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The Hague  
Centre for  
Strategic  
Studies

# The Emerging Geopolitics of Food

A Strategic Response to Supply Risks  
of Critical Imports for the Dutch  
Agro-Food Sector

*The Hague Centre for Strategic Studies* N° 19 | 02 | 13



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The Emerging Geopolitics of Food  
*The Hague Centre for Strategic Studies (HCSS)*

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HCSS helps governments, non-governmental organizations and the private sector to understand the fast-changing environment and seeks to anticipate the challenges of the future with practical policy solutions and advice.

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# Management summary

Interdependencies in the field of food, agriculture, and raw materials are growing. Global population growth, rising prosperity, and changing consumption patterns in emerging economies have increased the demand for all three. Geopolitical trends shape global markets for food, agriculture, and raw materials and carry consequences for the Dutch agro-food sector. Critical sectors of the Dutch agricultural complex are dependent on imported raw materials from the rest of the world and are therefore vulnerable to supply disruptions resulting from geopolitical developments. This report explores how the Dutch government could strengthen the resilience of the Dutch agro-food system and mitigate risks to the supply of critical raw material imports.

## The emerging geopolitics of food

Food has increasingly become a matter of geopolitics. A growing and ever-wealthier world population, increased biofuel use, and a slowdown of agricultural productivity growth have prompted a tightening of the global food market. In this market setting, harvest failures and policy responses contribute to soaring food prices and increased price volatility. Today's global food security challenge differs from the past. The international system is in transition to a multipolar world, in which multiple centers of power compete with each other. In a multipolar world, the international system is characterized by high uncertainty and a higher chance of international tensions. Concurrently, there is a resurgence of resource nationalism in some countries, which means the state is playing a more pronounced role in the support, ownership and management of businesses and strategic industries, such as agriculture and mining.

## Implications for the Netherlands

In the Netherlands, food insecurity is not an imminent risk and the Dutch agro-food sector is well integrated into the world market. Nonetheless, geopolitical risks are real. Therefore, scenarios under which the Dutch agro-food sector has difficulty in adequately sourcing raw material imports, either through



open markets, commodities exchanges or business-to-business contracts, should not be neglected. Should the supply of critical materials to the Netherlands collapse, the Dutch agro-food sector and thereby the overall Dutch economy stand to suffer. Addressing this challenge requires a strategic reorientation of Dutch policy on food, agriculture, and raw materials, as well as the role of government in these areas.

### Perspectives for action

The Dutch government wants to take care of the interests of Dutch consumers and producers of agro-food products while simultaneously supporting a safe and stable world characterized by fair international relationships. Therefore, the government should find ways that mitigate supply risks that go beyond simply achieving the largest supply security at the lowest cost. The Dutch government should distance itself from resource nationalism and aggressive overseas policies to secure food and raw materials, which sometimes harm the local economy or local food security. The Netherlands can set itself apart by avoiding shifting the burden of securing the interests of the Dutch agro-food sector on to developing countries and by instead focusing on cooperative solutions aimed at creating long-term win-win situations that benefit both the Netherlands and the sourcing countries. From this perspective, in which reciprocity is key, a number of policy recommendations can be formulated.

### Policy recommendations

#### **1 Maintain domestic food production to sustain knowledge and innovation base**

Sustaining a degree of food self-sufficiency can not only serve as a cushion against interruptions of food supply, but is also necessary to maintain an advanced agricultural knowledge system and to remain innovative in the field of agro-food. Knowledge and innovation are increasingly a source of export revenue for the Netherlands and lie at the basis of the competitive position of the Dutch agro-food sector abroad.

#### **2 Focus on top sourcing countries of critical raw materials and explore new sourcing opportunities**

Critical materials for the Dutch agro-food sector include fruit, nuts, spices, coffee, tea, cocoa, margarine, fats, oils, nitrogen, potassium, phosphate, coarse grains, soy protein, and other feedstock. The Dutch government should focus on extending partnerships with established and new suppliers of these materials.



### **3 Reinvent multilateral cooperation and move beyond promoting open markets**

While continuing to promote open and stable markets in international forums such as the World Trade Organization, the Dutch government should push for a critical review of trade legislation, an imposed limitation on the use of export restrictions, more transparency in markets, and more cooperation between import-dependent countries.

### **4 Complement multilateral efforts with strategic partnerships**

Develop strategic partnerships with countries where the Dutch agro-food complex has both valuable knowledge to offer and from which the Netherlands imports critical materials. Partnerships should revolve around innovation for sustainable production in the agro-food sector and be based on creating long-term win-win situations for both the Netherlands and the sourcing country.

### **5 Adopt a strategic perspective on sustainability**

Move beyond environmental motives to encourage sustainability and adopt a strategic vision on sustainability as a means to mitigate supply disruption risks for the agro-food sector. Resource efficiency and sustainable supply chains avoid rapid resource depletion and create long-term supply security. Sustainability should be used as a trigger for cooperation with top sourcing countries and involvement of the private sector.

### **6 Start strategic dialogue with the agro-food sector**

Devise strategies to shorten the response time of industry and to limit short-term economic damage in case of supply disruptions. Think about ways to improve the resilience of industry, including preventive and non-market conform strategies. Consider trade-offs between price and supply security.

### **7 Integrate agro-food interests in economic diplomacy**

Promote an interdepartmental and cross-sectoral dialogue with other ministries for a strategic reorientation of international (development) cooperation, shifting away from idealistic motives toward an emphasis on investment for mutual benefit. Develop a more systematic approach to identify which countries should be designated for international cooperation and include top sourcing countries for the Dutch agro-food sector.

# Introduction

Global population growth, rising prosperity and changing consumption patterns in emerging economies have increased the demand for food. In addition, slow productivity growth, failed harvests and extreme weather conditions have hampered supply. As a consequence, the global food market has become increasingly tight and food prices have reached record heights over the past years. Price spikes of staple foods have contributed to social unrest and political instability in various parts of the world. In North Africa, high food prices contributed to the 'Arab Spring' that resulted in the collapse of various autocratic regimes. It has also triggered an increase of land grabbing, i.e. large scale acquisitions of farmland by foreign investors, especially in Africa, with potential negative consequences for local farmers and global food security. In this context, countries are increasingly concerned about food security and formulate policies aimed at securing resources that are necessary for agriculture and food production. The food, agriculture and raw materials nexus is growing, as population growth, rising prosperity and changing consumption patterns will increase the demand for all three. This means that tackling problems pertaining to one resource will be linked to the demand and supply of others.<sup>1</sup> As a consequence, strategic thinking about interdependencies in the field of food, agriculture and raw materials has become paramount.

## The challenge facing the Netherlands

The changing international playing field forces the Dutch government to think more strategically about the strengths and weaknesses of the Dutch agro-food sector. The Dutch agro-food sector is one of the driving forces of the economy of the Netherlands and represents an important share of the overall Dutch economy in terms of value added. Internationally, the Dutch agro-food sector is also of significance. The Netherlands is the world's second-largest exporter of agricultural products and one of the world's leading producers of vegetables and fruit. The downside of this strength is that the Dutch agricultural complex is highly dependent on the import of raw materials. For example, the Netherlands

imports relatively large volumes of soy beans, which are essential for the livestock industry. This import reliance means that the Netherlands is vulnerable to supply disruptions. These disruptions may emerge due to failed harvests, political instability, or export restrictions. The collapse of imports of important raw materials for the Dutch agro-food sector could cause significant damage to the overall Dutch economy. Therefore, the Dutch government should promote policies that aim to strengthen the resilience of the agro-food system.

Strategic thinking about the Dutch agro-food sector is also necessary since European policy is falling short. For decades, the European Union (EU) has been largely self-sufficient in food production thanks to the Common Agricultural Policy (CAP). Despite this self-sufficiency, the EU remains vulnerable to internal and external shock calamities, such as droughts and other extreme weather events, a long-lasting volcano eruption, or epidemics of livestock diseases.<sup>2</sup> In order to improve European food security, the European Commission is currently in the process of reforming the CAP to address some of these risks. However, the proposed reforms take little account of the geopolitical risks that threaten the supply of raw materials and the production of food and feed in the EU.<sup>3</sup> This is problematic since geopolitical risks are becoming ever-more important, and consequently, so is thinking about the challenges and opportunities they represent for the Dutch agro-food sector.

## Background and objective of the report

The Dutch Ministry of Economic Affairs has commissioned this report, written by The Hague Centre for Strategic Studies (HCSS) and the Agricultural Economics Research Institute (LEI), with the aim of informing policymakers about the geopolitical developments that shape global markets for food, agriculture, and raw materials; and the consequences these developments carry for the Dutch agro-food sector. The objective of this report is to increase awareness of the fact that critical sectors of the Dutch agricultural complex are dependent on imported raw materials from the rest of the world and are consequently vulnerable to supply disruptions resulting from geopolitical developments. Finally, the report aims to contribute to a debate on what policy options are available to strengthen the resilience of the Dutch agro-food system. Existing research looks into how the Netherlands can mitigate vulnerabilities in the European food system, for example by addressing gaps regarding food security in the CAP reform proposal.<sup>4</sup> The scope of this report is both broader and narrower in focus. Broader in the sense that it looks beyond food security and

also considers the Dutch agro-food sector as an economic interest of strategic importance. Narrower because the report has a national focus and explores one specific policy option for the Dutch government, namely using the strengths of the Dutch agro-food sector to mitigate risks to the supply of critical raw material imports.

## Research questions and structure of the report

The main research question of the report is:

*What are the critical dependencies for the Dutch agricultural complex and how could the Dutch government deal with these, considering the emerging geopolitics of food?*

The scope of the analysis is limited to the risks related to the dependence of the Dutch agricultural complex on imports of raw materials and the opportunities for the Dutch agro-food sector to be instrumental in securing resources that are of economic interest to the Netherlands.

To answer the first part of the research question, **Chapter 1** describes the relation between food, raw materials and geopolitics. This section of the report asks the following subquestions:

- What developments are shaping the international context in which countries need to secure food and raw materials?
- What policy measures do countries implement in light of these developments and to what effect?
- What challenges do these developments raise for the Netherlands?

Next, **Chapter 2** looks into the risks for the Dutch agro-food sector in relation to dependencies on imports of raw materials. The following subquestions are posed:

- Which sectors of the Dutch agricultural complex are of strategic interest to the Dutch economy?
- What raw materials do these sectors need to import in order to remain strong and competitive?
- What are the economic, environmental, and political risks to the security of supply of these raw materials?

**Chapter 3** provides an assessment of the bargaining power of the Netherlands in securing access to raw materials that are essential for the Dutch agro-food sector.

The corresponding subquestions are:

- What strengths does the Dutch agricultural complex have to offer to other countries?
- What are the opportunities for forging strategic relations with countries that possess essential resources for the Dutch agro-food sector?

Finally, **Chapter 4** concludes with perspectives for action for the Dutch government. It offers policy recommendations on how the Netherlands should deal with the international developments relating to food and its import dependencies. This section responds to the following subquestions:

- Given the emerging geopolitics of food, should the Dutch government employ its agro-food sector more strategically?
- Is it possible to use critical interdependencies between the Netherlands and other countries to create win-win situations?
- What concrete measures should the Dutch government implement in order to mitigate risks to the security of supply of raw materials for the agro-food sector; and should fostering greater strategic interdependency be a component of this strategy?

# 1 The geopolitics of food, agriculture and raw materials

This chapter describes the emerging geopolitics of food, agriculture and raw materials. This chapter first discusses today's global challenge of achieving food security (1.1). Next, the chapter analyzes in what respects the current food crisis differs from historical food crises. Section 1.2 describes the changing international context in which countries need to secure food and raw materials. Then, an overview is given of policy measures countries have taken in response to the food crisis (1.3). Finally, it assesses what challenges these developments raise for the Netherlands (1.4).

## 1.1 The global challenge of food security

Food scarcity and hunger are a problem for large parts of the world. According to the Food and Agriculture Organization's (FAO) most recent estimate, 925 million people were undernourished in 2010.<sup>5</sup> People in many countries are suffering from food shortages and (chronic) undernourishment, including in Mali, Ethiopia, Eritrea, Zambia, Bangladesh, Mozambique, Yemen, the Democratic Republic of Congo, Somalia, North Korea, Niger, and Zimbabwe.<sup>6</sup> Hunger in these parts of the world is often a result of corruption, conflict, or marginalization, rather than an issue of absolute food scarcity.<sup>7</sup> Weak governance and dysfunctional institutions are at the root of the state's inability to deliver food security.<sup>8</sup>

The dire food situation in the developing world contrasts sharply with the food situation in developed world and emerging economies, which is characterized by massive food surpluses and obesity epidemics.<sup>9</sup> Nonetheless, food security is also increasingly becoming a strategic policy priority of governments in developed and emerging economies. This is due to confluent structural factors that are driving up food demand, hampering food supply, and heightening food prices.

### Growing demand and limited supply

First, the world population is set to reach over 9 billion by 2050.<sup>10</sup> The greatest share of this increase will take place in developing countries, in a setting of urbanization and robust income growth from economic development.<sup>11</sup> Population growth and urbanization are expected to result in 3 billion more urban dwellers by 2050. For most people living in cities, food will have to be brought in from remote food-production centers. Higher incomes will change diets and consumption patterns. As more and more people enter the middle class, demand for meat and dairy products will increase. However, animal products such as meat and dairy require more resources to be produced and cause higher emissions than plant-based alternatives.<sup>12</sup> Growing demand for meat diverts cereal stocks toward meat production; 7 to 10kg of cereals are required to produce 1kg of meat.<sup>13</sup> Globally, the 2012 Organisation for Economic Co-operation and Development (OECD)-FAO Outlook estimates that the world will have 2.3 billion additional mouths to feed by 2050. This rise in demand will require 60% more animal feed, 1 billion more tonnes of cereals, and 200 million more tonnes of meat.<sup>14</sup>

Second, food availability has come under increasing pressure due to competing demands from the non-food sector, mainly for the production of biofuel and animal feed. For instance, global demand for vegetable oils for non-food industrial purposes has tripled within 20 years. Demand from China and the European Union (EU) accounted for 40% of this increase.<sup>15</sup> The pressure from the biofuel sector is lessening somewhat as the continuation of mandatory blending of fossil fuels with biofuels is being debated in the EU and United States (US).<sup>16</sup> The discovery of shale gas and increased production from difficult-to-access oil deposits in the US may also temper the demand for biofuel. Although cereal availability is not a pressing issue yet, it is significant that between 2008 and 2011 cereal production for non-food purposes grew by 5.8% whereas cereal production for food purposes grew by only 2.5%. In 2010–2011 as much as 54% of total cereal production was used for purposes other than food.<sup>17</sup>

Several factors are hampering growth at the supply side. In developing countries, the agricultural sector has suffered from a persistent lack of investments for two decades. Underinvestment has resulted in a lack of proper food storage capacity, degraded roads, insufficient technical training and increased transportation costs.<sup>18</sup> This has made it difficult for local farmers to bring their products to the market in reliable and affordable ways. Productivity growth in developing



countries may have been negatively affected by the declining share of overseas development assistance dedicated to agriculture, which dropped from 19% in 1980 to 5% in 2010. In industrialized countries agricultural productivity growth has reached a ceiling.<sup>19</sup> In addition, supply has been affected by rising prices of energy and fertilizer that have put some farmers out of business.<sup>20</sup> In the coming years, climate change may act as a stress multiplier on the supply side, as increasing extreme weather events may negatively affect crops, livestock and fishery systems. Climate change may also reduce the availability of land for farming due to rising sea levels or the deterioration of land quality.<sup>21</sup> The availability of farmland is already decreasing due to residential and industrial development, urbanization and population growth.

### Price developments

The market fundamentals of unbalanced supply and demand have created fertile ground for excessively high food prices. The Food Price Index of the FAO shows that world food prices have gone from an all-time low in 2002 to record highs in 2008 and 2011 (see Figure 1).

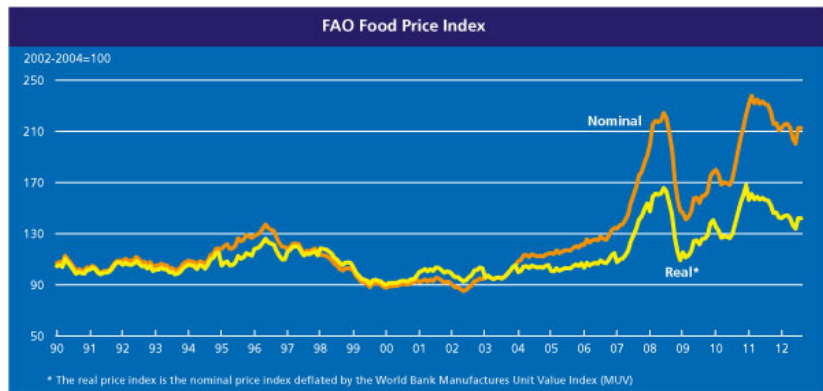


FIGURE 1 FAO FOOD PRICE INDEX 1990-2012

[SOURCE: FAO]

Policy measures that countries are taking in response to high food prices (see section 1.3) at times contribute to market distortions that hike up prices further and increase price volatility.<sup>22</sup> Agricultural prices vary due to variability in production and consumption patterns. Variability in production is primarily

caused by variations in area planted or weather events that cause yield variations. Consumption patterns change mainly because of changes in income, prices, and changing tastes and food preferences. Unpredictable variability in production and consumption transmit into price volatility. Additional factors, such as stockpiling and supply and demand shocks of other commodities, may also amplify or attenuate volatility.<sup>23</sup>

Some commentators assert that the increase in volatility also arises from financial firms that are increasingly investing in agricultural commodities through futures contracts and other financial instruments. Although this has received much attention in policy forums, such as the FAO and the Group of Twenty (G20), academic research is not conclusive on whether there is a relationship between price volatility and the activity of financial institutions. Meijering et al., for example, conclude that there is no evidence that speculation on agricultural futures markets has resulted in more volatile food prices on a weekly or monthly basis.<sup>24</sup>

The impact of price volatility depends on whether a country is a net importer or exporter of food and on how well it is integrated into world markets.<sup>25</sup> Advanced economies are usually most open to price shocks but spend only a small proportion of their national income on food. The least-developed economies are disproportionately affected, as they are often net importers of food products, either in raw or processed form, and spend up to 70% of their budgets on food.<sup>26</sup> Moreover, farmers in the developing world often lack insurance or savings, which would enable them to handle large income fluctuations caused by price volatility.<sup>27</sup>

### **Security implications**

Against this backdrop, food security is an issue which is increasingly dealt with in the realm of geopolitics. Indicative of this development is the recent discourse surrounding the spikes of food prices, which emphasizes the security risks of food scarcity. The security implications of food insecurity became fully apparent during the 2008 food crisis and more recently during the Arab Spring. In January 2011, record high food prices resulted in protests in Tunisia, in which over 100 people died and which subsequently led to the spread of revolutions in other North African and Middle Eastern countries. Commentators have since depicted food scarcity as the “hidden driver of world politics”.<sup>28</sup>

Although some commentators in the media write about the possibility of countries going to war over food<sup>29</sup>, there is no historical evidence of interstate conflict over food. This does not mean, however, that the threat of instability should be downplayed. On the contrary, incidents of violence related to food scarcity are numerous. According to the US State Department, more than 60 food-related riots have happened worldwide as a result of higher food prices and food insecurity.<sup>30</sup> Cases such as Liberia in 1980, the September 2010 riots in Mozambique, and the Arab Spring tell us that the risks of instability are real and serious.<sup>31</sup> The ongoing conflict in Darfur is also an example of how food insecurity can contribute to conflict and large migration flows. The situation in this western part of Sudan is partially caused by climate change, as settled African farmers and nomadic Arab tribes fight over failing land and dwindling supplies of water. If prices continue to rise and food becomes increasingly scarce, food is likely to become an ever-more important driver of regional instability, and consequently international politics, in the future.

Another phenomenon causing international tensions is land grabbing, which is the acquisition of agricultural land by foreign investors. High food prices have triggered an increase of large-scale acquisitions of farmland, especially in Africa, Latin America, in Central Asia and Southeast Asia. Governments of emerging and developed economies have started to proactively purchase or lease thousands of hectares of farmland in foreign countries as an alternative to buying food on the international food market. Target countries usually welcome this interest, as it brings foreign investment, technology, know-how, and infrastructure. Land deals, however, can also create instability and other security risks when compromising the local population's access to resources, alienating local people who depend on those resources for livelihood and food security, and putting local farmers out of business.<sup>32</sup>

## 1.2 The changing international playing field

Concerns about food security are not a new phenomenon. In the early 1970s, for example, prices of rice, wheat, maize, and soy beans also skyrocketed. Although current and past food crises share some characteristics the world today is fundamentally different from the past. To start with, the scale and speed with which changes ripple through the world system have radically changed in the age of globalization. Food insecurity today is often the result of a complex confluence of factors that may mutually reinforce each other, thus amplifying the scope and intricacy of the problem.<sup>33</sup> Also, the international system is in transition as a

result of two major trends: the transition to a multipolar world; and state capitalist tendencies.

### **Transition toward a multipolar world**

The international system is in transition toward a multipolar world order.<sup>34</sup> Whereas the international economic and political order was for the better part of the 20<sup>th</sup> century dominated by a triad of powers — US, Europe and Japan, of which the US was by far the strongest — their power is now in decline as economic and political power is shifting towards multiple emerging power centers.<sup>35</sup> This power shift has especially strengthened the position of the BRICS countries (Brazil, Russia, India, China and to a lesser extent South Africa).<sup>36</sup> The economic and financial crisis has been an accelerator of this power shift from West to East and the transition to a multipolar world. The crisis hit the developed countries hardest, resulting in the depreciation of the dollar and euro; a decline in GDP growth; mounting government debt; depleted national reserves; and, in case of the EU, highlighted economic and political divisions that threaten the continuation of the monetary union itself.<sup>37</sup> The fiscal austerity measures that Western countries are forced to take challenge their international commitments and leverage. The effect of the financial crisis on the growth of emerging economies was much less profound. Their economic power has encouraged the emerging economies to also bolster their political influence.<sup>38</sup> The BRICS countries, but also other emerging economies like Turkey, are increasingly challenging the Western-dominated international order. Multipolarity increases uncertainty, instability, and complexity in international relations and consequently augments the chances of international friction. This is especially true in security matters, where the declining willingness or capacity of the US to act as the global security provider may increase instability in Asia and the Middle East.<sup>39</sup> Such an international order increases the likelihood of supply disruptions due to protectionist policies or because countries use food and raw materials as strategic instruments.<sup>40</sup>

### **State capitalist tendencies**

In addition, in some respects the international system is increasingly departing from a market order dominated by neoliberal capitalism and is in transition to a world order in which state-capitalist tendencies are more prominent.<sup>41</sup> Especially in emerging economies, like China, India and Brazil, the state is, through (semi) state-owned companies, increasingly playing an important role in the support,

ownership, and management of businesses and strategic industries. The phenomenon of resource nationalism, previously primarily a feature of the oil and gas sector, is now also observed in the agricultural and mineral sector. Resource nationalism refers to a situation in which control over natural resources shifts from foreign to domestic state-owned companies. It also means governments align their policies, including those related to food, agriculture and raw materials, more explicitly with the national interest. This development has resulted in increased access restrictions, trade barriers, export quotas, and other manifestations of growing protectionism. Government support for the agricultural sector has been widespread in Europe for years, for example through the CAP, but it is also growing developing and emerging economies. Already in its 11<sup>th</sup> 5-year plan, China has made increasing government support to agriculture and to farmers a key policy priority in order to achieve food security.<sup>42</sup>

It should be noted that historically the role of the state in the resource sector has varied over time, depending on the reigning economic regime and conjuncture. In that sense, state intervention in the agricultural and mineral sector is not a new phenomenon. Time will tell whether the state-capitalist tendencies that can be observed today will eventually result in a broader shift from a neoliberal capitalist regime to a state-capitalist regime. The final outcome of the transition process remains uncertain. For now however, increasingly powerful state-owned companies, strengthened national control over natural resources, and national policies aimed at securing supplies of food, agricultural commodities and raw materials are shaping the international playing field and the geopolitics of food.

### 1.3 Policy responses

The global challenge of food security has been addressed by international organizations, such as the FAO, the United Nations (UN) World Food Program, the International Fund for Agricultural Development (IFAD), and the World Bank. Their efforts focus on improving the world food situation through redistribution, investment, food aid, and many other activities. National governments, by contrast, are focused on the more narrow interest of improving their domestic food situation. The policy measures that countries are implementing to this end are in turn affecting food and raw materials markets. See also Annex 1 on protectionist measures.

### **Producers, exporters and importers**

The policy responses of national governments are to a large degree dependent upon whether the country is a producer of agricultural commodities and whether it is a netexporter or importer. Looking at the supply side of agricultural commodities, a number of countries stand out as ‘prime deliverers’ around the world. China is the world’s largest wheat producer, followed by India and the US. France, Australia and Ukraine are the largest producers of barley. China and India are responsible for the bulk of global rice production; and the US, Brazil and Argentina hold most of the market for soy beans. The US is also the world’s leading corn producer.<sup>43</sup> On the demand side, China and Japan are major importers of soy beans. The Philippines, Saudi Arabia and Iran are major importers of rice; and wheat is chiefly imported by Egypt, Italy and Brazil. Barley is predominantly imported by Saudi Arabia, China and the Netherlands.<sup>44</sup>

It should be noted that larger countries are often important producing countries but not always important exporters. As a result of strong domestic demand, some producers maintain large stocks and export only a small share of their total production. In the most extreme cases, they are net importers. As a consequence, the markets for important commodities, such as rice, soy and wheat, are thin. (meaning that volumes traded are low) Of all rice production only 5% is traded in international market; the remainder is consumed domestically. By contrast, some small countries, such as the Netherlands, export large volumes to the international market.

### **Balancing domestic needs with export revenues**

As a result of the global food security challenge, governments in producer countries increasingly view their agricultural sector through a political-strategic lens and play an increasingly proactive role in this sector.<sup>45</sup> The agricultural sector is considered a strategic asset by “prime deliverers” for the reasons that it both satisfies domestic demand for food, and maximizes state revenues by exporting food to the global market. In order to do so, a common practice among producing countries is to implement production quotas or export restrictions. This may, however, decrease the availability of food on the global market and contribute to food shortages elsewhere. For example, persistent drought and forest fires caused an almost 40% reduction in the Russian grain harvest in 2010. In response the Russian government enacted export restrictions on grain, which caused Russian grain exports to grind to a halt and resulted in shortages on the international market.

### Securitization of food policy

Heightened awareness about global food security challenges has prompted many import-dependent countries to develop policies aimed at securing a stable and affordable food supply and at mitigating supply disruption risks. These policies have included acquiring access to food from overseas through proactively purchasing or leasing agricultural land abroad, or through vertical integration of companies in the food supply chain. For example, over the past few years, China has been purchasing and leasing large areas of agricultural land in some of Africa's poorest countries.<sup>46</sup> Import-dependent countries have also implemented policies designed to reduce their dependence by improving efficiency and reducing food waste.<sup>47</sup>

### 1.4 Challenges for the Netherlands

Overall, this chapter has made clear that food security in the 21<sup>st</sup> century has become a topic firmly on the policy agenda of governments worldwide. The aforementioned trends and developments also raise a number of challenges for the Netherlands, which is endowed with a strong agro-food sector. High food prices and food shortages are first of all problematic from a humanitarian point of view. They make it difficult for the international community to fulfill the Millennium Development Goal (MDG) of eradicating extreme poverty and hunger, to which the Netherlands is also committed.<sup>48</sup> But food scarcity is also indirectly a threat to Dutch economic interests and the Dutch agro-food sector. According to the Global Hunger Index<sup>49</sup> the hunger situation in 20 countries is alarming, including in India and other countries that are key to stability in troubled regions (for example, Yemen, Eritrea, and Sudan). Some countries are sourcing regions of the Dutch agro-food sector, such as Ethiopia and India. As stated above, food insecurity in these countries can lead to political instability and threaten the supply of food and raw materials to the Netherlands.

Furthermore, the various policy measures that countries take with the aim of securing their economic activities related to agriculture and food can also negatively affect global food security. Export restrictions, overseas acquisitions, stockpiling, the promotion of vertical integration, and forms of protectionism inhibit the functioning of the global food market; can reduce the availability of food on international markets; and heighten international tensions, especially in a context of multipolarity. As a consequence these policy measures may threaten the supply security of the Netherlands.



## 2 Risk assessment of the Dutch agro-food sector

This chapter analyzes the risks to the production potential of the Dutch agro-food sector in light of its dependency on imported raw materials and minerals. The chapter consists of three sections. Section 2.1 analyzes the economic interests of the Dutch agro-food sector. It provides an overview of the contribution of the sector to the Dutch economy and trade balance, and identifies the clusters of substantial strength. We follow the definition of the “agricultural complex”, i.e., all activities related to agriculture and food including the processing, supply, and distribution of raw agricultural materials. Section 2.2 sheds light on the vulnerability of the Dutch agro-food sector by looking at the importance of commodity imports for the Dutch agricultural complex. Finally, section 2.3 identifies a number of risks to the operation of Dutch agribusiness that relate to the dependency on critical imports of agricultural commodities and raw materials from non-EU regions.

### 2.1 Economic interests of the Dutch agricultural complex

The Dutch agro-food sector is of strategic importance for the Netherlands. From a strategic point of view it can be argued that it is important to maintain a domestic food production capacity in order to ensure food security. In that case, it is worthwhile to consider sustaining a diverse range of agro-food industries.

The economic importance of the agro-food sector for the Netherlands can also be quantified. The Netherlands is the world’s second-largest exporter of agricultural products and one of the world’s leading producers of vegetables and fruit. In 2011, the total value of Dutch agricultural exports amounted to nearly €73 billion. Ornamental products, meat and dairy products are the top 3 export products traded with other EU countries. For trade with non-EU countries, the top 3 consists of dairy products, cereal products (including starch) and drinks.

The agro-food sector adds value to the economy and provides employment. In 2010, the agricultural complex corresponded to approximately 10% of the total

added value and national employment in the Netherlands (see Table 1).<sup>50</sup> Roughly half of these activities (4.9% of GDP) are, to a greater or lesser extent, directly related to agriculture and horticulture, including the related input and processing industries. The other half of the agricultural complex comprises a range of activities based on imported raw materials, and also agricultural and agro-based services including horticulturists and forestry.

	(EUR BILLION)		[% OF GDP]	
	2001 (preliminary)	2010 (preliminary)	2001 (preliminary)	2010 (preliminary)
Activities based on foreign agricultural raw materials (1)	15.3	22.4	3.8	4.3
Pasture-based livestock farming (2)	6.1	7.2	1.5	1.4
Glass-horticulture (3)	4.7	5.6	1.2	1.1
Arable farming (4)	4.0	5.4	1.0	1.0
Intensive livestock farming (5)	5.1	5.4	1.3	1.0
Forestry, horticulturists and agricultural services (6)	3.8	4.3	1.0	0.8
Arable horticulture (7)	1.7	2.2	0.4	0.4
Total agro-food cluster	40.6	52.5	10.2	10.0
p.m. Agrocomplex based on domestic agricultural raw materials	21.5	25.8	5.4	4.9

TABEL 1: GROSS VALUE ADDED OF THE DUTCH AGRICULTURAL COMPLEX, 2001 AND 2010 (RANK)

(SOURCE: BERKHOUT AND ROZA, 2012)

### Agro-food clusters of substantial strength

The agriculture and food clusters are linked in several ways. As a result, the statistical presentation in subclusters is necessarily arbitrary, and a ranking of subclusters to identify star performers is equally difficult. Keeping this caveat in mind, the three clusters with the highest value added are identified as the most relevant clusters for this chapter. These are imported materials, dairy farming and glass horticulture; a set that covers approximately 60% of agricultural GDP.

- 1 The value creation from internationally-acquired raw materials for use other than in Dutch agriculture (i.e. as inputs to the Dutch food industry or for export) contributes to 4.3% of GDP. Within the agricultural complex based on international raw materials, the largest contribution in terms of value added comes from the processing of materials by the food industry (€9 billion), followed by the supply of inputs and services (€8.2 billion), and finally marketing and distribution (€5.2 billion). Key clusters in the processing industry include fat and oil, and liquor and tobacco.
- 2 Pasture-based livestock farming, which is dominated by the dairy cluster, contributes 1.4% to GDP (€7.2 billion) and 14% to the added value of the agricultural complex. A small share of the cluster consists of cattle farming. This cluster holds strong linkages to intensive livestock farming (10.2% of agricultural GDP) through the input markets. As both sectors source imported feedstock from the feed industry, dairy farming contributes feed and calves to the veal cluster, and so on.
- 3 The glass-horticulture complex contributes 1.1% to GDP (€5.6 billion). In this cluster, the bulk of end products proceed directly to consumer markets without further processing. As a result, primary production dominates the glass-horticulture cluster, indicated by a contribution of just under 60% of value added. Supply follows at 35%. The share of processing and distribution is limited.

## 2.2 Critical imports of agricultural commodities and raw materials from non-EU regions

Critical imports are defined as agricultural commodities and raw materials with a high value added per unit of imports for which few sourcing options exist within the EU.

In terms of macronutrients (carbohydrates, protein), micronutrients (zinc, iron, vitamins), and soil nutrients (i.e. fertilizer components), there are only a limited number of regions in the world that produce the bulk of the world's food, feed and mineral supply. The uncertainties with respect to the securing of Dutch critical imports for the future are to a large extent linked to the developments in these regions.

As much as 4.3% of the Dutch economy is directly related to the supply, processing, and marketing of agricultural raw materials imported by the food and feed industry. In addition, the feed suppliers to the dairy and intensive livestock farming clusters depend strongly on agricultural and mineral imports, as over 95% of the agricultural raw material for the feed- and grain-processing industry is sourced through imports.<sup>51</sup>

The value of products imported by the Dutch agricultural sector grew to €48.3 billion in 2011.<sup>52</sup> For trade within the EU, the most important traded products are meat, dairy, cereals, seeds, pulses, and potatoes. For trade with non-EU countries, fruit, nuts, and spices are ranked highest, followed by coffee, tea, cacao, and margarine, fats, and oils. Feed imports consist of a flexible range of bulk goods to deliver the appropriate protein, fat and fibre content. Finally, soy beans are among the largest feed stocks that are imported.

In terms of non-factor input, crop nutrients like nitrogen, phosphorus and potassium are important to consider. The Netherlands is a large producer of all kinds of fertilizers, based either on nitrogen, potash or phosphorus ('single fertilizers') or on a combination of nutrients. The Netherlands depends entirely on the import of potash, as no potash mines exist within the Netherlands. The world's largest reserves of potash are located in Canada and Russia. For phosphorus, the Netherlands is a net importer as well. Within the EU, only Finland possesses large reserves of phosphorus. Recovering phosphorus is a possible way for the Netherlands to lessen its import dependency, but this is a costly procedure.

### 2.3 Risks to Dutch agribusiness that relate to import dependency

This section explores the possible risks to the Dutch agribusiness sector along three risk vectors: economic, environmental, and political risks. The appropriate definition of risks relates to a likely scenario that importers in Dutch agribusiness are unable to source (or secure physical access to through derivatives) raw material for critical imports through open markets, commodity exchange, or business-to-business contracts. As a major simplification, these risks will be discussed as separate categories, although in many cases the ramifications across these various dimensions will amplify risk levels.

### **Economic risk**

Economic risk relates to excessive price increases in the market beyond the management capabilities of the importer, for example using hedging instruments. At its most extreme, price levels will prohibit trade. Following this line of reasoning, there are two relevant dimensions of economic risk in relation to the price formation of commodity imports into the Dutch agro-food sector. The first is the extent to which market concentration gives way to supplier (oligopoly) or buyer power (monopsony) in setting prices and the negotiation of deals. The second dimension is the extent to which importers in the Netherlands have sourcing options within the EU market, as this provides important fall-back options. Table 2 provides indications of the geopolitical profile of five commodity groups, largely based on in-house expert judgement. The commodities listed are important raw materials for the top 3 clusters identified above, which are imported from non-EU regions.

Several strands of economic risk can be distinguished. The first types of risk are price rises over time as a result of demand growth outpacing productivity growth or extraction rates. This is the key pricing mechanism that determines prices for land-intensive crops and finite minerals. As outlook studies show, such price increases are not hypothetical. Moreover, agricultural markets are known to be fragile in general, as the differences between shortage and surplus are small and can quickly change, creating severe price swings. A specific subset of these risks relates to strong competition for resources, which drives farm-gate (or mine-gate) prices up. In addition, grain traders and mineral producers have some leverage to influence global prices in the short term through stockpiling. The trade in agricultural commodities and minerals (for example, grains and soy beans) is dominated by a handful of trading companies. In the case of minerals, trade is concentrated in the hands of only a few producer countries. Again, the bargaining power of Dutch producers is limited because of the relatively small volumes of imports.

COMMODITY GROUP	ECONOMIC SIGNIFICANCE	DIMENSIONS OF ECONOMIC RISK IN RELATION TO PRICE FORMATION*		CURRENT TOP 5 SOURCING COUNTRIES OF RAW MATERIAL #
	IMPORT VOLUME/ VALUE ADDED PER UNIT OF IMPORTS*	GLOBAL MARKET CONCENTRATION	SOURCING OPTIONS IN THE EUROPEAN UNION	
Fruit, nuts and spices	High / high	Competitive, integrated supply chains	Limited (for specific tropical fruit and spices) to fair/good as most fruit, nuts and spices have good substitutes that grow in the EU	Fruits and nuts: South Africa Chile Brazil United States Costa Rica  Spices: Vietnam Indonesia China India Brazil
Coffee, tea and cocoa	High / high	Few producer regions, strong market concentration	None (tropical commodity)	Cocoa: <sup>^</sup> Côte d'Ivoire Ghana Cameroon Nigeria Dominican Republic
Margarine, fats and oils (incl. palm oil)	High / fair	Several producer regions, land use constraints	Fair (substitute vegetable oil crops)	Indonesia Malaysia Philippines Papua New Guinea United States
Nitrogen, phosphorus and potassium	High / high	Few producer regions, strong market concentration	None for phosphorus, limited for other	Israel Russian Federation Norway United States Tunisia
Coarse grains and soy bean for animal feed	Fair / fair	Strong market concentration, land use constraints, GM regulations create segmented markets	EU supply insufficient to meet EU demand	Soy bean, incl. oil cakes: Brazil United States Australia Paraguay Argentina Grains: Ukraine Brazil Argentina Thailand United States

# 2011 Import values (cif prices) from non-EU regions, source : UN COMTRADE data.

<sup>^</sup> The top 5 countries for coffee (not roasted) are Brazil, Vietnam, Honduras, Peru, Costa Rica, and for tea Sri Lanka, China, India, United States, Argentina

TABLE 2: GEOPOLITICAL PROFILE OF AGRICULTURAL COMMODITIES

(\* SOURCE: PRELIMINARY EXPERT JUDGEMENT BY LEI )

Second, Dutch agribusiness will suffer as a result of price fluctuations which exceed the 'normal' level, rendering company instruments to address market fluctuations such as hedging obsolete. In international agribusiness, there is a wide body of evidence on vertical integration, i.e., the reduction of the number of operators in a supply chain. Classical examples refer to the integration of fertilizer and plant protection chemicals with the production of propagation material, which was driven by a control of supplier power and desire to reduce R&D expenditures. The fertilizer industry features a limited number of transnational corporations. There is also anecdotal evidence on integration with the aim of reducing risk and increasing stability in a volatile market environment. Recent research on price evolution and price transmission indicates that input and output prices can diverge and/or respond to each other in a lagged way. This creates cycles in profitability, in particular in agricultural subsectors characterized by small margins, thus disturbing investment and innovation patterns.

A particular risk represents the asynchronous approval of tolerances for low-level presence of genetically modified (GM) organisms, particularly in feed stocks such as soy bean and corn. The EU is lagging behind other major soy bean and corn importers such as China in the approval of minimal traces of GM contaminations in import consignments. There is a risk that the sourcing of grains for food and feed use in the EU will be constrained if the markets for EU-approved feed stocks become tight.<sup>53</sup> In particular, this risk is amplified as Argentina, Brazil, and other producer regions switch massively to GM varieties that are not approved in the EU. Rising feed costs will certainly undermine the competitiveness of the cluster around intensive livestock farming in the Netherlands, which has been operating on low farm-gate prices and low profit margins over many years.

Third, rising energy and/or carbon prices affect the costs of transport and place a penalty on cross-border trade over longer distance, thus affecting the sourcing options for importers. Trade costs are made up of freight and insurance costs, border taxes, customs procedures and licensing (or their time equivalent). At present such costs are relatively low. However, when energy prices rise, the geographical length of a global supply chain may become a restricting factor. Moreover, carbon trading schemes may provide a penalty for sourcing over long distances (e.g., food miles). This may affect the competitiveness of parts of the Dutch agro-food cluster that add limited value to imported raw material, the feed sector in particular.



### Environmental risk

Depletion and abandonment of agricultural land is one of the environmental risks cited in the literature. Another risk is biodiversity loss and ecological decline (i.e., the erosion of ecosystem functionality). Because of the inter-dependence among ecosystems and agriculture, ecological decline can also lead to diminishing agricultural productivity.

Together with drought and desertification, land degradation is increasingly considered a global problem, because its extent and impacts are increasingly affecting environmental and social vulnerability.<sup>54</sup> Land degradation does not pose, at least in the short term, such a problem for the supply certainty of soy, given that large-scale production of soy beans takes place in countries where land is relatively abundant, partly as a result of deforestation (for example, Argentina and Brazil). That being said, deforestation can have important socio-economic consequences, which in turn have a negative impact on local food security (see Annex Chapter 2 case study on soy beans). Land grabbing can contribute and accelerate deforestation.

A third pronounced environmental risk is climate change. Rising temperatures and changing precipitation levels associated with climate change may have a localized adverse impact on crops, soils livestock and pests. Higher temperatures reduce crop yields and encourage the proliferation of weeds, plant diseases, and pests.<sup>55</sup> According to some estimates, by 2085, climate change could result in the loss of 11% of arable land in developing countries. For Africa, this estimate is even higher.<sup>56</sup> Although climate change could lead to gains in yields and cultivated area for some crops and regions, the overall impacts on agricultural production are projected to be highly negative, with increasing food prices intensifying the risk of hunger.<sup>57</sup> Vulnerabilities associated with climate change include food insecurity and increased poverty.

Other environmental risks cited in the literature are stratospheric ozone depletion, acid deposition, deforestation, overuse and pollution of fresh water supplies, fishery decline and atmospheric pollution. Most of these risks however are not directly related to agriculture, with the exception of overuse and pollution of fresh water supplies.

### Political risk

Political risk relates to effects on the security of supply of importing countries as a result of decisions taken at the political level of commodity exporting countries. Section 1.2 already mentions resource nationalism to describe a situation in which governments aim to strengthen national control over natural resources and align their natural resource policies more closely with the national interest. The prevalence of expropriation and resource nationalism is expected to increase and has been identified as a key risk for 2013.<sup>58</sup> A number of different types of political risk, of which the first two can occur as symptoms of resource nationalism, can be distinguished.

First, commodity-exporting countries can decide to restrict the exports of raw materials. One way this is done is through the establishment of (high) taxes on exported raw materials; a decision which drives up global prices and limits supply as a result (see Annex 2, case study on cacao).

Second, vertical integration in commodity-exporting countries (see also the paragraph on economic risk) carries the risk that exports increasingly take the form of processed goods, thus limiting the export of raw materials. For consuming countries with a heavy presence in the commodity processing industry, this means a tightening of raw material supplies (see Annex 2, case studies on cacao and soy beans).

Third, civil conflict can act as a major 'shock' to the exports of raw materials. Examples include the disruptions in the supply of cacao from Ivory Coast in the aftermath of the 2010 presidential elections, the drop in the supply of phosphate rock from North Africa after the Arab Spring, and the current halt in phosphate rock exports from Syria due to the ongoing civil war (see Annex 2, case study on cacao and Annex 3, case study on phosphate). Political instability can also be a risk factor for security of demand and hamper the exports of product from the Netherlands. For example, one-quarter of seed potatoes from the Netherlands is exported to North Africa and the Middle East. Exports to Libya and Syria fell as a result of instability.<sup>59</sup>

Fourth, a high demand for commodities in large emerging economies can prompt a reorientation of trade flows to regions of high demand. This can come at the expense of other high-consuming regions such as Europe (see Annex 2, case study on soy beans).

Finally, a high demand for cash crops can cause governments and farmers in commodity-producing countries to value the production of these crops over traditional agriculture, often diverting land away from (local) food production and placing local food supply under pressure (see Annex 2, case study on soy beans).

### Response time to risk factors

From an economic point of view, risk cannot be dealt with isolated from a time horizon (see Figure below). The essential issue here is that a well-functioning economy allows for adjustment and substitution (the Rs: Reduce, Reuse, Recycle, Replace, and Redesign). This point can be illustrated by the difference between the short-run and long-run economic damage to the EU's animal production sectors caused by asynchronous approval policies regarding genetically modified protein products (including soy) between the EU and its trading partners. Whereas the short-run impacts could be detrimental to the EU's pigs and poultry sectors, the longer-run impacts, which were still significant, differed from the short-run ones by an order of magnitude (being only 25% of the short-run impacts on prices). Factors explaining this differential were the time needed to displace one input for another, time needed to develop alternative markets for sourcing and time needed to pass on cost increases in the primary meat producing sector to later stages in the supply chain and to final consumers. Also taking into account the study of Jansen et al., the adjustment time could be derived to be about 4 to 5 years.<sup>60</sup> After this time the impact will approximate the long-run impact. Responsive policies to risks, bridging the short run and allowing the involved sectors to adjust are very important.

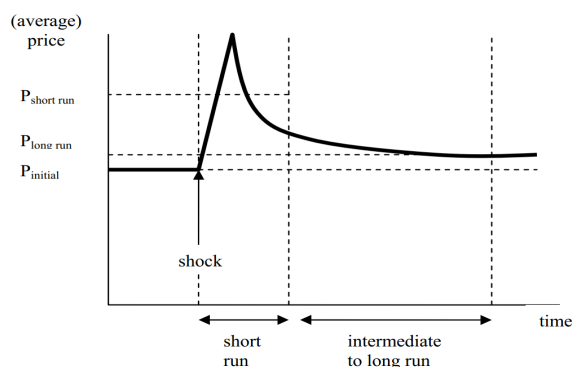


FIGURE 2: RISK PERIODS FOLLOWING A SHOCK

(SOURCE: NOWICKI ET AL, 2010)

## 3 Opportunities for the Netherlands

This chapter provides an assessment of the potential bargaining capital of the Netherlands and how this may be instrumental in securing access to raw materials for the agro-food sector. First, the chapter looks at the particular strengths of the Dutch agro-food cluster in the international market (3.1). Next, the chapter discusses several options to capitalize on these particular strengths in the sourcing regions of critical imports for the Netherlands (3.2).

### 3.1 What are the strengths the Dutch agro-food sector has to offer?

Recently, stakeholders in the agro-food cluster were asked to reflect on the international orientation of the cluster in preparation of the strategies of the Dutch topsectors.<sup>1</sup> Both the topsectors (Horticulture & Propagation Materials and Agro-Food) identified expanding the activities outside the European home market as a main mission. The Netherlands is already a leading exporter of a wide variety of goods and services to the world market. At present, 20% of agro-food exports are destined for regions outside the EU, mainly Asia (6% of exports); the trade comprises mainly dairy products, beverages, coffee, and tea, as well as flowers and other floriculture products. As the agriculture and food markets in the emerging economies mature, the potential for expanding the export position of the Netherlands is growing, especially in the following areas.

#### **Exporting high-value consumer products and genetic material**

The production of bulk agricultural products, such as sugar or milk powder, is no longer a key strength of the Dutch agro complex, as decades of rising labour

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1 Agro-food, Horticulture and propagation materials, High Tech, Energy, Logistics, the Creative Industry, Life sciences, Chemicals and Water are selected as priority sectors for Dutch government. Each topsector has mapped out various opportunities and challenges, and presented action plans detailing their ambitions and their approach. See the documentation on the website of the topsectoren (<http://www.top-sectoren.nl/>).

costs and strengthening environmental regulations have eroded the Dutch competitiveness on these markets. The portfolio of exports toward EU and non-EU markets has gradually shifted to high-value consumer products and genetic material. The export values for seed potatoes, for example, have surpassed those for table potatoes, and the same applies for infant formula and milk powder; dairy cattle and animal genetic material; tomato sauce; and bulk tomatoes. The key to this successful upwards movement in the value chain lies in the competitiveness and innovative strength of the primary agricultural sector and a strong level of integration with the advanced food processing industry.

### **Direct investment into emerging food and beverage industries**

Knowledge and innovation, embodied in higher-value agro-food products, are increasingly being considered in themselves as export products for the Netherlands for which there is a large untapped potential on international markets.<sup>61</sup> This implies a shift from the export of agricultural products to the export of agricultural services and inputs; and a greater orientation towards foreign direct investment in emerging agricultural markets. Already for some time, the Rabobank has been signalling the rising importance of partnerships between Dutch companies and firms in the region.<sup>62</sup> These partnerships often relate to supply-chain integration and particularly involve the food and beverage industry. The Dutch food and beverage industry has dramatically increased its stock of foreign direct investment outside the EU, US and Japan. Compared to the decade before the financial crisis (2000–2009), the volume of FDI stock of food and beverage industry has more than doubled, from €6.0 billion FDI in between 2000 and 2009 to €14.9 billion in 2010–2011.<sup>63</sup> In the early 2000s, according to the most recent data from the Nederlandsche Bank, the bulk (55–70%) of FDI stock was located in South and Central America.

### **Developing sustainable and efficient supply chains for the urban consumer**

The topsectors Horticulture & Propagation Materials and Agro-food identify as their main strength in the international market their ability to upgrade current agricultural and horticultural systems toward efficient, integrated food clusters that can serve the expanding cities in the emerging markets.<sup>64</sup> With the growing concentrations of wealth and population in middle-income countries, urban markets for fresh products are maturing. Inputs and expertise from the Netherlands can be instrumental in the advancement of local agricultural supply chains for dairy, vegetables and other high-value products. For example, the strategy document by Horticulture & Propagation Materials identifies new

market prospects for Dutch suppliers (engineering, plant material, propagation material, greenhousing), trade companies and services in the field of education and training, (cultivation) advice, consultancy, logistics, etc. Similar opportunities are identified by the Agro-food sector.

Moreover, both these topsectors have articulated their ambition to move into partnerships with local entities to support the upgrading of existing food supply systems toward greater productivity and efficiency in resource use. The Agro-food topsector offers a partnership on “customized system solutions” for solving problems of sustainable food production and supply. These system solutions “consist of a combined package of products, knowledge, technology and services that fit local needs and conditions. They thus contain all the elements necessary to produce the products needed including the development of the associated supply chains.” As such, expertise on financial services and retailer expertise in logistics and marketing could be combined with the hardware to set up a dairy processing plant to help deliver an integrated agricultural cluster on a model as efficient and innovative as the Netherlands.

In sum, the key bargaining capital of the Netherlands is its agricultural knowledge that runs across the board of the three areas identified above. The Dutch strength lies in its (self-acclaimed) role as champion in the development of sustainable and efficient production systems, notably around urban concentrations where the demand for fresh, high-value foods is most prominent. Both topsectors focus heavily on the emerging markets. The intention is to target, in addition to the BRIC countries, several growth countries nearby (Turkey) and further away (Indonesia, Vietnam, Kenya) where middle classes are firmly established. In addition, there is the intention to expand activities in developing countries that receive official development assistance from the Netherlands, albeit largely on a pre-competitive basis.

### 3.2 Opportunities to use Dutch strengths in mitigating supply risks

What potential economic leverage does the strengths of the Dutch agro-food sector offer in the sourcing regions for critical imports of agricultural raw material? This section provides a quick scan, with examples of the products and markets that were identified as essential for the Dutch agro-food sector. In chapter 2 we identified three groups of commodities and related sourcing regions, where the Netherlands may wish to secure its access to locally produced

commodities or minerals. These three regions and resources will require different types of strategies in positioning Dutch strengths to secure Dutch interests.

### **Contributing to food security and value chain integration in cacao producing countries**

For many tropical commodities such as cacao, tea, spices and palm oil, the Dutch industry is fully dependent on producers elsewhere in the world. This section looks at the opportunities for cooperation with countries from which the Netherlands sources most of its cacao, namely Cameroon, Ivory Coast, Ghana and Nigeria. In the tropical, low-income regions where cocoa beans are grown and harvested, population growth and the desire to improve the food security generate a demand for Dutch knowledge and expertise on how to sustainably increase productivity and to add value to the harvested crops through better integration in global value chains. Increases in agricultural productivity in this region will require the use of high-value input and farming systems and the upgrading of agricultural logistics in order to reduce of post-harvest losses. The propagation of material and operational expertise in Dutch supply chains can be considered as strategic assets in addressing this challenge. The added value of Dutch knowledge and expertise in this area is demonstrated by, for example, the presence of Royal Ahold in Ghana. For several years, the Netherlands-based global retailer corporation Ahold has integrated sustainability in the daily operations of the growers of fruit and vegetables. Another example is the Dutch involvement in cocoa production, in particular through supply chain integration programs, such as the African Cocoa Initiative (see Annex to Chapter 3).

An additional opportunity for the Dutch agro-food sector is to create synergies between cash-crop production and food security in these regions. As populations expand, national governments are under pressure to improve food self-sufficiency without compromising income and foreign exchange revenues from the cash-crop sector. Being involved in improving the food security of domestic populations could enhance the level of cooperation with the national government in the cocoa-producing regions and, consequently, may help to safeguard the economic interests of the Dutch agro-food cluster.



### **Scientific partnerships with major soy bean producers**

The competitiveness of intensive livestock farming in the Netherlands is critically dependent upon low-priced feed input. As an example, the case of soy beans has been examined, which are heavily sourced from US, Brazil and Argentina. The soy bean sectors in US, Brazil and Argentina are generally integrated in advanced primary production and processing clusters, supported by a well-functioning agricultural knowledge and innovation system.

Presumably, the main opportunity for cooperation lies in fostering scientific partnerships focused on advancing the efficiency, productivity and sustainability of production. In Brazil and Argentina, there has been a stated interest in the Dutch operational and logistical models for agro-food supply chains, particularly in connection with a knowledge agenda and capacity development. Taking a broader perspective on productivity improvement, the Netherlands, and the EU at large, possess a location and knowledge advantage vis-à-vis the African continent. Where previously the Dutch “triple D” approach to the military mission in Afghanistan was heralded by the US, in future the “golden triangle” could make headway as a model for agricultural development. Both the US and Brazil show interest in establishing a global partnership for improving the performance of the global agricultural system, particularly in Africa and Eastern Europe — two key regions where large untapped agricultural potential remains. This presents an avenue for the Netherlands to strengthen its bargaining position in the global resource game.

### **Supply chain development and water management in phosphate-producing countries**

Fertilizer is a critical input for all arable and glass-house agriculture and horticulture activities in the Netherlands. The fertilizer on the Dutch market is partly produced from imported raw materials, including phosphate rock, and partly imported as processed fertilizer. There are very few sourcing regions for the major fertilizing minerals. An increasing share of phosphate rock and fertilizer is expected to come from Morocco.<sup>65</sup>

Opportunities for closer cooperation with Morocco are positive. There are substantial trade relations with the country, in particular through value chains for fresh vegetables, oranges, melons, and other fruit — which are channelled in bulk through the Rotterdam and Schiphol ports towards the EU hinterland. Besides our logistic assets, Dutch expertise on fresh fruit and vegetables and

supply chain logistics may be equally valuable. There is potentially a large interest in Dutch expertise in engineering water management, in order to make maximum use of available freshwater resources (increase irrigation, prevent salinization, etc). Many water-related investments and infrastructures will also contribute to improve the preconditions for agricultural growth. Freshwater management and integral waste management represent an opportunity to treat water and waste originating from urbanized areas more adequately with the potential to improve health and sanitation. Opportunities for strategic cooperation with Morocco are discussed in further detail in the Annex to Chapter 3.

In sum, the key opportunities for the Netherlands in sourcing countries of critical materials lie in establishing public-private partnerships that are aimed at finding system solutions, that offer flexible and sustainable solutions to local emerging issues. In addition, the Netherlands has the knowledge and expertise to look at local agro-food challenges from a value-chain approach. In public-private partnerships, the Netherlands can offer knowledge on how to reduce costs and inefficiencies but also on how to make bigger additions of value.

## 4 Conclusion: perspectives for action

Most of the world's food supply is currently organized in long and complex supply chains. Food ingredients travel many miles and pass several stages of processing and trading before they arrive on our plate. This has brought an impressively differentiated food supply, at ever declining costs, to an increasing part of the expanding global population. At the same time, analysts and policymakers have raised concern over the robustness of the food system in the face of shock. A local harvest failure or regime change can have strong repercussions on regional and even global agricultural markets.<sup>66</sup> The interdependencies and compounded risk of problems in stability, quantity, quality and price of the raw agricultural materials supply have been addressed at the level of Europe<sup>67</sup> and Netherlands.<sup>68</sup> Being at the heart of the international trading system, the Netherlands is prone to several types of risk.<sup>69</sup> A vulnerability assessment or risk analysis identifies where the major risks lie and what can be done to mitigate the impact of such hazards. This report is a first assessment of the need for an encompassing research and policy perspective on the geopolitical dimension of supply security for the Netherlands. On this basis we derive several policy recommendations.

### 4.1 Towards a new perspective on risk mitigation

Although the Dutch agro-food sector is well integrated into the world market and the direct risk of absolute food scarcity in the Netherlands is low, geopolitical risks are prevalent and should not be neglected. More awareness is necessary that scenarios are not unthinkable under which the Dutch agro-food sector has difficulty in adequately sourcing raw material imports, either through open markets, commodities exchanges or business-to-business contracts. To create this awareness, one of the first things the government could do is to contribute to the necessary information for proper risk assessments, for example by doing studies that identify risks (and solutions) for specific subsectors of the agro-food cluster. This report follows a more general approach and describes different economic, environmental and political risks to the supply security of Dutch importers. These risks are related and can amplify each other.

From this perspective, the Dutch government has an important role to play in devising strategies that focus on mitigating supply risks. Traditionally, the Netherlands has had a strongly normative approach to international cooperation. Today's international playing field, however, also requires a more strategic approach. To reconcile the two, the Dutch strategy should go beyond simply achieving the largest supply security at the lowest cost. The Netherlands should distance itself from resource nationalism and aggressive overseas policies to secure food and raw materials, which sometimes hurt the local economy or local food security. The Netherlands can set itself apart by avoiding shifting the burden of securing the interests of the Dutch agro-food sector on to developing countries and by instead focusing on cooperative solutions aimed at creating long-term win-win situations that benefit both the Netherlands and the sourcing countries. Reciprocity should be at the heart of the Dutch risk-mitigation strategy.

The urgency of the problem requires that the Dutch government take action at several levels simultaneously. The policy recommendations below indicate how the Netherlands can mitigate supply risk at various levels of action, such as the multilateral, the EU, and national levels. This report argues that taking actions at the multilateral level is not contradictory with simultaneously pursuing bilateral partnerships.

## 4.2 Policy recommendations

Given the policy objectives of the Dutch government to take care of the interests of Dutch consumers and producers of agro-food products and to support a safe and stable world characterized by fair international relationships, a number of policy recommendations can be formulated.

### **1 Maintain domestic food production to sustain knowledge and innovation base**

At the EU level, the Dutch government should support reforms of the CAP that aim to maintain a resilient, resource-efficient food supply in Europe and encourage innovation for sustainable production. First of all, maintaining a level of European food self-sufficiency can serve as cushion against interruptions of food supply. In some circles concerns exist about food security in the EU in the long run.<sup>70</sup> Others, however, put forward that there is no reason to doubt about the food supply in the EU during the coming decades.<sup>71</sup> The

different perceptions of EU food security are affected by expectations about how the EU agricultural system will respond to global- and policy- related drivers.<sup>72</sup> Uncertainties about these responses reveal the need for a thorough analysis of the future development of the EU agricultural system and an assessment of whether a revision of the EU food strategy for the future would be necessary.

What is clear, however, is that maintaining domestic production is also necessary to sustain an advanced agricultural knowledge system and to remain innovative in the field of agro-food.<sup>73</sup> This is especially important since knowledge and innovation are increasingly a source of export revenue and lie at the basis of the competitive position of the Netherlands abroad. In recent years, Dutch exports have shifted away from bulk agricultural products to high-value consumer products, agricultural services and inputs, and foreign direct investment in emerging agricultural markets. The Dutch government should support the maintenance of domestic production and innovation so that the Netherlands can benefit from its competitive advantage in providing high-value consumer products, genetic material and efficient and productive food-supply systems. There is an additional geopolitical motive to sustain an advanced agricultural knowledge system: there is tremendous value in having a platform for a strong Dutch involvement in unlocking underutilized agricultural potential in the world.

## **2 Focus on top sourcing countries of critical raw materials and explore new sourcing opportunities**

The Dutch government should focus on extending partnership with the key countries from which the Dutch agro-food sector imports critical materials. Critical materials are defined as agricultural commodities and raw materials with a high value added per unit of imports and for which few sourcing options exist within the EU. The critical materials for the Dutch agro-food sector can be divided into five groups: 1) fruit, nuts and spices; 2) coffee, tea and cocoa; 3) margarine, fats and oils; 4) nitrogen, potassium and phosphate; and 5) coarse grains, soy protein and other feedstock. Table 2 in chapter 2 identifies the top-5 sourcing countries for each group of critical materials. Of the total of 26 countries on the list, some countries, see table 3 below, are a top supplier for more than one resource and are therefore of special importance to the Dutch agro-food sector.

COUNTRIES	FRUIT, NUTS AND SPICES	COFFEE, TEA AND COCOA	MARGARINE, FATS AND OILS	NITROGEN, POTASSIUM AND PHOSPHATE	COARSE GRAINS AND SOY PROTEIN
Brazil	X				X
Indonesia	X		X		
Nigeria		X		X	
United States	X		X	X	X

TABLE 3: COUNTRIES FROM WHICH THE NETHERLANDS IMPORTS MORE THAN ONE GROUP OF CRITICAL RAW MATERIALS

In addition to focusing on key sourcing countries, the Dutch government should explore the opportunities for the Dutch agro-food sector to find alternative suppliers. To this end, the Dutch government could publish sector-specific market-outlook analyses. The current geographical sourcing pattern is the result of both prevailing market dynamics and a gradual development of transnational supply chain relations over the past decades. In looking for new alternative suppliers, it may be interesting to look through a ‘climate lens’. The current list of top sourcing countries for the Netherlands can be grouped into two different climate zones; the temperate climate zone and the tropical climate zone. The Netherlands imports fruit, vegetables and minerals from both zones. Soy beans come particularly from the moderate climate zone and coffee, cacao, tea and palm oil from the tropical climate zone. It is worth exploring whether there are alternative regions closer to Europe with similar climatic conditions for the production of these agricultural commodities, such as the Black Sea region.<sup>74</sup>

### 3 Reinvent multilateral cooperation and move beyond promoting open markets

The Dutch government should continue the existing policy of promoting open and stable markets in international forums such as the World Trade Organization (WTO) and the OECD, but it should also aim to reinvent multilateral cooperation on food, agriculture and raw materials. The current multilateral framework, especially for trade, does not adequately serve the grand challenges that face society, nor the interests of the Dutch agro-food sector.

One example of why the existing WTO disciplines are unfit for the present landscape is that WTO legislation tilts towards the favor of resource-owners and export countries. Although quantitative restrictions are banned under the General Agreement on Tariffs and Trade (GATT) 1994 rules, notable exceptions have made it relatively easy for countries to implement export restrictions. For example, Article XI paragraph 2(a) states that the prohibition on export restrictions does not extend to “restrictions temporarily applied to prevent or relieve critical shortages of foodstuffs or other products essential to the exporting contracting party.” Key terms such as “temporarily” and “critical shortages” are not well defined.<sup>75</sup> Lenience on export restrictions ignores the rights of importing countries. The Netherlands should push for a critical review of trade legislation, an imposed limitation on the use of export restrictions, and more transparency in markets, where necessary in combination with adequate stockholding provisions.

The development of a new multilateral framework that brings together suppliers and importing countries to find cooperative solutions for the growing nexus of food, agriculture and raw materials would be ideal. Such a coalition is unlikely to develop swiftly given the prevailing international conditions. The dynamics explained in chapter 1 make it improbable that producing countries would be willing to participate in a framework that could potentially limit their freedom of action and undermine their interests. A regional approach aimed at bringing together the importing countries is more likely to be successful.

The Dutch government should explore opportunities to increase multilateral cooperation between importing countries. One of the objectives of this multilateral cooperation should be to promote transparency on available supplies of raw materials and factors that may contribute to demand and supply shocks. In addition, cooperation should focus on improving resource efficiency and some form of governance on sustainable resource management. Solutions to the challenges of climate change, failing research & innovation systems, and diet transitions need to come from global cooperative effort.<sup>76</sup> A recent Chatham House publication report calls, in this regard, for a coalition of 30 of the most substantive importers, exporters and producers to embark on a dialogue on global resource use.<sup>77</sup> Various initiatives that contribute in this direction can be supported financially and politically. The Netherlands should

support and can build on existing multilateral mechanisms and regulations, such as the Global Agriculture and Food Security Program (GAFSP) of the World Bank, the FAO's Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, the Montpellier panel, etc.

#### **4 Complement multilateral efforts with strategic partnerships**

The efforts at the multilateral level described above should be complemented with efforts to develop strategic partnerships with countries where both the Dutch agro-food complex has valuable knowledge to offer and from which the Netherlands imports critical materials. These partnerships can be forged at the EU level or bilaterally, depending on existing agreements and the opportunities for new partnerships. The partnerships should revolve around innovation for sustainable production in the agro-food sector and be based on reciprocity, i.e., by creating long-term win-win situations for both the Netherlands and the sourcing country.

An example of such win-win cooperation could be to help West African countries, such as Cameroon, Ivory Coast, Ghana and Nigeria, to improve local food security by providing the necessary knowledge about increasing agricultural productivity. In return for a stable and secure supply of cocoa, the Netherlands can offer high-value input and knowledge to improve farming systems and to upgrade the agricultural logistics and reduce post-harvest losses. Another opportunity lies in scientific partnerships with Argentina and Brazil where the Netherlands contributes knowledge on how to advance the efficiency, productivity and sustainability of the soy bean production in return for security of supply of soy beans. To secure the supply of fertilizers, the Netherlands could forge strategic partnerships with important producers of nitrogen, potassium, phosphate rock and processed fertilizer. As a growing share of phosphate will come from Morocco in the future, the Netherlands could strengthen cooperation beyond existing trade, which consist primarily of fruit and vegetables. In return for supplies of phosphate rock and fertilizer, the Netherlands can offer Morocco much-needed knowledge on fresh- and waste-water management, and integral waste management.<sup>78</sup>

#### **5 Adopt a strategic perspective on sustainability**

Sustainability is and should remain a key component of strategic cooperation in agriculture and raw materials. However, the Dutch government should



move beyond environmental motives to encourage sustainability and adopt a strategic vision on sustainability as means to mitigate supply disruption risks for the agro-food sector. This means first of all that the Netherlands should invest—and encourage the Dutch agro-food sector to invest—in resource efficiency and sustainable supply chains to avoid rapid resource depletion and to create long-term supply security. In addition, the Netherlands should use its good reputation for sustainability to gain access to resources and markets abroad. With IDH, the sustainable trade initiative, the Netherlands has gained international visibility when it comes to shared value creation through the implementation of sustainable trade solutions. A commitment to sustainable production and balanced supply-chain relations is also an insurance policy against allegations of being merely after a country's resources. Offering countries knowledge for sustainable production and supply chains should be an integral part of the win-win cooperation between the Netherlands and sourcing countries. Finally, the Netherlands should use sustainability as a trigger to involve the private sector in public-private partnerships that serve the interests of the Dutch agro-food sector. The Netherlands largely supports the efforts to develop certification schemes for agricultural commodities, such as sustainable soy and palm oil, and raw materials, such as tin. Whether through these Round Tables and certifications or other governance mechanisms, the Netherlands should aim to continue involvement in the global governance of sustainable raw materials production.

## **6 Start strategic dialogue with the agro-food sector**

The Dutch government should engage the private sector in a dialogue about strategies to mitigate threats to the agro-food sector. This dialogue should initially focus on two issues but could be expanded. First, the Dutch government and the agro-food sector should devise strategies to shorten the response time of industry in case of supply disruptions. Economic damage resulting from supply disruptions will be more significant in the short run than in the long run, because in the long run industry will respond to the changed market conditions with adjustment policies (see section 2.3). However, implementing adjustment strategies costs time. Developing alternative markets for sourcing, finding substitutes, and passing on cost increases to later stages in the supply chain and final consumers does not happen overnight. Government support should focus on supporting the industry to shorten the response time in order to limit short term economic damage.

Second, the Dutch government and the agro-food sector should think about ways to improve the resilience of the industry. Ways of improving the resilience of the sector may include strategies which are preventive and which do not necessarily conform to market logic. For example, instead of cooperating with suppliers that offer the lowest market price, the Netherlands could seek suppliers that may be more expensive but offer supply guarantees. This example illustrates that the government and the agro-food sector should think together about potential trade-offs they are willing to make in achieving security of supply. Another preventive solution is to explore alternative sourcing regions and alternative crops and raw materials.

## **7 Integrate agro-food interests in economic diplomacy**

Finally, the Dutch government should integrate the agro-food interest of the Netherlands into a comprehensive economic diplomacy strategy, which should be an integral part of Dutch foreign policy and development cooperation. To that effect, the Dutch Ministry of Economic Affairs should promote an interdepartmental and cross-sectoral dialogue with other ministries, in particular with the Ministries of Foreign Affairs and Infrastructure and the Environment. Part of this strategic reorientation constitutes a shift away from idealistic motives behind international cooperation toward an emphasis on investment for mutual benefit.

It also means that a more systematic approach should be developed to identify which countries should be designated for international cooperation. The critical interdependencies in the area of food and agriculture should be integrated into this approach. This can be done by identifying per sector the top sourcing countries for critical imports. At the moment, the policy of the Dutch government focuses heavily on the emerging markets, several growth countries with an established middle class, and countries that receive official development assistance from the Dutch government. There are valid reasons to do so, but Dutch diplomacy should also serve the interest of the Dutch agro-food sector and target top sourcing countries that are currently not on the radar.

# Annex 1

## Protectionist Measures<sup>79</sup>

Of all cereal production worldwide, only 10% is traded internationally.<sup>80</sup> Precisely because these commodity markets are ‘thin’ world prices respond strongly to relatively small changes in both policy and quantities traded.<sup>81</sup> Whereas consumers spend around 40–70% of their budget on basic food, governments often aim to keep their domestic cereal markets stable and will respond to international price changes with measures to stabilize markets.<sup>82</sup> Thus, when international food prices climbed steeply in 2007–2008, many countries reacted with trade measures to keep domestic prices low and to prevent exporters from selling on international markets. A survey on policy responses by 61 developing countries to the 2007–2008 price hike found that 25 countries implemented export restrictions to reduce food inflation in their domestic market and 43 countries reduced import tariffs to reduce their food import bill.<sup>83</sup> Argentina, Russia and India were among the major exporters that have curtailed their exports. Major importers that have reduced or eliminated food tariffs or taxes include Bangladesh, Egypt, India, Indonesia, Mexico and Turkey. In general, such policy decisions incur a high fiscal cost and are seen to limit agricultural investments into an expansion of supply.<sup>84</sup>

According to estimates made by the World Bank, the introduction of trade restrictive measures on food accounted for one-quarter of all new trade restrictions imposed since the 2007–08 food-crisis.<sup>85</sup> As a result, trade policies appear as an important explanatory factor of the price peaks.<sup>86</sup> As stated by Headey: “we find that trade events potentially provide an explanation for how a tightening of the world food situation rapidly turned into a full-blown crisis.”<sup>87</sup> The trade policies that followed the rise in rice prices in 2007–2008 are illustrative of this point (see Figure 3). Around the 2007–2008 price hike, there was an intense policy change aimed at either the curtailment of rice exports, or the reduction of import barriers. What proved particularly instrumental in normalizing markets was the decision by the government of Japan in early June

2008 to sell 300,000 tonnes of its surplus 'WTO' rice stocks to the Philippines. As a result, the price bubble in rice burst and world prices started to fall immediately thereafter.<sup>88</sup>

More recent literature on the food price crisis has identified that ad hoc trade measures are among the major causes underlying the overshooting of prices beyond their equilibrium point (this is true of rice prices in particular).<sup>89</sup> Trade policies added additional instability to the actions of millions of farmers (often small-scale) and traders, who in reaction to rising prices started hoarding, thus raising domestic prices even further.

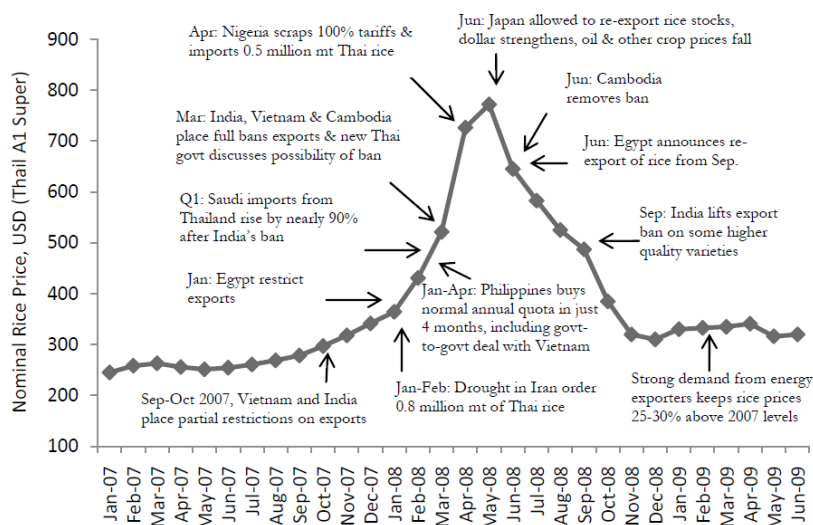


FIGURE 3: TRADE MEASURES IN THE RICE MARKET AROUND THE 2008 PRICE PEAK

(SOURCE: HEADY, 2011)

## Annex 2

### Cacao

The Netherlands is one of the biggest importers of cacao beans worldwide—the basic ingredient required to make cocoa, a dark brown powder made from cacao beans, used to make chocolate and add a chocolate flavor to food and drinks. Around 20% of the global trade in cacao is conducted in Amsterdam, making it the world's biggest 'cacao port'. The Netherlands plays, alongside the US, also an important role in the processing of cacao beans, with around 13% of the global cacao processing industry located in the Netherlands.<sup>90</sup> In total, the sector employs over 7,000 people and has an annual turnover of €2.2 billion.<sup>91</sup> A possible shortfall in the supply of cacao could thus carry serious consequences for the Dutch cacao processing industry. A study undertaken by CE Delft in 2011 estimates that a 50% cut in the supply of cacao to the Netherlands could cause prices for chocolate products to increase by around 40%, causing potentially €2 billion worth of economic damage.<sup>92</sup>

### A limited number of suppliers

As mentioned in Table 1, the global market for cacao is heavily concentrated. Over 70% of the market is in the hands of just four countries: Cameroon, Ivory Coast, Ghana and Nigeria. The biggest share of the market is controlled by Ivory Coast (around 35%).<sup>93</sup> Almost the entirety of Dutch imports (98%) comes directly from these countries, with Ivory Coast accounting for 32% of total imports, followed by Cameroon (24%), Nigeria (17%) and Ghana (15%).<sup>94</sup>

### Rising prices and signs of vertical integration

Figure 4 depicts the price development of cacao since 1990. Global prices have been steadily rising, particularly in recent years, inter alia, as a result of strong economic growth in the emerging economies, where a growing level of affluence has created a higher demand for chocolate products.<sup>95</sup>

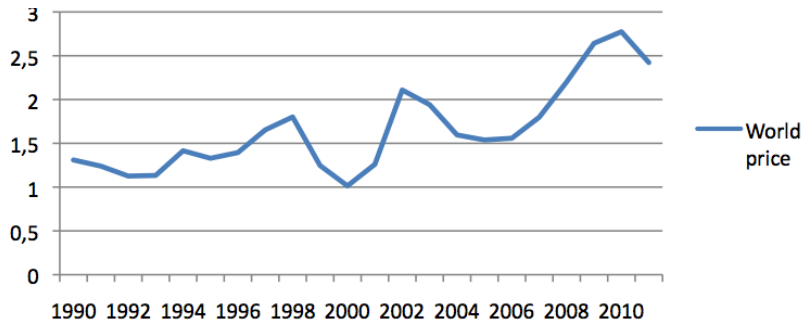


FIGURE 4: WORLD CACAO PRICES, US\$ PER KG

(BASED ON WORLDBANK DATA)

Although high prices mean higher costs of imported beans for the Dutch cacao processing industry, a potentially more worrisome development is a trend of increased vertical integration in cacao-producing countries. For example, due a newly added domestic processing capacity, Ivory Coast became the second-largest cacao processing country, with about 400,000 tonnes of cacao processed in 2009–2010, just behind the Netherlands (470,000 tonnes) and surpassing both the US (382,000 tonnes) and Germany (361,000 tonnes).<sup>96</sup> Some sources claim that Ivory Coast is bent on increasing its cacao processing capacity to 50% of its annual crop in 2012, and up to 100% in the near future.<sup>97</sup> Such a development would make it increasingly harder for the Dutch cacao processing industry to acquire sufficient raw material from Ivory Coast.

### Export restrictions and civil conflict

The drive toward vertical integration, however, is not the only worrisome development. Increasingly, African producers have taxed or charged their exports of cacao, which in turn drives up the price and limits supply. Ghana levies taxes on the export of cacao; Cameroon's export is subject to various fees; and Nigeria applies an administrative charge of US\$5 per ton of exported cacao.<sup>98</sup> Ivory Coast, however, represents the most striking example of state intervention. During the civil conflict that ravaged Ivory Coast from 2002 to 2007, several agricultural subsectors were affected. However, as the conflict was felt more strongly in some parts of the country than in others, the effects differed. Crops such as cotton and maize which are grown in the North, the area held by the rebel fighters, have been most severely affected. Cacao and coffee, which are grown in

the rain forests of the South, remained steady despite the conflict.<sup>99</sup> Nonetheless, the effects of the civil war on cacao have been seen in the resumption of export taxes and increased trader margins.<sup>100</sup>

Civil conflict has been a recurring factor in Ivorian politics and the most consistent factor dictating policy and performance in Ivorian agriculture.<sup>101</sup> The risk of instability remains high to this day. Indeed, HCSS calculations indicate Ivory Coast suffers from endemic corruption; an ineffective and weak government and rule of law; a lack of strong and reliable private sector regulations; and a limited possibility for the population to voice their grievances and hold governmental action to account.<sup>102</sup> The persistent risks this situation carries to the cacao sector – and the Dutch cocoa processing industry in particular – were exemplified by the 2010 presidential elections, when former president Laurent Gbagbo refused to acknowledge his electoral defeat and occupied the presidential palace for several months thereafter. In response, the internationally recognized winner of the elections, Alassane Outtara, banned all cacao and coffee exports in order to choke off funding to his rival. Global prices for cacao soared as a result.<sup>103</sup>

## Soy

Measured over 2010–2011, the EU was the second biggest importer of soy beans in the world, just after China.<sup>104</sup> Within the EU, the Netherlands is responsible for just over 28% of the total amount of soy beans imported.<sup>105</sup> The total import value was more than €1,14 billion.<sup>106</sup> This is partly due to the strategic position of the Netherlands as a transit port; but also because of the Dutch agricultural sector's strong focus on the production of animal proteins, which requires large quantities of soy as feedstuff.<sup>107</sup> About one third of the imported beans are exported, mainly to Germany and Belgium. The rest is crushed to extract the oil, which is (after further refinement) then partly exported to other EU countries.<sup>108</sup> The total added value of the consumption of soy as forage is estimated at €778 million, which corresponds to roughly 0.2% of total GDP.<sup>109</sup> The total amount of jobs in the different branches of the food industry, the production of animal feed and oil seeds in particular, is estimated at 8,800.<sup>110</sup> Illustrative of the dependence of the Dutch economy on a small number of suppliers is the fact that if half of the soy beans imported to the Netherlands were no longer available, and therefore would have to be replaced by alternatives, the total economic damage would amount to €1,4 billion.<sup>111</sup>

### Strong market concentration

Figure 5 shows that the US, Brazil and Argentina combined, are responsible for more than 80% of the world's soy production.<sup>112</sup> Of these three, the US holds the largest share of the world market at just over 34%.<sup>113</sup> The Netherlands imports its soy beans mainly from Brazil and to a lesser extent from the US. Imports from Argentina have been negligible in recent years.<sup>114</sup>

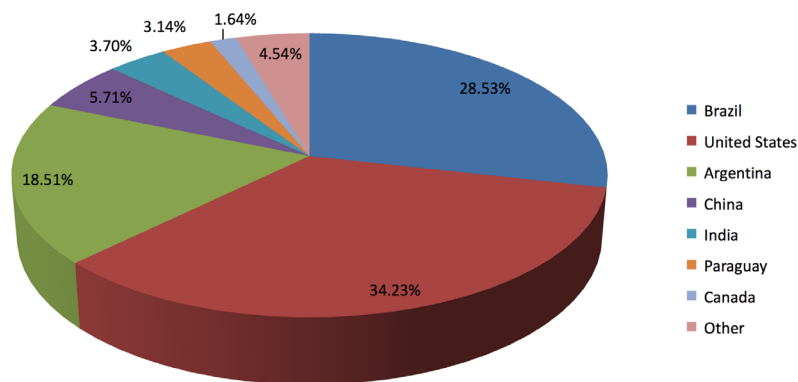


FIGURE 5: WORLD SOY PRODUCTION 2010-2011  
(BASED ON WORLD BANK DATA)

To ensure trade would remain (largely) free, the European Community (EC) and the US negotiated a Memorandum of Understanding on Oilseeds (commonly referred to as the 'Blair House Agreement') during the 1992 GATT Uruguay Round.<sup>115</sup>

### Increased demand from emerging economies

However, as mentioned above, Dutch imports come mainly from Brazil and to a lesser extent from the US. A worrisome development in this regard is that due to sharply rising Chinese soy bean imports (a key importer of Latin American soy beans), the demand for soy beans from this part of the world is set to grow strongly. Indeed, some analysts expect China to increase its imports of soy beans by as much as 43% in 2020.<sup>116</sup> The United States Department of Agriculture (USDA) goes even further than this by suggesting that Chinese soy bean imports will rise to 59% by 2021–2022 and will account for over 80% of the projected



growth in global soy bean imports.<sup>117</sup> Production levels will have to increase in order to meet demand. Since US production growth is limited because of land constraints, this enormous increase in production will have to be borne chiefly by Argentina and Brazil.<sup>118</sup> With most of the Argentine exports already going to China<sup>119</sup>, this additional demand will increase competition over Brazilian soy beans. This development is of particular concern to the Netherlands, as Brazil is its primary export source for soy beans.<sup>120</sup>

### **Implications of required production increase**

Given the expected increase in soy production required to meet future demand, a number of issues should be taken into account. First of all, the global soy bean market is shaped and controlled by a relatively small number of international business conglomerates.<sup>121</sup> The few players are: American-owned Archer Daniels Midland (ADM), Bunge and Cargill; and French owned Dreyfuss. Popularly referred to as the ABCD companies due to their names, these companies not only provide the fertilizer for the soy, but also dominate the processing industry that divides the beans into oil for food manufacturing and protein meal for animal feed.<sup>122</sup> For example, in the last decade Cargill, ADM and Bunge are thought to have acquired about 80% of China's soya processing capacity.<sup>123</sup> Such a high level of market concentration means that these companies can potentially act as price-setters on the global soy market and limit the possibilities for imports from alternative sources.

Second, increasing the production of soy carries big socio-economic implications, which may increase the risk of social instability. In order to enable production to grow, Latin American soy farmers are in desperate need for more agricultural ground. This quest to acquire more land, however, often leads to violent clashes with local communities and tribes over land rights.<sup>124</sup> Because customary land rights of local communities are often not, or only partially, recognized and governmental capacities to regulate the registering of land ownership are weak, public (forested) land is often occupied without obtaining the required official land titles.<sup>125</sup> Moreover, the expansion of soy production often directly (through forest conversion) or indirectly (through the opening of forests) contributes to forest degradation and further deforestation.<sup>126</sup> The decreasing availability of non-timber forest resources has a negative impact on local incomes and food security; and on indigenous communities, who for their livelihoods often depend on the availability of wildlife, fish, wild fruits, jungle rubber and other non-timber products.<sup>127</sup>

Third, with a high expected demand for soy in the future, it is financially attractive to grow the crop. As a consequence, soy is increasingly grown on fields that were otherwise used to produce food for local markets, thus placing local food supply under pressure.<sup>128</sup> Moreover, local communities are facing a different problem as a result of the increased mechanization of the soy production. Mechanized soy production not only requires less labor, but also a different kind of labor, thus reducing employment possibilities for local communities. Due to the technical expertise required for mechanized soy production, local farmers, who are unskilled, lose employment opportunities to higher skilled workers, such as agronomists and mechanics.<sup>129</sup>

Taken together, the above mentioned factors place limitations on the ability of Latin American soy farmers to further increase their production beyond a certain threshold. In light of the strong projected increase in demand coming from China, coupled with the inability of the US to increase its production levels, the Netherlands is likely to face higher prices for soy imports in the future. Furthermore, there is a greater risk of social instability in the producer regions of Latin America. In addition to higher prices, the Netherlands may therefore also experience supply disruptions as a result of instability.

## Annex 3

### The Africa Cocoa Initiative

The African Cocoa Initiative—a major collaboration between the World Cocoa Foundation, the US Agency for International Development, the government of the Netherlands and leading international cocoa buyers—was launched in Cameroon in July. The Sustainable Trade Initiative (IDH) contributes expertise and certification. The initiative aims to increase productivity and sustainability in the sector by fostering public-private cooperative investments in cocoa and agriculture, improving the genetic quality and productivity of the cocoa varieties under cultivation, expanding farmer education and training programmes, and improving the agriculture input supply chains that serve farmers. The budget for the project stands at US\$13.8m (CFA7.3m) with plans to leverage at least US\$25m from the private sector over the duration of the initiative.<sup>130</sup>

### Phosphate

Phosphate rock is the primary source of phosphorus. The bulk of phosphate rock is used for global food production. Modern farming methods require the use of phosphate in fertilizers, which are used to produce sufficient quantities of food. Although the Dutch agricultural sector presently experiences a phosphate surplus, the Netherlands does not possess any significant phosphate rock resources of its own, and is thus almost entirely dependent on the import of the raw material as an input for its phosphate processing industry.<sup>131</sup> Indeed, the bulk of imported phosphate rock (83%) is processed and re-exported as fertilizers; as inorganic chemicals (648,100 tonnes (t) of phosphorus pentoxide, or  $P_2O_5$ ); as food for human consumption (185,500t  $P_2O_5$ ); and to a lesser extent, as animal feed and manure (43,500t  $P_2O_5$ ). Phosphate, therefore, is a vital resource for the Dutch agro-food industry.<sup>132</sup>

### A heavily concentrated market

In 2011, two-thirds<sup>133</sup> of global phosphate production came from China, the US and Morocco (including Western Sahara). Exports are dominated by the

phosphate-producing nations of the Middle East and North Africa (MENA) region, who represent 80% of the world's total exports. The biggest three exporters are Morocco (40% of exports), Jordan (23%) and Syria (13%) respectively.<sup>133</sup>

### **Risks to the Netherlands' security of phosphate supply**

Several developments are potentially worrisome. First, in 2007–2008, phosphate rock prices soared, inter alia, due to a rise in demand for fertilizer, insufficient fertilizer production, export restrictions in China, speculation and a heightened awareness among producer countries that they could 'set the price'.<sup>134</sup> Continued population and economic growth, urbanization, rising prosperity and concurrent changes in consumption patterns are likely to cause the newly higher prices to remain or rise, but certainly not fall.<sup>135</sup> Second, national monopolies are widespread and rock producers are becoming increasingly vertically integrated. This will cause phosphate imports into the EU to increasingly take the form of fertilizer, rather than raw rock<sup>136</sup>—thus increasing the pressure on the Dutch phosphate processing industry. Finally, ongoing geopolitical instability in the MENA region in the aftermath of the Arab Spring and the civil war in Syria, have caused severe disruptions in the phosphate rock exports to Europe.<sup>137</sup>

### **Perspectives for action**

In order for the Netherlands' security of phosphate supply not to be adversely affected by the above mentioned developments, it is crucial that the Dutch government adopt an inclusive strategy towards phosphate rock producing countries and their (mining and fertilizer) companies. Such a strategy would enable close (technical and knowledge) cooperation on key challenges and would strengthen the overall sustainability of the phosphate industry.<sup>138</sup>

Several key areas in which the Netherlands holds strong expertise, provide possibilities for such cooperation. First, freshwater management is a case in point. The mining sector relies heavily on the use of water throughout all of its stages. Because of competing claims over water coming from the agriculture and drinking water sectors, water scarcity is a potentially serious limiting factor for the phosphate mining industry.<sup>139</sup>

Second, integral waste management represents an opportunity to treat waste originating from urbanized areas in the Middle East and North Africa more

adequately. Often such systems are lacking, causing environmental damage and adversely impacting drinking water quality and human health.<sup>140</sup> Finally, wastewater (a source rich in phosphate) reuse in agriculture is common throughout the Middle East and North Africa. However, in most countries of the region, wastewater treatment plants are not operated and maintained adequately, making wastewater unsuitable for unrestricted irrigation. Low freshwater prices also lead to a preference among farmers to rely on freshwater resources, undermining wastewater reuse and placing additional stress on already scarce freshwater resources.<sup>141</sup>

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