Switzerland ensures that exemption from the mineral-oil tax only applies to products that can show that they meet minimum social and ecological standards, e.g. by demonstrating a favourable energy balance, and that they do not compete with human food requirements.

1.6 Contributing to the sustainable utilisation of resources in the context of economic cooperation

In the last two sections we examined market access, international rules and domestic-market policy with regard to securing supplies of natural resources at home and abroad. The third element of Switzerland's foreign trade strategy is to contribute to the economic development of partner countries. These include selected countries in Latin America, Africa, central and eastern Asia, together with transition countries in eastern and south-eastern Europe and the new members of the EU. In the field of natural resources particularly, contractually guaranteed market access abroad makes a greater contribution to security of supply in Switzerland if the partner country is stable in economic, social and ecological terms.

Economic development cooperation – a central component of Switzerland's foreign economic policy – is designed to integrate partner countries into the global economy. Trading, including trading in raw materials, enables partner countries to seize the opportunities offered by globalisation, to

generate sustainable economic growth – and hence to boost incomes and reduce poverty. As part of its economic development cooperation, Switzerland supports trading in agricultural goods produced by sustainable methods, diversification, efficient supply infrastructures, resource-efficient industries – and the technology transfer that they all require. It tries to help partner countries to establish a suitable policy framework in these fields.

1.6.1 Sustainable agriculture, diversification and risk minimisation

High prices of basic foodstuffs are impairing food security and living conditions in many partner countries. The Swiss Agency for Development and Cooperation (SDC) takes emergency measures and supports long-term projects in the agricultural sector, thus contributing at both bilateral and multilateral levels to improving the situation of those people who are most seriously affected. In the short term Switzerland has made experts and additional funds available to the UN's World Food Programme.

Most of the measures taken in pursuit of economic development cooperation by the State Secretariat for Economic Affairs (SECO) are focused on long-term objectives. If developing countries are to maintain natural resources – their most important sources of income, directly or indirectly – in the long term, and to utilise them commercially, they must be managed on a sustainable basis. Similarly, those countries must develop strategies to protect themselves against the more incalculable risks, such as global warming and price fluctuations. One major contribution from SECO is the development of competitive insurance facilities combined with related training programmes.

Examples of specific trade-promotion measures supported by SECO are projects for the development and implementation of sustainability standards by what are known as *multi-stakeholder* processes, in areas such as coffee, tropical woods, soybeans, cotton and biofuels. Such sustainability standards lay down practical minimum criteria for the production and marketing of agricultural raw materials. Compliance with adequate standards – qualitative, environmental and social – makes high-price markets accessible, and the resulting additional exports boost incomes.

Biofuels create the risk that energy crops will compete with food production. SECO limits this risk by funding the development of software for rapidly analysing the sustainability of biofuel production. In developing countries, great importance is attached to recycling organic waste. If biofuels meet the minimum requirements that have been in force in Switzerland since July 2008, they are exempted from the mineral-oil tax (see section 1.5.4).

Many producers in developing countries can count on growing consumer demand for organic and fair trade products, both in the industrialised countries and – increasingly – in the emerging nations as well. SECO supports initiatives in partner countries to diversify their product ranges, enabling them to put an end to dependency on a particular resource. The income generated from the sale of these additional products contributes to economic prosperity.

Global warming is increasingly threatening agricultural production in partner countries, confronting producers with major challenges. Jointly with the World Bank, Switzerland therefore supports the establishment and expansion of insurance facilities in the agricultural sector covering adverse price movements and weather conditions, accessible in particular to small and medium-sized producers. One example of price-risk management is the establishment of trading in coffee futures and options in Tanzania, Uganda and Nicaragua.

1.6.2 Efficient utilities infrastructure

The sustainable utilisation of resources also means that infrastructure must be modernised and used efficiently. In the fields of water and electricity the focus is on energy efficiency in production, distribution and consumption – as well as on renewable energies, with a view to reducing CO_2 emissions. In this connection SECO supports the modernisation of hydroelectric power stations, power grids and water-supply systems. Albania is receiving support for the modernisation of its power stations, the structural reinforcement of dams, and its connection to the South East European Grid.

In addition, four federal departments – SECO, the SDC and the Federal Offices for the Environment (FOEN) and Energy (FOE) – have set up the interdepartmental REPIC[2] platform to promote renewable energies and energy efficiency in international cooperation. This platform provides start-up funding in the most varied renewable-energy fields: wind power, bioenergy from organic waste, micro-hydro units and solar power.

1.6.3 Resource-efficient industry and technology transfer

The promotion of production methods that are sparing in their use of resources, and hence ecologically sustainable, is central to projects relating to industry and commerce. SECO has established Cleaner Production Centers (see section 2.4) in around two dozen developing countries to

2 Renewable Energy & Energy Efficiency Promotion in International Co-operation.

conduct focused technology transfer, including consultation and training, with the support of Swiss experts and technical colleges. “Green credit lines” in Peru, Colombia and Vietnam provide access to environmental technologies. This enables industrial companies in developing countries to consume significantly less energy, water and raw materials. In addition, introducing environmental-management systems and adopting quality standards for exports often brings about a considerable reduction in production stoppages and waste.

Resource efficiency is also increased by the establishment of modern recycling systems. In the field of electronic waste (e-waste)[3] SECO and the Swiss Federal Laboratories for Materials Testing and Research (EMPA) jointly make their experience of the Swiss recycling model available to emerging markets such as China, India, South Africa and Latin America. In this e-waste recycling process precious metals such as palladium, rare metals that are important to the IT sector (e.g. gallium) plus iron, copper and aluminium, are recovered and returned to the production cycle. Cooperation with specialist international recyclers results in a recovery quota three times higher than companies in the informal sector achieve with their existing methods, which in any case entail health risks. If business operations are to be resource-efficient, then regulations are needed as well as commercial incentives. To this end the Federal Office for the Environment regularly responds to requests from newly industrialising countries for assistance in drawing up institutional regulatory systems in the areas of resource efficiency and waste avoidance.

1.6.4 The political environment

The sustainable provision and utilisation of resources (minerals, energy, water, agricultural land) depends largely on the regulatory environment, both international and local, and how it is administered. The central factors are enforceable ownership rights and investment incentives, a modern competition policy, and compliance with the principles of *good governance* and international agreements.

Projects in the water and energy sectors must therefore be supplemented with a policy dialogue. Besides a modernised infrastructure (see section 1.6.2), the water and energy sectors also need a clear structure. This requires production, transmission and distribution to be broken up – and exactly the same is true of service providers, regulators and policymaking bodies.

Switzerland’s Extractive Industries Transparency Initiative (EITI) is designed to support the disclosure of public income from raw materials

3 The disposal of old computers, mobile phones, printers, television sets, refrigerators, etc.

transactions. Transparency in trading with natural resources makes a significant contribution to reducing corruption.
International climate protection is another important objective which should focus on areas where every franc invested generates the greatest effect. The flexible mechanisms of the Kyoto Protocol offer crucial advantages to both industrialised and industrialising countries. The Clean Development Mechanism (CDM) in particular enables climate-friendly projects to be supported by the international trade in emission certificates, while at the same time promoting technology transfer. The production of non-polluting refrigerators in India, for example, has been registered as a CDM project under the climate convention.

Switzerland collaborates closely with the World Bank Group, Regional Development Banks and specialist UN institutions, playing an active role in shaping their policies. In concert with other donors, Switzerland makes every effort to put sensible fundamental factors in place, such as tariff policies that are in line with the market and efficient management of the utilities infrastructure.

Switzerland is also an advocate of the WTO multilateral trading system, which provides elementary protection for our weaker trading partners – and these include most developing countries. The reduction or elimination of those factors that create most trading distortions (such as high and escalating duties, quotas, non-tariff trade barriers, export subsidies and export restrictions) benefits not only Switzerland, but also poorer countries by affording them improved access to raw materials and markets.

Switzerland also respects the coherence between international rules in the social and environmental fields (multilateral environmental agreements) and trading and investment agreements.

1.7 Technical progress as a source of continued growth

Over the last two centuries, technical progress has enabled global agriculture to provide increasing amounts of food for more and more people at lower and lower prices. But global warming, the overuse of resources – notably water and soil – and other phenomena associated with environmental degradation, such as climatic extremes and overfishing, make it clear that this trend cannot continue endlessly without increasing the strain on natural resources. So what are the possibilities of using resources more efficiently?

Agricultural raw materials

In the past, technical progress has enabled agriculture to achieve significant increases in yields with no increase in the area under cultivation. Even

between 1986–88 and 1996–98, the productivity of corn cultivation in the US rose by 22%. Many countries, especially developing countries, have yet to realise their potential for increasing production. It must be noted, however, that virtually all the land in the world that is suitable for arable use is already under cultivation, in some cases to the point at which the fertility of the soil is suffering. Moreover, the food supply is now in competition with biofuel production.

Fossil fuels

Many natural resources are not merely non-renewable, they are also finite. From the viewpoint of sustainability, our response to high prices should therefore focus not on increasing the supply of exhaustible resources, but rather – besides using them more efficiently – on substituting them, i.e. on switching to alternative sources. This substitution process, along with the development of new technologies, is also driven by high prices.

Living in our latitudes, we now have a considerable number of alternatives to the use of fossil energies in the field of static energy use – heating, for example. Where transport is concerned, the replacement process is only just beginning. Until now transport has been almost entirely dependent on engines powered by petrol, diesel and kerosene. When replacement technologies for all types of transport (overland, air and marine) reach a sufficient stage of development, this will take the pressure off the demand for crude oil. Where overland transport is concerned, the switch from one mode to another – from road to rail, for example – is part of this process. This can also reduce raw material requirements, though in the case of rail only by increasing capacity.

Metals

The outlook for the supply of metallic raw materials should also not be regarded as excessively gloomy. Given sufficient expenditure, for example, the recycling quota can be substantially increased. Rising prices can also contribute. But it is also possible to reduce the rate at which materials are used. In fact, the use of exhaustible resources is sustainable if the efficiency of their consumption rises faster, in percentage terms, than the rate at which deposits are exhausted. This will enable future generations to benefit from deposits of raw materials just as we do today.

If this last observation is restricted to the level of a single metal, however, it is too narrow: it takes no account of the potential for replacing one raw material by another. The quest for replacements should not concentrate solely on materials with comparable chemical and physical characteristics, incidentally. Substances from quite different places, and derived from nature in quite different ways, also have replacement potential – such as the use of glass instead of aluminium as a cladding for buildings.

No static limits to growth

This brings us to the question of whether the innovative activity triggered by the price mechanism is sufficiently intense. Here we might state the fundamental principle that as long as an increase in capital expenditure can make up for a reduction in raw materials deposits, then there is no need for economic output to fall even if the resources are exhaustible. The question here is whether the generations now living have sufficient incentive to make the necessary investments in time to enable diminishing resources to be replaced. If not, then the state must ensure that more capital is devoted to the cause of continued growth and equality between the generations. The problem is that the savings made by means of more efficient technologies, for example, can easily be cancelled out by increased use and consumption (the *rebound* effect). But there are enough counter-examples to show that the more efficient use of resources (e.g. energy-efficient household appliances and lighting, and fuel-efficient cars) reduce the strain on the environment.

However, higher capital expenditure cannot make up for developments like the irreversible destruction of biological and landscape diversity. Ethical obligations must therefore also be taken into account by decisions on how to sustain economic growth.

Capital must be understood in a broad sense. As well as real company assets and the public infrastructure, it particularly includes human capital (knowledge, technologies). The economic return is likely to accrue from the accumulation of knowledge capital that serves the general good. Furthermore, the costs of negative effects – on the environment, for example – must be met by the parties responsible so that they modify their behaviour accordingly.

Implications for economic and research policy

Technical progress in a wide variety of fields can help to overcome resource shortages. And as we have seen, knowledge must be accumulated and applied throughout the world. The two Federal Institutes of Technology are conducting research in a number of promising areas, focusing on increasing resource efficiency and alternative technical solutions. This is Switzerland's contribution to the global challenge.

As well as labour and capital, natural resources in the broadest sense determine production possibilities. It is therefore in Switzerland's interests, from the viewpoint of economic, development and environmental policy, to play its part in the international campaign for the conservation and efficient use of natural resources. Comprehensive resource management – of the air, water, soil and forests – is essential to preserve the planet's natural capital in the long term.