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PART TWO

TRANSNATIONAL CORPORATIONS, AGRICULTURAL PRODUCTION AND DEVELOPMENT



INTRODUCTION

For the greater part of humanity, primarily in developing countries, agriculture remains at the core of their existence: it provides sustenance, supports people's livelihoods and defines their traditions. Moreover, the bounty of agricultural production in many societies the world over, and throughout the ages, has created surplus value that has underpinned their material basis. This applies equally to urban civilizations founded in the past, the triangular trade of the colonial period which aided the industrialization of Europe and North America (Thomas, 1997), the more recent transformation of Taiwan Province of China from a tropical agricultural island to an electronics superpower (Lee, 1971; Wu, 1984), and the significant agriculture-based dynamism and diversification of Brazil's economy today (Brainard and Martinez-Diaz, 2009).

Given the fundamental importance of agriculture to most developing economies, its chronic neglect by many countries is of utmost concern. This has occurred because of a number of factors, including a "bias" by some countries against agriculture in favour of manufacturing (one which does not sufficiently recognize the interdependence of the two), and a lack of finance and other resources. To make matters worse, domestic and regional conflicts in many parts of the world have destroyed agricultural communities, resources and infrastructure. The *relative* neglect of agriculture is reflected in the numbers. For example, although the total agricultural gross capital formation (GCF) in developing countries tripled between 1980 and 2007, to \$355 billion, agriculture's share in total GCF fell from 17% to less than 10% of the total over the same period. Similarly, official development assistance (ODA) in agriculture to developing countries, both in gross terms and as a share of total ODA, has been declining since its peak in 1990. A fall of investment in agriculture is not on its own an issue for concern, since this can signify both rising productivity in the sector itself

and a growing economy that is diversifying into other industries and sectors. What is of concern is that the above-mentioned decline in investments is often the greatest in poorer countries – especially parts of Africa and in the least developed countries (LDCs) – which can ill-afford them.

The lack of investment in agriculture in particular regions and countries is one of the factors contributing to poverty and hunger, the reduction of which has been declared the first of the United Nations Millennium Development Goals (MDG-1).¹ In stark terms, 923 million people were undernourished in 2007. And on the basis of the global hunger index (GHI), 65 countries are in "serious", "alarming" or "extremely alarming" danger of food shortages, partly because of rising international food prices in recent years. Increasing investment in agriculture in developing countries is thus a priority, but it is likely to be hampered by the current financial and economic crisis. Efforts are being made to raise investment levels in agriculture, targeting specific developing countries, with the aim of halving world hunger by 2015. There is some scope for an increase in investment by governments, partly because of trade surpluses, and optimistic projections suggest that agriculture's share of ODA might soon return to 10%. However, for many countries this will still leave investment short of what is needed, which is why governments are looking to the domestic private sector and foreign investors to help meet the shortfall. It is essential for governments to tap into these additional sources of finance if, looking beyond MDG-1, they are to succeed in utilizing agriculture as an engine for growth.

A number of factors, which are not mutually exclusive, have resulted in a recent upswing in domestic private and foreign participation in agricultural industries in a significant number of developing countries. First, the rapid rates of growth in some of the more populous emerging countries such as Brazil, China, India and the Republic



of Korea have resulted in rising incomes, higher expenditures on foodstuffs (including a shift towards items such as meat, fish and milk products) and, in some cases, imports of some food items (or feedstock) from other developing countries. In turn these imports have created opportunities for investors from these and other countries to invest in agricultural industries in developing host countries. Secondly, biofuel initiatives around the world, which have received strong support from governments in Brazil, the United States and the European Union (EU), have resulted in a spate of investments in developing countries to grow sugarcane, grains (such as maize) and oilseeds (such as soya beans), as well as non-food crops such as jatropha. Thirdly, the rapid rise in food prices over the past few years (partly attributable to the above trends), with subsequent shortages in commodities such as rice and restrictions on exports of these products by some developing-country governments, has spawned “new investors” in agriculture. Many companies and governments in countries such as the Republic of Korea, Saudi Arabia and the United Arab Emirates are investing in agricultural production abroad. The underlying reasons behind their decision are the lack of arable land and insufficient water for safe and viable irrigation in their own countries. Finally, seizing on these trends, a number of purely speculative investors also appear to have emerged on the scene.

The renewal of interest by TNCs’ and foreign governments in the agricultural industries of developing *host* countries represents an opportunity to raise the level of investment in this critical sector even further. At the same time, there is evidence that developing host countries are reviewing their policy frameworks and legislation to encourage and permit foreign participation in their agricultural sectors. This stance represents a significant change for many governments, which earlier had considered agriculture to be sacrosanct and open only to domestic interests. Of course, there are attendant risks to entry by TNCs into developing-country agriculture. These risks include, the possible disruption of traditional farming and loss of livelihood for subsistence farmers or other disadvantaged groups, such as indigenous peoples; the concentration of the industry into fewer hands, with the danger of market power being exercised against farmers and consumers; potential environmental degradation, for instance arising from the introduction of water-hungry “industrial” methods in agriculture; and the wider dangers of dependence on foreign investors, including concerns about “land grabbing” leading to neo-colonial relations between countries producing and consuming agricultural produce. On the other hand, encouraging and utilizing TNC participation (among other sources of investment), in

their agriculture, if properly managed in the context of national goals, can support the development of the industry, further its essential role for poor-pro growth in rural communities, and, in the longer run, support the sector’s potential as a motor for modernization and diversification of the economy.

Given these developments, it is an opportune time to examine the role of TNCs in the agricultural sector and its implications for development, hence the focus of the *World Investment Report 2009 (WIR09)*. The *Report* focuses on TNCs’ involvement in and influence on *agricultural production* in host countries, including direct and indirect impacts on development. Many types of TNCs might invest or participate in agricultural production, including agriculture-based TNCs, manufacturers, retailers and commodity traders. They can do this by establishing a farm (FDI), by contract farming, or some other form. *WIR09* only examines TNC activity in agriculture *to the extent that this activity directly involves or influences agricultural production*. Thus, for instance, traders such as Cargill are discussed *only* if they influence the quality of agricultural production by introducing or reinforcing quality standards. Similarly, international supermarkets per se are *not* a focus of *WIR09*, but any farming of produce they contract with local interests in developing countries *is* relevant to the *report*.

Part two of *WIR09* consists of three chapters. Chapter III analyses the role and evolution of TNC participation in agricultural production in developing countries. It first provides a snapshot of agriculture in the developing world, followed by a conceptual framework for analysing and explaining existing and emerging trends and patterns in FDI and other forms of TNC participation in the industry. Particular attention is given to TNC drivers, motives and strategies inasmuch as these have a bearing on the impact of companies’ participation on host economies and constitute a major concern for policymakers. Chapter IV discusses the development impacts and implications of TNC involvement in agricultural production, taking a case-orientated approach to examining issues where possible. Finally, chapter V charts recent policy developments and considers the implications of the findings of chapter IV for national and international policies pertaining to FDI and TNC participation in agriculture. The policy discussion focuses on a number of key concerns for both host and home developing countries, including issues of sustainable development and food security.

Note

¹ The MDG-1 target is to halve the number of people going hungry by 2015 (and living in poverty).

CHAPTER III

TNCs AND AGRICULTURAL PRODUCTION IN DEVELOPING COUNTRIES

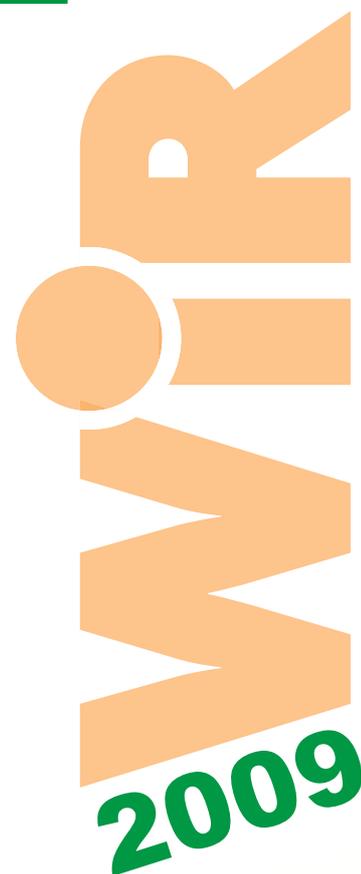
A. Introduction

Agriculture is of fundamental importance to developing countries, both for meeting their growing requirements for food and for providing a basis for industrial development, diversification and growth. In some countries, increased investment and technological advances have transformed agriculture, raising productivity and output to meet food requirements as well as laying the foundations for rapid economic growth. In other countries, however, especially in Africa and parts of Asia, agricultural potential is not being fully exploited, with resultant shortfalls in food supply and constraints on economic development. Greater investment in agriculture is thus a priority for development, and one that has received growing attention during the recent food crisis.

Insufficient investment and declining official development assistance (ODA) in agriculture has prompted governments to look increasingly to the private sector – domestic and foreign – for significant new investment. This is reflected in the liberalization of policies related to agriculture and land ownership by host and home countries (discussed in chapter V). In fact, in the past foreign direct investment (FDI) has played an important role in agriculture, with TNC activity in agricultural production particularly strong in some export-oriented commodities. However, after the Second World War, there was a long-running decline in FDI flows to agriculture in developing host countries. This trend has been reversed in recent years for a variety of reasons, but some forms of foreign participation – not least the so-called “land grabs” by investors – are causing concern by some quarters in the development community.

There are no recent systematic studies of TNC participation in agricultural production in developing countries, which, along with the increasing interest in private investment mentioned above, is why it is the focus of this year’s *World Investment Report*. Agricultural production consists of subsistence and commercial farming of crops and livestock (box III.1). Within this broader definition, this report concentrates primarily on crops grown for food, although production for other purposes (e.g. the production of biofuels)¹ is also discussed, where appropriate. The analysis of developments in foreign participation includes an examination of different aspects of involvement, for instance, by commodity value chains (e.g. coffee or soya beans) or types of TNCs (e.g. plantation TNCs or international supermarket chains), but only to the extent that this has a bearing on agricultural production. Thus, rather than examining, for example, the supermarket industry, it is concerned with how TNCs in that industry participate in or affect developing-country agricultural production (e.g. by establishing farms themselves or by implementing and reinforcing standards and procedures which affect the production methods of local farmers).

The analysis in this and other chapters relies not only on UNCTAD’s databases on FDI and TNCs, recent research by international organizations and others, and surveys conducted for this report, but also on dedicated commodity, country and other case studies prepared to provide deeper insight into specific issues. Case studies were prepared on the following commodities: bananas, coffee, floriculture, rice, soya beans and sugarcane (including an assessment of the industries in which each of these products fall).



Box III.1. Definitions related to agriculture and agribusiness

In this report, *agriculture* refers to the production of food and non-food items through farming or animal husbandry. It encompasses both the rearing of livestock and the growing of crops, such as cereals, arboriculture, viticulture, seed growing, industrial crops, tea, coffee and cocoa production and horticulture (agricultural production), as well as agricultural animal husbandry and horticultural *services* such as harvesting, animal shearing, pest control, the picking and packing of fruits and vegetables, and the operation of irrigation systems (agricultural services). Agriculture excludes hunting, forestry and fisheries. However, in many national statistical sources, it is difficult to separate data on agriculture from those on hunting, forestry and fisheries.

Agribusiness refers to commercial agriculture, usually farms specializing in non-subsistence food and non-food production, and related businesses that are directly involved (upstream or downstream) in the value chain of agricultural products, “ranging across production, post-harvest handling, processing, transportation, marketing, distribution and other agro-based commercial activities” (OECD, 2008c: 72). *Agri-food* is a subset of agribusiness and refers to industries involved in the production, processing and inspection of solely food products made from agricultural commodities. It includes both the production of food

items in agriculture, and their processing by the food and beverages industry. The *value chain* in agribusiness comprises the suppliers of inputs (such as seeds, chemicals and machinery), farmers and other agricultural producers and service providers, processors of agricultural goods (such as manufacturers of foods and beverages), trading companies dealing with agricultural commodities, and retailers (such as supermarket chains).

This report focuses on TNCs’ involvement in agricultural production in host developing countries, sometimes truncated to “TNCs in agricultural production”^a for ease of presentation. TNCs can be involved in farming or other types of agricultural production through both equity and non-equity forms of participation, by either the parent company or a local affiliate. TNCs’ core activities may focus on any point in the value chain for agricultural products, but they are relevant for this report *only* if they are directly involved in agricultural production or services (e.g. supermarkets in developed countries for which contract farmers in developing countries produce fruits and vegetables). It is possible for TNCs and investors not in agribusiness to invest in agricultural production or services. Indeed, this may be a rising phenomenon, as evidenced by recent investments in agriculture by private equity investors and sovereign wealth funds. For ease of narrative flow, these investors are normally included in this report under “TNCs in agricultural production”.

Source: UNCTAD.

^a “TNCs in agricultural production”, which can derive from any part of the value chain and participate in agriculture *to a degree*, are to be distinguished from “agricultural (or agriculture-based) TNCs”, such as plantation companies, which are *purely* or primarily involved in agriculture. The latter are, however, a subset of the former.

This chapter provides an overview of key aspects of agriculture in developing countries. It examines trends and patterns of participation in agriculture by TNCs and other foreign investors, the main TNC players in various areas of agricultural production and related activities, and the factors and driving forces behind TNC activity in the industry. Section B examines the characteristics of, and current trends and developments in, agriculture in developing countries, with a particular focus on investment objectives to meet the United Nations’ Millennium Development Goals (MDGs) and other development targets. It also examines the recent food crisis and other salient factors affecting investment in agriculture. Section C provides a brief historical account of and a conceptual framework to explain and understand TNC participation in agricultural production, synthesizing the eclectic (ownership-location-internalization (OLI)) paradigm with the global value chain approach. Section D analyses the patterns and forms of TNC participation in agriculture in developing countries, focusing on the key modalities utilized by TNCs, especially FDI and contract farming. Section E presents a picture of major TNCs in agricultural production (such as those running farms or plantations), as well as

those in related industries, such as food processing and distribution, since the latter are also involved in agriculture in many developing countries. The section includes an examination of the evolution of the relevant TNCs over time, including the emergence of new players such as sovereign wealth funds. Section F concludes with the key issues that are discussed further in subsequent chapters.

B. Agriculture in developing countries: characteristics, significance and salient issues

1. Characteristics of agricultural production

a. A diverse industry

Agricultural production is a very special social and economic activity. It is central as a provider of food, a channel to eradicate poverty and hunger, a

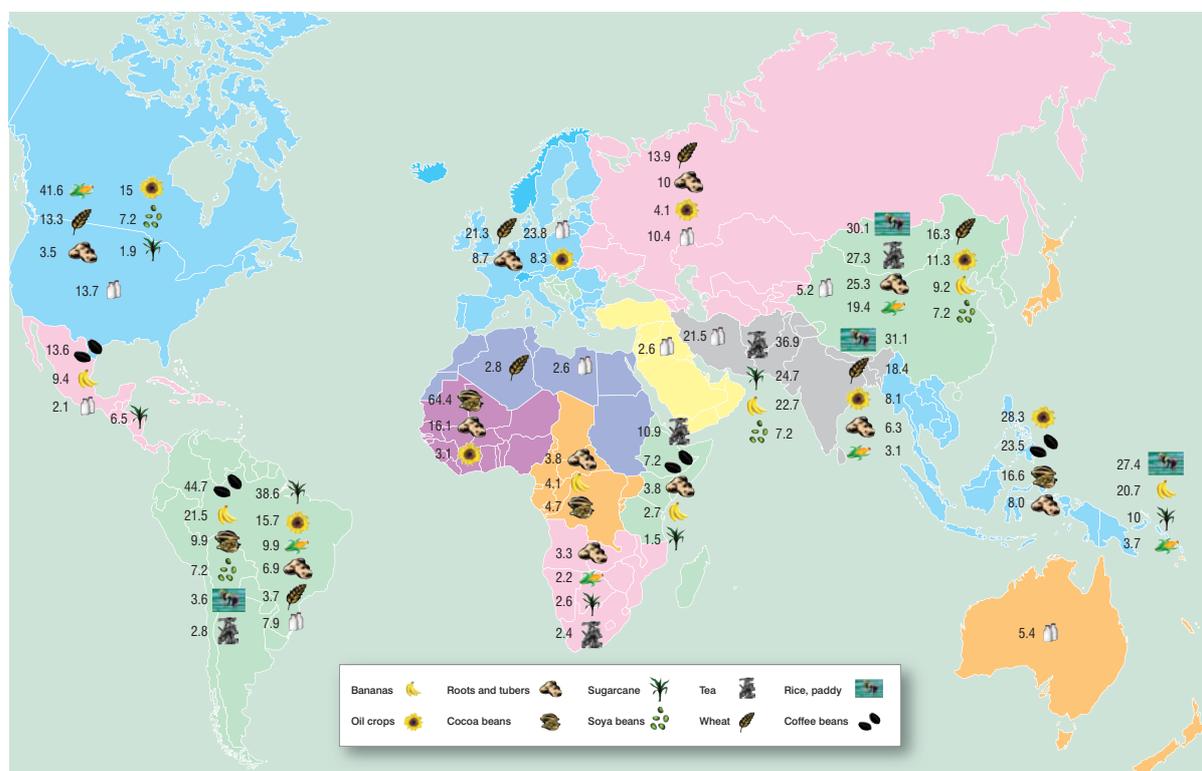
significant agent for mass and rural employment, a major contributor to national economic growth and a considerable foreign exchange earner for many developing countries. Agriculture is also a sensitive and strategic industry, and, for this reason, foreign participation in agricultural production may be restricted in some countries (chapter V). Agriculture has features distinct from the manufacturing and services sectors in terms of its importance to an economy, food security and a number of social considerations. The characteristics examined in this section include country and regional differences in agricultural production, the types of crops farmed, and key producers and companies that participate at various stages of the agricultural value chain.

Because of differing soil, water and climatic conditions, not every region can produce all types of agricultural commodities and in sufficient quantities, either for local consumption or for export. Moreover, the production of some agricultural commodities is heavily concentrated in some geographical areas, and less so in others. For example, among staple crops, rice is grown mainly in Asia, while wheat is grown in many different regions, notably in Europe, Asia, North America and the Commonwealth of Independent States (CIS) (figure III.1). Overall, Asia accounts for more than 40% of the world production of bananas (including plantains), oil crops, roots and

tubers, and sugarcane. The African continent on the other hand, particularly West Africa, contributes to nearly 70% of world cocoa production, in addition to considerable farming of roots and tubers, which are a major staple food for the region. The Latin American region is a major producer of coffee, soya beans and sugarcane. Within each region, the production of specific agricultural crops is concentrated in a few key countries. Brazil and Argentina are the two biggest producers of soya beans in Latin America (and among developing countries). The largest producers of sugarcane are Brazil in Latin America, and China and India in Asia. These differences are partly shaped by the geographic diversity inherent in agriculture, partly by historical trends and partly by policy differences (chapter V).

Within agriculture, crops can be categorized as food and non-food commodities, and both can be domestically consumed or exported. Non-food agricultural crops include, for example, cotton, linen and jute, which can be used for purposes such as garments and building materials. Food crops can also be cultivated and used for non-food purposes, such as the use of sugarcane, soya beans and maize as feedstock for biofuels (FAO, 2008c) – an aspect which deserves special attention because of the potential implications for food production in the context of a global economy in which people go hungry in large

Figure III.1. Share of subregions in world production of selected agricultural commodities, average for 2002–2007 (Per cent)



Source: UNCTAD, based on FAOStat data.

segments of the world (chapter IV). Similarly, food crops such as soya beans are also used as animal feed, which has raised concerns in the light of the recent food crisis.

Agriculture is a diverse industry as indicated by the vast number of crops grown globally, with their geographic distribution reflecting not only climatic conditions, as mentioned above but tastes, demand patterns, trade and socio-cultural aspects (table III.1). For instance, staple food crops such as rice are produced and consumed in large quantities in Asia. Although rice is also produced in Africa, until recently it was only farmed in small quantities as it is not a traditional food in the region. Similarly, commodities such as bananas, soya beans, coffee, sugarcane and cut flowers have distinctive features in terms of their consumption patterns, geographical concentration in production, key players involved and the extent to which TNCs participate in their supply chains.

The growth of agriculture has been uneven across developing regions and countries, reflecting different endowments and underlying conditions, development policies, technological progress and the consequent evolution of agricultural production over time. The World Bank (2007) categorizes countries into three groups, based on agricultural development, poverty reduction and growth indicators, with an implied evolution of countries from “agriculture-based” to “urbanized” over time. However, agriculture, in addition to manufacturing and services, remains highly important to the economies of some developed countries such as Australia, Denmark, France and the Netherlands. The same applies to some relatively higher-income developing countries such as Argentina, Brazil, Malaysia and Thailand. For many other developing countries, such as Benin, Cambodia, Ethiopia, Fiji, Ghana, Nicaragua, Paraguay,

Uganda and the United Republic of Tanzania, although agriculture is important to their economies, its full potential for supporting modernization and development has not yet been realized (annex table A.III.1).

The diversity of agriculture can also be seen from the varied players participating in its value or supply chain (section C). The different *types of producers* range from local subsistence farmers to individual farmers and private firms (local and foreign), producing crops on a commercial basis (table III.2). While many developing countries now promote domestic private and foreign participation in agriculture in general, some, especially in Asia and Latin America, restrict foreign investment in the production of food crops (chapter V), such as rice in a number of Asian countries. On the other hand, many countries in Africa actively encourage foreign private sector participation, even in staple food crops, in order to increase agricultural output and foreign exchange earnings. Such policy differences partly explain why TNCs play a more prominent role in certain agricultural commodity groups (e.g. food crops) in some regions and countries than in others, and why some types of TNCs play a more significant role in agricultural production than others (sections C and E; chapter IV).

Agricultural value chains can be long, and at each stage of the chain many different players (local and foreign) are involved (section C; figure III.3). Each player contributes specific functions and adds value to the chain. This could range from being an input supplier to farmers, engaging in harvesting operations, transportation, processing, marketing and retailing. For instance, in cut flowers, many local farmers and companies, including foreign-owned businesses, are involved in different parts of the value chain, working closely together to produce and deliver cut flowers from farms to markets.

Table III.1. Categories of agricultural commodities from developing countries

Categories	Examples	Consumption/ export patterns/other issues
Staple food crops (limited trade)	Rice, wheat, tapioca and maize.	Except in the case of some surplus countries, <i>staple crops</i> are produced mainly to meet domestic consumption. Examples: rice in Asia, tapioca and maize in Africa and wheat in Latin America. Though a staple crop in much of East Asia, soya beans increasingly also fall into the other two categories in this table.
Food export commodities	Coffee, tea, cocoa, spices, bananas (excluding plantains), horticultural produce (vegetables and other fruit)	Largely produced for export and relatively small amounts consumed locally. These commodities are grown as <i>cash crops</i> for earning export revenues. Colonial ties have an important influence on the production of some of these commodities. Suitable climatic conditions and availability of farm workers favour production in some developing countries, such as Brazil, Colombia and Viet Nam for coffee; Indonesia for spices; China, Kenya and Sri Lanka for tea; and Côte d'Ivoire and Ghana for cocoa.
Non-food (export) commodities	Rubber, cotton, cut flowers and biofuel crops (e.g. palm oil, soya beans and maize).	These are non-food export commodities or <i>cash crops</i> farmed in countries with climatic advantages. Examples: Malaysia and Indonesia for rubber and palm oil. Colonial plantations sometimes played a role in their earlier development, but later, because of scarcity of land and labour shortages, production shifted to new countries such as Thailand and Viet Nam in the case of rubber plantations. Some food crops – especially sugarcane, soya beans and maize (which is generally not traded) – are increasingly being used as biofuels feedstock. Planting of GM crops, such as types of cotton or soya beans, is also a significant feature of commodities grown for non-food purposes.

Source: UNCTAD.

Table III.2. Agricultural producers, farmers and firms in developing countries

Types	Examples	Characteristics
Self-sufficient and semi-commercial farmers	Individual farmers, mostly living in rural areas.	Self-sufficient farmers in rural areas operating on a subsistence farming basis. They grow crops on small plots of land to feed themselves and their families. Any produce that is left may then be sold in local markets. Semi-commercial farmers are involved in agricultural production to meet their consumption needs, but a part of the farming activities is undertaken for commercial purposes – selling their produce to small traders, cooperatives or on a contract farming basis.
Other domestic private sector enterprises and cooperatives	Domestic commercial farmers individual or corporate.	Entrepreneur farmers or local firms producing agricultural commodities (both food and non-food crops) for commercial purposes and on larger tracts of land. Their agricultural production is either sold in local markets or exported abroad, mainly through an export agent or wholesaler. Some may operate as contract farms to produce specific commodities and qualities, such as horticulture produce for a group of customers, or for a single large buyer such as a local or overseas supermarket group.
State-owned enterprises (SOEs)	Agricultural SOEs.	Agricultural public companies or SOEs established by governments to support production and marketing of certain commodities. Some SOEs also undertake to produce or act as large buyers of agricultural produce such as rice, soya beans or cocoa.
Foreign firms	Largely TNCs from developed countries and increasingly from developing countries (for examples, see section E).	Farms on large agricultural land mainly to export agricultural commodities. Some production could be for local markets but in proportionately smaller amounts than for export. Agricultural production by TNCs covers both food and non-food crops. TNCs also involve local farmers to produce crops for them on a contract farming basis.

Source: UNCTAD.

b. Agricultural inputs, technology and institutions

(i) Land, water and other inputs

Agriculture is highly dependent on natural resource endowment such as the availability of arable land, fertile soil, climatic conditions and water. These endowments and climatic conditions differ significantly across the world, with implications for the pattern of global agricultural production, investment and trade. Arid and water-scarce countries face a big challenge to produce food crops for their own consumption. Land issues, such as uncertainty of land rights and ownership and land and civil disputes, have also limited the rate of growth of agricultural production in some developing countries. Of all industries, farming is the biggest user of water resources (*WIR08*). Apart from land and water, other important agricultural inputs include seeds, chemicals, fertilizers, machinery and tools. In some of these agricultural inputs, TNCs play an important role as producers and suppliers, including through participation in agricultural production.

Because of disparities in agricultural endowments some economies have become large net importers of food,² while others with food surpluses are net food exporters. However, there is a third group of countries that possess arable land and water, but are unable to become self-sufficient in agriculture/food production or enter export markets partly because

of their underutilization of arable land and low productivity. This third group of countries requires investment, technology and a better use of arable land. This is where increased investment by private and foreign investors can play a role, alongside the public sector. However, the role of foreign investors can be contentious because of the economic and social importance of agriculture to developing countries, and concerns over land lease or ownership and food security. The degree and nature of contention varies, for example between regions, countries and types of commodities and depending on whether farming is done on new or existing farm lands; and what the crops are used for (e.g. biofuel as opposed to food). Some African countries have policies that encourage private and foreign participation in agricultural production, ostensibly because they possess large tracts of arable land which are undercultivated, and sometimes in relatively underpopulated areas (chapter V).

(ii) Technology and R&D

Technological improvements and research and development (R&D) play an important role in increasing agricultural productivity.³ They were a key factor in the Green Revolution for instance in Asia, which significantly increased the yields of major food grains in some countries in the 1960s and 1970s (David and Otsuka, 1994; USDA, 2003), although the Green Revolution itself had negative side effects, too, especially on the environment (George, 1976; Tudge, 1977). More recently, in Sub-Saharan

Africa, agricultural research has contributed greatly to productivity growth and poverty reduction. It has been estimated that doubling agricultural research expenditures per hectare in Africa can increase agricultural productivity by about 38% (Alene and Coulibaly, 2009).

In general, there are two major aspects to investment in research: fundamental and development research, with the former primarily undertaken by the public sector (*WIR05*; Beintema and Stads, 2008). A considerable amount of R&D, including in agriculture, and especially that with a commercial interest, is undertaken by the private sector (World Bank, 2007). Developed countries invest considerably more in agricultural R&D than developing countries; indeed, in the latter countries, investment has stagnated over time, or even declined. Within developing regions, there are large differences in agricultural R&D spending, with relatively more public spending in South and South-East Asia. On average, Asia spends five times more than Africa in agricultural R&D per hectare (Alene and Coulibaly, 2009). Despite its critical role, there is an underinvestment in R&D in agricultural farming and food production in developing countries, as compared to its potential and need; von Braun, 2008; Beintema and Stads, 2008).

Agricultural technological development and basic R&D have gone beyond “just” raising crop yields. They now encompass the application of biotechnologies, improvements in agricultural resource management (including land use and water conservation), reductions in the use of pesticides and fertilizers (FAO, 2003a; World Bank, 2007) and support measures for sustainable farming. A well-known example of the application of biotechnology to agricultural production is the introduction of GM crops, which are disease resistant and give a higher yield. This has revolutionized agricultural farming. The planting of GM crops has increased in some developing countries,⁴ but it is largely confined to certain crops (e.g. soya beans, maize and cotton) and is concentrated in a relatively small group of countries (e.g. Argentina and Brazil) (World Bank, 2007; James, 2008). While the benefits of GM crops have been recognized by some, their use is controversial. It raises particular concerns about food safety and risks to health (chapter IV), which is partly why GM crops have been largely restricted to animal feeds and non-food commodities such as cotton.⁵

(iii) Institutional support

Institutional support is important for agricultural development. Agricultural institutions such as R&D centres and cooperatives play a crucial role in agricultural extension, development of new seed varieties and in national agricultural planning and productivity. The government can contribute to such

support by providing agriculture-related infrastructure facilities, such as irrigation and building rural roads and those linking farms to markets, along with their maintenance. Increasing productive capacities of farmers, such as through technical training and better water management, are other important aspects of public sector institutional support. However, the extent to which institutions contribute to agricultural production varies by country and by type of institution. Budgetary constraints in poor countries limit their capacity to establish relevant and adequate institutions in support of agricultural development. Therefore it is essential to increase public budgets and ODA in support of agricultural institutional development to enhance agricultural productivity and food production in developing countries, the distribution of food to consumers and the transformation of rural economies (Haggblade, Hazell and Reardon, 2009; FAO, 2004a; FARA, 2006; OECD, 2006).

c. Environment and biodiversity

An important characteristic of agriculture is its close association with the environment. Agricultural farming can be a major contributor to environmental degradation through pollution, greenhouse gas (GHG) emissions, deforestation and soil degradation. Extensive use of chemicals and pesticides has polluted rivers, lakes and other water resources and has had detrimental effects on the health of farm workers (Food and Water Watch, 2008; Loukes, 2008; ETI, 2008; Wee and Arnold, 2009). The conversion of forest into new farmland increases deforestation and has a significant impact on biodiversity, in particular the destruction of wildlife and its habitats (Tan et al., 2009; Koh and Wilcove, 2007). Intensive farming can deplete water resources (thus increasing water scarcity) and contribute to soil erosion, which damages the prospects of future food production for a growing population. Agriculture also contributes to climate change, as it is the second largest source of GHG emissions – after energy – globally, accounting for 15% of global emissions⁶ (World Bank, 2007). The clearing of forests for agriculture, field burning and the associated haze problem are further factors contributing to environmental degradation and climate change. Climate change and climate variability affect agricultural production because of increasing unpredictability of weather patterns and changes in temperature.

These agriculture-related environmental concerns are already influencing how local farmers and TNCs operate in agricultural production by adopting more sustainable and environment-friendly farming techniques, such as hydroponic farming in floriculture, better water management, utilization of renewable energy sources (e.g. geothermal) in farms and technologies and practices that use fewer

pesticides and chemicals, as in integrated pest management (chapter IV). Recycling of waste water for irrigation and crop waste as a source of nitrogen are further examples of sustainable farming and making agricultural systems more environmentally sustainable (World Bank, 2007).

2. The significance of agriculture in developing countries

a. General importance

Agriculture is vital for material well-being and the alleviation of poverty and hunger in the vast majority of countries. Technological transformation and growth in agriculture have provided the impetus for rapid industrialization and overall economic growth in the developed countries as well as several developing countries. That process has been accompanied by structural changes in economies, with an increased share of manufacturing and services in GDP and a much decreased share of agriculture. For instance, during 2003–2007, the share of value added of agriculture in GDP averaged 3% globally: less than 2% in developed countries, more than 10% in developing countries and about 7% in the transition economies of South-East Europe and CIS (table III.3). There are considerable regional differences:

for example, between 2003 and 2007, agriculture contributed to about one third of GDP in West and East Africa, a marked contrast to Latin America and the Caribbean where it contributed to less than 6% of GDP. In addition, while agriculture remains a mainstay in many developing countries, over time its contribution to GDP has declined in all regions in part because of underinvestment in, and neglect of, the industry in favour of manufacturing (section B.3 below; FARA, 2006; DESA, 2009).

Agriculture is a major contributor to exports in many developing countries, and especially LDCs. For some developing countries, especially LDCs, it accounted for more than 60% of total merchandise exports in 2002–2006.⁷ Particular regions and countries dominate in the export of specific commodities, reflecting their locational advantages, historical and colonial influences, policy encouragement and agribusiness development over time. For instance, during 2002–2006, more than 50% of world exports of tea came from Asia, some 68% of world cocoa bean exports were associated with four countries in Africa (Cameroon, Côte d'Ivoire, Ghana and Nigeria), nearly 50% of world banana exports originated from five countries in Latin America (Colombia, Costa Rica, Ecuador, Guatemala and Honduras), about 60% of the world's coffee exports came from Latin America, and developed countries

Table III.3. Regional differences in significance of agriculture, 2002–2007

(Percentage)

Region	Share of agricultural exports in total merchandise exports ^a	Share of agricultural employment in total employment ^b	Share of value added of agriculture in GDP ^c	Share of rural population in total population ^d	Share of agricultural population in total population ^a
	2002–2006	2002–2006	2003–2007	2003–2007	2002–2006
World	6.5	30.8^e	3.0	51.1	40.5
Developed economies	6.9	4.4	1.6	24.7	4.0
Developing economies	5.9	40.0	10.2	57.3	49.1
Africa	8.0	51.2	16.5	62.1	52.2
North Africa	3.7	32.2	13.5	49.9	35.1
West Africa	13.1	53.6	33.1	58.3	44.9
Central Africa	4.5	..	20.7	66.0	60.8
East Africa	38.0	74.6	32.7	79.7	76.5
Southern Africa	7.3	21.7	5.3	55.5	44.7
Latin America and the Caribbean	18.9	17.3	5.9	22.6	18.7
South America	22.3	17.1	6.9	18.3	16.0
Central America	13.0	17.7	4.6	29.9	24.1
Caribbean	11.5	17.0	3.3	36.5	24.1
Asia and Oceania	3.6	42.9	10.8	61.4	52.9
West Asia	2.7	24.3	5.9	35.5	22.1
East Asia	1.8	42.8	9.8	57.5	61.6
South Asia	7.8	46.1	17.6	69.6	50.9
South-East Asia	7.1	44.3	11.8	55.9	46.9
Oceania	13.4	70.6	13.1	76.8	63.5
South-East Europe and the CIS	4.5	17.5	6.9	36.8	14.2
South-East Europe	13.4	25.8	10.7	47.8	15.3
CIS	3.9	17.0	6.6	36.0	14.1

Source: UNCTAD, based on data from FAO, ILO and World Bank (as specified in the notes below).

^a Data based on FAOstat, average of available data for the period shown. Last accessed 24 April 2009.

^b Data based on ILO data (LABORSTA database), average of available data for the period shown. Available data covers 130 out of 243 countries. Last accessed 24 April 2009.

^c Data based on United Nations Statistics Division (UNSD), average of available data for the period shown. Last accessed 24 April 2009.

^d Data based on World Bank, World Development Indicators, average of available data for the period shown. Last accessed 24 April 2009.

^e Based on data for 130 out of 243 economies. Data for China are included but not for India.

(e.g. Australia, Canada, France, Germany, the United Kingdom and the United States) dominated in the export of wheat (annex table A.III.2).

Agriculture also provides significant employment opportunities in developing countries and is a crucial source of livelihood for the rural poor, in particular women (chapter IV; OECD, 2006). In 19 developing countries, agriculture accounted for more than 40% of total employment during 2002–2006.⁸ More than 60% of the population in Africa and Asia live in rural areas, and most of them are employed in agriculture (table III.3). While agriculture accounts for more than half of employment in Africa, wide variations exist within the region.⁹ Similarly, large variations exist in Asia where employment in agriculture accounted for over 40% of total employment in South, East and South-East Asia but less than 25% in West Asia during 2002–2006. Effective agricultural growth could therefore contribute to employment creation and reduce poverty in developing countries, in line with MDG-1.¹⁰ Indeed, in poor countries, under the right conditions, agriculture is at least twice as effective in reducing poverty as compared to GDP growth originating outside agriculture (World Bank, 2007: 6).

b. Agriculture as a neglected motor for development

Despite the importance of agriculture as a motor of development, it has been neglected in many developing countries (FAO, 2008d; HLTF, 2008).

Investment in agriculture, measured as a proportion of gross capital formation (GCF),¹¹ has been declining in both developed and developing countries over the past few decades, although the absolute level of investment has been increasing (table III.4). In 2007, agriculture's share in GCF in developing countries was 9.3%, with significant variations across regions.¹² Much of this relative decline has been due to underinvestment by the domestic public sector, as well as the low level of private investment. It has also been due to the falling share of agriculture in total ODA, from a high of 13% in 1985 to less than 4% between 2002 and 2007 (figure III.2; UNCTAD, 2008g).

Agriculture's relative economic importance in developing countries has fallen significantly since the 1970s, as many developing and transition economies have shifted or attempted to shift their economies towards manufacturing and services (United Nations, 2006: 32). However, there is a significant difference between those countries where the low/declining importance of agriculture is due to their passing through a process of agricultural transformation and transition or diversification, and those where it is the result of neglect, underinvestment and consequent low productivity in agriculture. Low agricultural commodity prices over a prolonged period of time in the past have also affected developing-country agricultural exports and terms of trade, resulting in stagnant or low rates of growth and investment capacity in commodity-export countries. In some countries, national policies favouring rapid industrialization, urbanization and other industrial activities over the

Table III.4. Estimated gross capital formation in agriculture,^a 1980–2007
(Millions of dollars and percentage share in total)

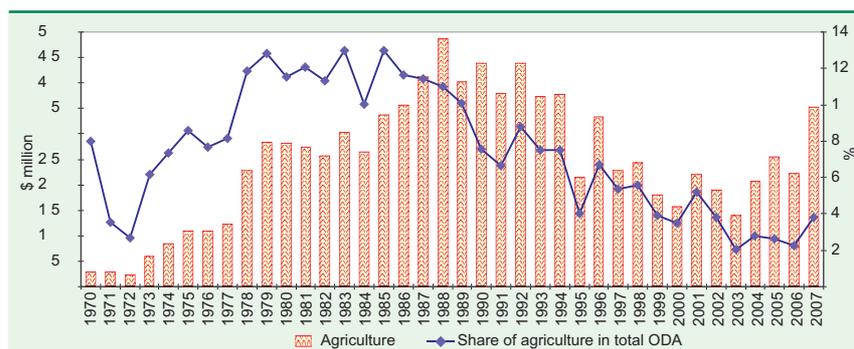
Region	Value (\$ million)						Share in total gross capital formation (%)					
	1980	1990	1995	2000	2005	2007	1980	1990	1995	2000	2005	2007
World	215 585.6	272 894.8	279 923.8	255 830.7	386 403.3	525 413.0	7.5	5.5	4.4	3.7	4.0	4.4
Developed economies	77 677.0	112 885.7	112 177.9	97 233.8	122 049.5	145 681.1	3.9	2.9	2.3	1.9	1.8	1.9
Developing economies	104 336.1	115 161.8	155 359.5	150 929.7	248 042.7	354 478.2	16.8	14.0	11.5	9.8	9.2	9.3
Africa	20 117.1	15 870.5	14 004.9	14 317.8	22 336.6	34 617.8	18.5	17.3	14.2	14.1	12.9	13.9
North Africa	4 757.1	6 115.4	5 375.6	5 836.2	7 525.8	11 754.8	12.1	15.1	11.7	11.8	10.3	11.6
West Africa	10 119.6	3 317.9	2 711.5	2 697.2	5 732.2	10 157.4	30.2	31.8	31.5	27.6	30.6	31.5
Central Africa	1 260.3	1 458.0	1 177.8	1 058.1	1 899.6	2 589.3	22.0	24.6	25.7	20.5	16.4	15.7
East Africa	1 751.2	2 796.1	2 512.9	3 030.8	4 654.8	6 630.7	37.3	40.7	36.2	34.4	33.1	32.0
Southern Africa	2 228.9	2 183.1	2 227.3	1 695.5	2 524.2	3 485.6	8.7	7.8	6.9	5.9	4.6	4.5
Latin America and the Caribbean	16 573.1	21 636.0	23 386.3	21 530.4	28 145.2	44 837.9	8.5	9.6	6.9	5.5	5.8	6.2
South America	10 600.1	15 683.6	18 669.2	13 771.3	19 390.0	33 620.3	8.4	10.1	7.0	6.1	6.7	7.1
Central America	4 850.0	4 432.5	3 839.7	6 663.3	7 620.6	9 767.7	8.9	8.5	6.8	4.8	4.6	4.6
Caribbean	1 122.9	1 520.0	877.5	1 095.7	1 134.6	1 449.9	8.8	7.8	4.6	3.8	3.3	3.4
Asia	67 272.5	77 235.1	117 414.2	114 662.8	197 028.2	274 435.0	21.2	15.3	13.0	11.0	9.8	9.7
West Asia	4 332.2	8 903.2	10 408.8	10 075.9	12 414.4	19 378.2	6.3	11.6	10.3	8.5	5.8	5.8
South, East and South-East Asia	62 940.3	68 331.9	107 005.3	104 586.9	184 613.7	255 056.8	25.2	16.0	13.3	11.4	10.2	10.2
Oceania	373.4	420.1	554.1	418.8	532.7	587.5	20.1	15.4	16.3	14.7	10.8	10.1
South-East Europe and the CIS	33 572.5	44 847.3	12 386.4	7 667.1	16 311.2	25 253.7	11.4	19.0	10.5	10.6	7.4	6.2
South-East Europe	3 109.4	2 038.8	1 478.3	1 269.1	2 556.9	3 517.3	13.6	17.2	18.8	14.9	10.5	10.3
CIS	30 463.1	42 808.5	10 908.1	6 398.0	13 754.3	21 736.3	11.2	19.1	9.9	10.0	7.1	5.8

Source: UNCTAD, based on data provided by the United Nations Statistical Office.

^a Agriculture, hunting, forestry and fishing.

Note: Gross capital formation (GCF) data were available for 10 to 30 countries only, which account for 13%–18% of total GCF. For other countries, the share of agriculture, hunting, forestry and fishing in value added was applied to total GCF to estimate GCF in agriculture.

Figure III.2. ODA in agriculture: value and share in total ODA, 1970–2007



Source: UNCTAD, based on OECD, OECD.Stat Extracts (accessed on 6 May 2009).

Note: Data from 1970 to 1994 include forestry and fishing, which account for roughly one quarter of total agriculture, forestry and fishing.

rural economy have further contributed to lower agricultural growth and development (annex table A.III.1; United Nations, 2006).

Although the opportunity exists for agriculture to act as an important motor for development in many developing countries (see box III.2 for the case of Ethiopia), more needs to be done to realize this promise. Trends towards lower relative investment in agriculture need to be reversed. In this regard, public investment, ODA, private and foreign investment can all play a role.

3. Salient issues influencing investment in agriculture

The re-emergence of agriculture as a priority at the national and international levels, by both the public and private sectors, is interlinked with a number of emerging issues, including those arising from the food crisis of 2008, the MDG targets and the rise of biofuel production. For example, commitment to meet the MDG-1 target has encouraged countries to step up or promote agricultural investment, including by the

domestic private sector and TNCs.

a. The food crisis and the drive for food security

The food crisis of 2008 brought to the fore the need to seriously address the issue of future food insecurity in developing countries (FAO, 2008b and 2008d; UNCTAD, 2009i).¹³

The crisis has forced the international community to reassess whether, and how,

the current global food production system will be able to meet various challenges, including reaching the MDG targets on hunger and poverty. This includes the need to secure a future food supply to feed a growing world population of more than nine billion people by 2050. Unlike previous food crises, caused partly by poor harvests, the latest one was linked with a number of interconnected factors, such as rapidly increasing demand and competition between grains for both human consumption and for feeding livestock and biofuel production.

As discussed in the introduction, an interplay of factors resulted in a hike in food prices in 2008, and shortages in food supply in some developing countries. The price hike was more broad-based than in previous incidents, covering many food commodities as well as cash crops (UNCTAD, 2008b). While prices of such crops have receded from the peak of 2008, they are nevertheless high relative to their historic levels,¹⁴ and are likely to remain high in the future,¹⁵ raising concerns for future food security.¹⁶ Growth of agricultural productivity, particularly in food crop production, has fallen behind growth in

Box III.2. Ethiopia: agriculture as a motor for growth and development

Agriculture is an important pillar in Ethiopia's economic development. Its value added contributed to about 46% of Ethiopia's GDP between 2003 and 2007, and it accounted for 68% of total employment and 57% of the country's total merchandise exports between 2002 and 2006. Agriculture is therefore an important motor for development in the country, which has led Ethiopia to pursue an "agricultural development-led industrialization" strategy. This framework for national economic development emphasizes the need to raise the share of manufacturing in the economy by promoting agricultural productivity and a resource-based process of industrialization. The rationale for

this strategy is that the country's rich and diverse agricultural output offers a basis for a wide range of manufacturing activities for the domestic and export markets. In addition, the manufacturing sector is heavily dependent on inputs from agriculture. Under Ethiopia's Industrial Development Strategy, launched in 2003, efforts have concentrated on creating an enabling environment for the private sector to be a driving force for economic development. The sectoral focus of that strategy is on developing agro-based industries and strengthening the interrelationship between agriculture and manufacturing.

Source: UNCTAD, based on research by Aurelia Calabro, UNIDO (Ethiopia office) and Juliana Gonsalves, UNECA (Ethiopia).

global demand; and changing consumption patterns in fast-growing developing economies have also contributed to pressure on food prices (ECOSOC, 2008a; United Nations, 2008).¹⁷ The low agricultural productivity growth arises from a combination of factors, such as underinvestment in agricultural R&D and infrastructure, land degradation, growing water scarcity in some developing regions and fragmented as well as uneconomical land holdings in small plots (ECOSOC, 2008b). High energy prices have also pushed up the cost of food production, chemical fertilizers and transportation.

The food crisis has triggered a number of responses. At the international level, there is growing concern about food security amid the further challenges posed by global warming, which is expected to affect food systems. At the national level, some countries worried about food security have taken measures to address their anxieties, including through efforts to increase investment in agriculture. Some food crop producing countries restricted the export of staples at the height of the food crisis, while food importing countries have started investing in overseas farming to secure future food supply (Brown, 2008; Blanche, 2009; Smith, 2008; sections D and E). However, food security does not imply food autarky. Both imports and exports of agricultural products constitute elements of government policies for food security and agriculture's role in economic development.

b. Investment to meet MDG targets

The decline in investment in agriculture in developing countries in recent years has significantly hindered countries and the global community in meeting the MDG-1 targets. A number of studies, based on varying assumptions, coverage and methodology, have estimated the food security-related agricultural investment needs of developing countries. For instance, the Common Framework of Action proposed by the United Nations High-level Task Force on the Global Food Crisis estimated that the global incremental financial requirement for investment in agricultural development for food and nutrition security and to meet other objectives would range from \$25 billion to \$40 billion per annum;¹⁸ and this investment would primarily have to be covered through public finance and ODA (HLTF, 2008). Similarly, FAO estimates that an extra \$30 billion per year needs to be invested in agriculture and safety nets to ensure that the MDG target of halving the absolute number of hungry is met by 2015 (FAO, 2003b and 2008b).

Although national public sectors and ODA are seen as providing the bulk or entirety of funding for this investment, it is not clear how feasible this is, especially in Africa. For example, in their Maputo Declaration in 2003, African Heads of State and

Government agreed to allocate at least 10% of their countries' national budgets for agriculture and rural development within five years (African Union, 2003; FAO, 2006b).¹⁹ However, the average agricultural budget allocation for the region had not reached the agreed target in 2008: fewer than 10 countries achieved the 10% level or higher (IFPRI, 2008; African Union, 2008). The impact of the current economic and financial crisis means that some countries will be challenged to find agricultural investment funds for meeting MDG-1 targets, but this goal nevertheless remains an imperative for investment in agriculture (UNCTAD, 2009e), some of which needs to come from the private sector (FAO, IFAD and WFP, 2005; HLTF, 2008).²⁰

c. The rise of biofuel production

The rapid growth of the *biofuels* industry is contributing to major structural changes in global agricultural production (Flammini, 2008). In particular, the profitability of growing crops for biofuel feedstock is an important incentive for private investment in this activity.²¹ A number of large developed and developing countries and groupings, such as Brazil, China, the European Union, India and the United States, are among the leaders in the global growth in biofuel production (table III.5), which has had a knock-on effect on agricultural commodity prices (World Resources Institute and A.T. Kearney, 2008).

Government policies in some countries have facilitated the growth of biofuel production and use. For instance, in support of the ethanol industry, Brazil introduced legislation requiring the use of ethanol-gasoline blends. In an effort to produce alternative fuel sources, other developing countries are also launching biofuel programmes that use molasses, sugarcane and/or oilseeds such as soya beans, oil palm and *Jatropha curcas*. Biofuel production receives support through consumption incentives (e.g. fuel tax reductions), production incentives (such as tax incentives and loan guarantees) and mandatory consumption requirements (World Bank, 2007; FAO, 2008c). Currently, global biofuel production is dominated by just a few major producing economies (James, 2008), but many other developing countries are launching their own programmes (World Bank, 2009c). Current estimates indicate that the biofuels industry will continue to grow, with output of global ethanol and biodiesel projected to more than double between 2007 and 2017 (FAO, 2008c). That would make the industry a potentially significant contributor to the expansion of agricultural production in some developing countries. However, there is a strong debate on whether agricultural resources should be diverted from food production to biofuel crops, especially since this use of crops for biofuel was seen

Table III.5. Biofuel production in selected economies and grouping, 2007
(Million litres and per cent)

Economy/ grouping	Ethanol		Biodiesel		Total
	Volume	Share in world production	Volume	Share in world production	
World	52 009	100.0	10 204	100.0	62 213
Brazil	19 000	36.5	227	2.2	19 227
Canada	1 000	1.9	97	0.9	1 097
China	1 840	3.5	114	1.1	1 954
European Union	2 253	4.3	6 109	59.9	8 361
India	400	0.7	45	0.4	445
Indonesia	-	-	409	4.0	409
Malaysia	-	-	330	3.2	330
United States	26 500	50.9	1 688	16.5	28 188
Others	1 017	2.0	1 186	11.6	2 203

Source: UNCTAD, based on FAO 2008c, based on F.O. Licht, 2007, and data from the OECD-FAO Aglink-Cosimo database.

as a contributor to the price hikes during the recent food crisis. There is a need to examine the challenges and opportunities posed by biofuel production in the context of the twin challenges of world food and energy security.²²

C. TNC participation in agriculture: historical and conceptual insights

1. Historical developments: from plantations to value chain coordination

Early examples of TNC involvement in agricultural production include FDI in the nineteenth and twentieth centuries by companies based in Japan, Europe and the United States, primarily to produce cash and food crops such as cotton, rubber, sugar and others (Freeman, Holslag and Wei, 2008; Suret-Canale, 1964). The history of foreign investment in agriculture is actually even older, and goes back to the early colonial era (from the sixteenth century onwards), when foreign expansion by European powers to the developing countries of today was largely motivated by the search for natural resources, combined with cheap labour by indentured workers or slaves (Thomas, 1997). Thus agricultural production, together with extractive industries, was an early target for foreign investors, some of which resembled TNCs in the modern sense; others were traders or State-mandated companies, all of which aimed at supplying agricultural goods to the growing populations and industries of their home countries (and third markets) (Jones and Khanna, 2006; Wilkins, 2008; Munro, 1976). Very few, if any, processing activities were located in the developing host countries.

After the Second World War, FDI in agriculture grew slower than that in other industries, although there were major variations by region, country and commodity (Twomey, 2000; Tsakok and Gardner, 2007). The general trend was towards industrialization, including in developing countries, which increased the share of manufacturing unrelated to agriculture. In many countries, this industrialization was accelerated by government policies which, through various measures, favoured manufacturing over primary industries (section B.2). In addition, as part of the decolonization process, host governments increasingly assumed control over their natural resources, including land, making it more difficult for foreign investors to become involved in the production of agricultural goods directly. During the period 1960–1976, agriculture was second, after banking and insurance, among activities affected by a wave of nationalizations of foreign enterprises in developing countries, with 272 cases of expropriations (compared to 349 cases in banking and insurance) out of an overall total of 1,369 nationalizations. In South and East Asia, nearly half of all expropriations took place in agriculture (UNCTC, 1978: 233).

From the early 1980s, foreign ownership of land became more restricted across most of the developing world, with implications for FDI in agricultural production (Rama and Wilkinson, 2008; UNCTC, 1983: 218). For example, in Central America, TNCs have moved away from banana plantation production to purchasing bananas from local farmers and providing technical advice and marketing services (Striffler and Moberg, 2003). The tea industry in Kenya, originally based on the foreign-owned plantation model, has undergone a similar transformation, as has the international tobacco industry (Eaton and Shephard, 2001; Neilson and Pritchard, 2009). This does not mean, however, that former agriculture-based TNCs have withdrawn completely from the control of agricultural production. Indeed, some are still significant in agricultural FDI (as shown in section E),²³ but most operate mainly through non-equity forms, such as contract farming, often linked to their activities in processing, marketing and distribution. In general, contract farming has been historically used by companies in high quality fruits and vegetables, organic products, spices, flowers, tea, tobacco, seed crops and other quality sensitive and perishable commodities (Bijman, 2008). The main reason is that such products require good coordination between buyers and farmers for harvesting, quality control and timely delivery.

In the post-war era, TNCs' involvement in agriculture-related activities in developing countries has increasingly focused on the upstream or supporting industries (e.g. provision of inputs, seeds and machinery) or downstream industries

(trading, processing and retailing). Partly, this is a consequence of the reduced involvement of TNCs in farming and plantations; but it is more because of the rise in relative importance of TNCs in other highly profitable segments of the global value chain (GVC) in agribusiness (box III.3; figure III.3). Their ownership of created assets such as brands, logistics expertise and intellectual property²⁴ allows them to compete dynamically with incumbents and newcomers alike. Changing consumer preferences, especially in developed countries, are also a factor.²⁵ The expansion of relatively new activities connected with the industry, such as biofuels production, has also resulted in the involvement of some companies not previously associated with agriculture. In general, in today's agriculture-related activities, value creation

resides mainly in the non-agricultural production segments of agribusiness GVCs (figure III.3) (e.g. downstream activities such as retailing, and upstream activities such as biotechnology-enhanced seeds). This also affects the revenues of local farmers in developing countries. (Table III.6 provides an illustration of the global value chain in agribusiness as it applies to floriculture.)

2. Conceptual overview

The degree of involvement, geographical spread and forms of TNC participation in agricultural production in developing countries can be understood by applying the theoretical framework of ownership-location-internalization (OLI) advantages (box III.4)

Box III.3. Global value chains and their implications for types of TNC participation in agricultural production and related activities

The concept of a global value chain is a commonly used framework for analysing the sequence or stream of interrelated activities performed by firms, organizations or individuals in different geographical locations, necessary for bringing a product or service from production stages to final customers (UNCTAD, 2006a). In the case of agriculture, a typical or generalized agribusiness GVC includes the production of inputs (such as seeds and fertilizers) feeding into agricultural production and leading onto trading and logistics, processing and ultimately to retailing, and thence to final consumers in the downstream part of the chain (figure III.3).

GVCs help understand how activities performed at different stages of the chain are coordinated and the complexities of the governance structure (Gereffi, Humphrey and Sturgeon, 2005). In terms of the power of companies at different stages of GVCs, chains can be typified as either "producer driven" (e.g. during the colonial era, ownership of a plantation was key in delivering fresh produce to industrial or final customers), or "buyer driven" (e.g. in the post-war era, ownership of brands or distribution, among others, means that the lead firms in GVCs are more often companies such as traders and supermarkets, depending on the commodity) (Gereffi, 1989).

Five basic types of relationships (or patterns of governance) between firms in GVCs can be distinguished (Humphrey and Schmitz, 2002; Schmitz, 2005; Sturgeon and Gereffi, 2008).^a They are:

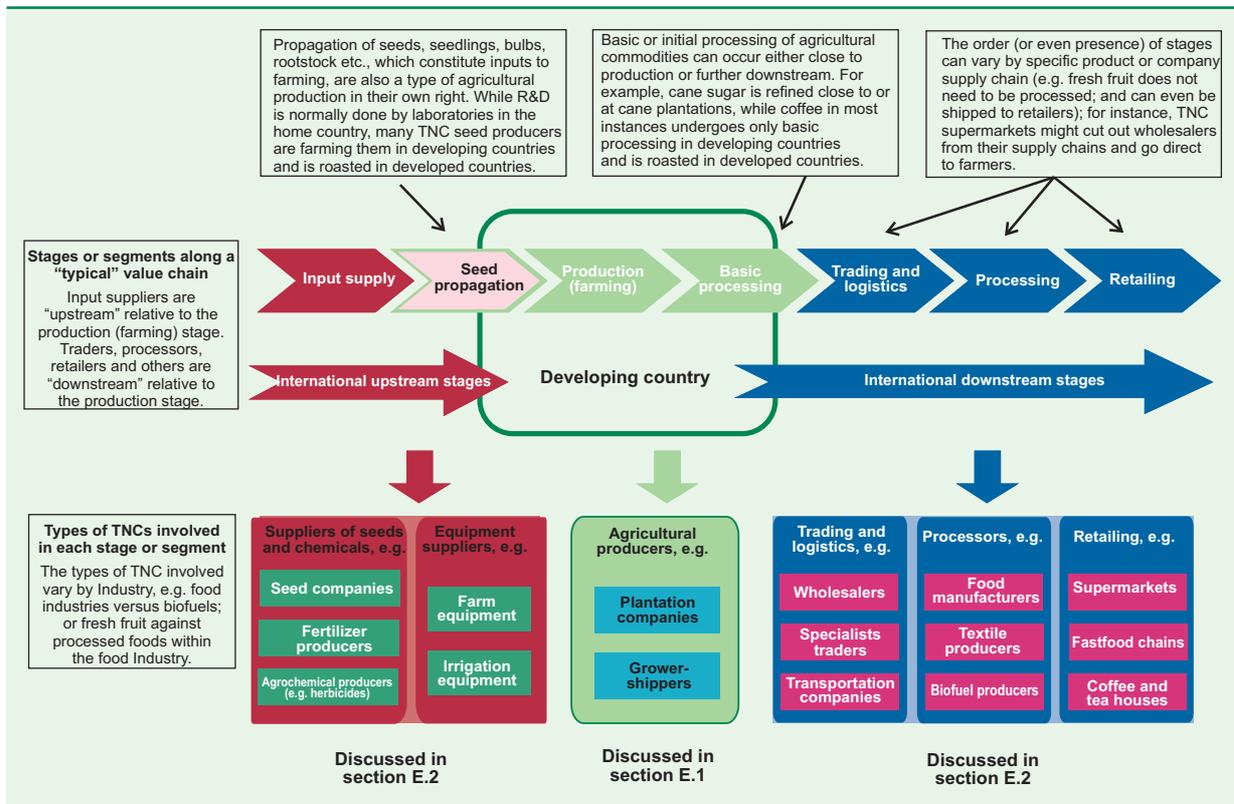
- *Arm's length* (pure market) relations where there is no close relationships between buyer and supplier firms. In the case of agriculture, manufacturers and other downstream firms buy commodities on the international market. There is no direct participation by such TNCs in agricultural production.

Source: UNCTAD.

^a Most of these authors refer to four basic types of relationship, but more recently relational networks were introduced, especially to take into account a wider range of TNCs, such as those from developing countries, than was envisaged in earlier theories. This is analogous to the wider formulation of competitive or ownership advantages in *WIR06*.

- *Modular networks* (market-like, but inter-firm linkages are tighter than simple markets): firms develop information-intensive relationships, frequently dividing essential competences between them. Suppliers produce to the customer's specifications, which, in the case of agricultural production involves farmers meeting *standards* such as those related to quality control or safety. Lead firms may support farmers or other agricultural producers, for example through technical training, funding and provision of seeds. TNC involvement with farmers through modular networks can be considered an indirect form of TNC participation in agricultural production.
- *Relational networks*: these involve mutual dependence between firms, regulated by trust, which may derive from, among others, reputation, family and ethnic ties and commonly held values. In the case of agriculture, an example is the close links between Indian agricultural TNCs and parts of East Africa (*WIR06*).
- *Captive networks*: the buyer exercises a high degree of control over other, less powerful and usually smaller firms in the chain. In the case of agricultural production, this can take the form of *contract farming*. Contract farming can be regarded as a non-equity form of TNC participation in agricultural production.
- *Hierarchy*: governance is characterized by vertical integration and managerial control (i.e. *foreign direct investment*). Transactions are internalized within firms, and affiliates (which may be joint ventures) produce for the parent firm and other parts of its network. This represents an equity form of TNC participation in agricultural production. In addition, there may be instances where a TNC does not own the farming land, but has a long-term lease.

Figure III.3. A typical agribusiness global value chain in a developing economy and types of TNC players



Source: UNCTAD.

(or the “eclectic paradigm”, first formulated by John Dunning, 1993) to internationalization in the context of agribusiness GVCs (box III.3). In doing this, one can distinguish horizontal international expansion by TNCs located in a *particular segment of the value chain* from vertical expansion and international coordination of activities undertaken *along the segments of a value chain*. In the former, an agricultural, manufacturing or retail TNC moves to a host country and establishes an affiliate or a contractual arrangement for production in the same activity as that in which it is engaged at home (e.g. establishment of a supermarket by a retail company), or undertakes a subset of the activities it carries out in the home country. Thus, as box III.4 shows, an agricultural firm with competitive advantages might be drawn to a particular host economy because of the country’s locational (L) advantages, including agricultural endowments and a favourable policy on land ownership; furthermore the TNC can choose to operate in that location through direct investment in a plantation by using its ownership or competitive advantages (O), such as technical knowledge or management expertise, or by making such assets available to host-country firms through a licence, or a management contract or other arrangements. Which of these modalities of operation a TNC chooses rests on

the internalization decision (I) (i.e. whether it is better to own and run the plantation itself (through FDI or not). This decision is influenced by factors such as the relative profitability and risks involved in the various choices, and whether a mutually acceptable price can be agreed on for the sale of its knowledge assets.

TNCs coordinating a network of activities along a GVC can also have both the motives and the capabilities to participate in agricultural production. Examples of motives are to secure commodity inputs and sell seeds, while examples of capabilities include a subset of ownership advantages that facilitate value chain coordination, such as control of, and expertise in, distribution and procurement systems. TNCs can participate in, or influence, relevant agricultural production in countries with the necessary locational advantages (such as the availability of land, water and labour), especially in countries in which they are already present in the upstream or downstream activities (box III.3, figure III.3). Whether TNC participation in agricultural production through such vertical expansion of TNCs occurs and what form it takes depend on a number of factors, including:

- The nature and extent of the TNC’s ownership advantages relevant to value chain coordination. For instance, supermarkets are extremely proficient supply chain coordinators;

Table III.6. The global value chain in floriculture: key stages and selected TNCs at each stage, 2009

Value chain stage	Supply of inputs		Production	Trading and logistics		Retailing	
	Chemicals, fertilizers and equipment manufacturers	Breeders and propagators	Farming and grower-distributors	Transport and logistics providers	Sourcing and marketing	Wholesale	Retail and distribution
Activities	TNCs at this stage include chemical and fertilizer companies, as well as manufacturers of greenhouses and other farming equipment.	TNCs or international companies that provide farmers with different varieties of flowers, developed for size, colour, etc.	TNCs with investments in farmland in developing countries that grow flowers for export or for local markets. Grower distributors distribute cut flowers from their own farms. Some TNCs subcontract local farmers to produce flowers for them.	TNCs that provide transportation (incl. airfreight) for cut flowers from farms to markets. Some charter daily flights for this purpose.	TNCs with affiliates in overseas locations (mostly in major producing countries) to source flowers for sale.	International auction centres that establish business ventures in emerging centres for the flower trade. Flowers are traded by auction and reshipped to final buyer markets. International companies purchase flowers and operate as wholesalers.	TNCs that market and distribute cut flowers directly to final customers through supermarkets, specialist flower shops and retail chains. Some supermarket chains – as large buyers – are involved in contract farming in developing countries.
Examples of TNCs	BASF (Germany)	Rosen-Tantau (Germany)	Homegrown and Flamingo (part of Finlay, United Kingdom)	East African Flowers-Netherlands and Airflo - Kenya (members of Mavuno Group)	Bloom (Netherlands)	Dutch auction centres (Netherlands)	Tesco (United Kingdom)
	Syngenta (Switzerland)	Nirp International (France)	Sher Karuturi (India)	Swire-Finlay Group (United Kingdom)	World Flowers (United Kingdom)	Mayesh Wholesale Florist (United States)	Asda (United Kingdom)
		Lex+ (Netherlands)	Oserian (Kenya)	Emirates Sky Cargo (United Arab Emirates)	Sourcing, marketing, wholesale		Marks & Spencer (United Kingdom)
		Dekker Chrysanten (Netherlands)	Finlay (United Kingdom)	Welyflor (Ecuador)	Dutch Flower Company (Netherlands)		Albert Heijn (Netherlands)
			Integrated business networks				Sainsbury (United Kingdom)
			This includes groups of companies that are involved in breeding, contract farming, distribution and marketing of cut flowers produce by members of the group. These TNCs include:				Waitrose (United Kingdom)
			Karuturi Group (India)	Golden Rose (Canada)			
			Mavuno Group (Netherlands)	Continental Floral Greens (United States)			
			Swire-Finlay Group (United Kingdom)				
			Beekenkamp Group (Netherlands)				
			Esmerralda Farms (United States)				
			Falcon Farms (United States)				

Source: UNCTAD.

- The agricultural resources available and the capabilities of the farmers whom the TNC deals with. If they have the technology and expertise to deliver produce of the quantity and quality required, then contractual arrangements are more likely to prevail than FDI;
- The risks involved (e.g. might it be cheaper and/or less prone to political risk to procure agricultural commodities through the market?); and,
- How much value added can be captured through direct investment in agricultural production (i.e. control of the movement of goods and services along a chain gives considerable leverage over the setting of prices).

Depending on how these factors play out concretely,²⁶ the types of “vertical” TNC participation along the value chain in agricultural production can thus take one (or a mix) of three principal forms (box III.3, figure III.4):

- Indirect, non-equity participation through implementation of standards and other information-intensive relationships in which a host country farmer/firm produces to the specifications of a foreign TNC involved in activities downstream or upstream of production in the host country. Coordination of the relationship by the TNC can be loose or strong,

but either way an inability to meet standards can have negative commercial repercussions for the supplier.

- Direct, non-equity participation through contract farming, in which host-country farmers/firms are tightly coordinated and controlled by the TNC, which may also provide inputs and assistance of various kinds, for instance because of the need for secure or timely delivery (such as in the case of fresh fruit and vegetables) to geographically distant outlets.
- Direct equity participation through FDI, whereby coordination and control of transactions are fully internalized within the TNC.

The ownership advantages of TNCs involved mainly in the downstream stages of agribusiness value chains tend to be information-related, particularly concerning markets, prices, consumer preferences and the forecasting of changes in these critical parameters. Much of this is owed to experience and accounts for the longevity of TNCs in these industries. Two key processes are at work: coordination of the multistage processes of agri-business by TNCs, and their internalization and control of key markets in information and expertise. The first process arises because of the need to ensure product quality over the time that agricultural production, processing and

Box III.4. The OLI paradigm and international production in agriculture

The OLI paradigm (Dunning and Lundan, 2008) is a simple but effective framework for understanding the factors that determine the internationalization choices of firms. It explains the choice of FDI over other forms of internationalization (such as trade or contractual arrangements) in terms of the presence or otherwise of: a) ownership-specific advantages of firms; b) location-specific advantages of countries abroad; and c) internalization advantages from cross-border transactions within firms rather than through markets or contractual arrangements.

The basic rationale for internationalization by firms is to increase or protect their profitability and/or capital value, usually triggered by threats or opportunities such as for example those related to the food crisis or the rise of biofuels and the related price increases in the case of agriculture (section B.3). In order to compete effectively in foreign host economies, TNCs normally need to possess and utilize competitive or *ownership-specific* (O) advantages, which may derive from a number of sources. Most commonly, these ownership advantages consist of the possession of “strategic” created assets, such as technology and R&D capabilities, production-related expertise, ability to finance large-scale operations, brands, distribution networks, production related expertise, business models and managerial competences. For instance, for a firm to engage in agricultural production abroad, the ability to establish, manage and run plantations or farming operations to a high standard of performance that can compete with host-country farming enterprises, requires a number of such assets, both explicit (e.g. financial strength, technical expertise on, say, oil palms or tea) and tacit (e.g. effective management of a large-scale workforce).

The possession of ownership advantages does not necessarily lead to FDI. For example, instead of FDI, an agricultural enterprise might sell or provide its ownership advantages to host country companies in a number of ways. Technological knowledge can

Source: UNCTAD.

be made available through sales of intermediate goods and the licensing of technology to host-country firms, which then establishes production facilities and pays the TNC (the licensor) a royalty. Under conditions where the host-country firm does not possess the capabilities to absorb the technological (or other) knowledge, or where the knowledge is of a tacit nature and not easily transferable, the agricultural TNC can enter into a management contract: the host-country firm puts up the capital and owns the plantation or other facilities (thereby bearing much of the risk), while a team from the TNC manages them for a fee. For the TNC, returns may be lower, but so are the risks. The decision whether to *internalize* (I) operations (i.e. FDI) or exploit ownership advantages externally through the market for goods, services or knowledge (e.g. through licensing or management contracts) depends on various factors. The most important factor is the relative return versus the relative risks (e.g. FDI can be expensive and is beset by commercial and political risks; in contrast, sale of knowledge, even on a contractual basis, runs the risk of the TNC’s very ownership advantages being lost to the buyer.

The specific choice of locating production abroad, rather than exploiting competitive advantages through international trade, will depend on the presence of *locational* (L) advantages in a country or countries abroad, including economic determinants (e.g. market size, natural resources and created assets), policy framework, business facilitation measures, and business conditions. The presence of host-country advantages is the third condition necessary for international production. Differences between locational advantages of different countries are important determinants of the international location pattern of FDI or other types of TNC activity. In the case of agricultural production, agricultural endowments, historical legacies (e.g. the introduction of coffee production to Brazil) and government policies can all affect the location of TNC activity.

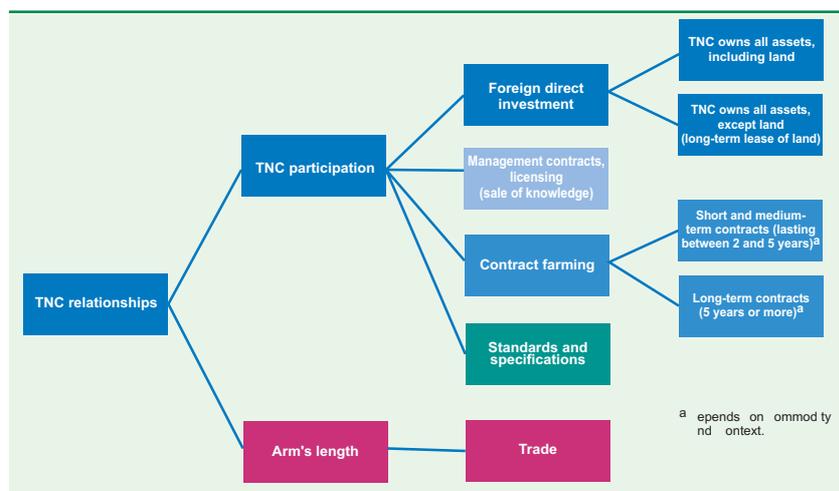
sales take place. This necessitates the coordination of planting, growing, harvesting, transportation, packing and delivery. Product quality in retail markets is often associated with branding, and TNCs derive profits by guaranteeing the consistent quality represented by key brands. This is strongly linked to the second factor, namely the control and use of critical information throughout the TNC-controlled value chain. Information on consumer tastes and on relative costs of production, transportation and delivery from the major sources of agricultural production to key markets is a vital element in TNC strategy (Buckley, 2009; Gereffi, 2007; boxes III.3 and III.4).

The degree and form of TNC participation in agricultural production is likely to differ according to a company’s stage in a GVC, as suggested by

examples from the GVC in floriculture (table III.6). For instance, large *supermarket chains* have the coordinating ability and the power to enforce standards/specifications in order to secure supplies of quality cut flowers directly from growers in developing countries, in circumstances where they cannot secure them from traders, or, if it is more profitable, to cut out the “middle man”. Enforcement of standards suffices in most cases of direct procurement from growers (sometimes through agents), but contract farming does occur to some extent in order to ensure security of supply (the supermarkets have a large number of outlets which need to receive equivalent products).

In contrast to supermarkets, most *retail outlets* are not able to procure cut flowers directly from developing countries and are not involved in

Figure III.4. Types of TNC participation in agricultural production in host countries



Source: UNCTAD.

activities in those countries. The *trade/wholesaling stage* is therefore very important to the industry as a whole. Companies in this segment of the floriculture value chain primarily source flowers at arm's length (through the market), and have little participation in agricultural production. However, some TNCs in this segment have adopted an integrated value chain approach, which involves both agricultural production and wholesaling. In order to side-step the power of traders/wholesalers, a number of TNCs in floriculture have extended their ownership assets beyond production and evolved into *grower-distributors*. This helps them to better control channels of distribution and therefore capture more value added in the cut flowers industry. *Breeders and propagators* are an important part of the floriculture GVC.²⁷ They undertake research and breed and propagate new and different varieties of flowers, in colours and sizes demanded by consumers. Some of them farm inputs (i.e. seeds, bulbs and seedlings) in developing countries to ensure that they are available to farmers (Wee and Arnold, 2009).

To summarize, whether or not agribusiness TNCs participate in agricultural production abroad, their form of participation (e.g. through FDI in agriculture or contract farming) and where (e.g. in traditional host countries or in new locations) depends on the specific ownership advantages they possess in some vital parts of the value chain (which also depends on the particular agribusiness chain in question); the existence of location-specific reasons for choosing international production rather than arm's length transactions and operating in a particular host economy; and finally, the costs and benefits to TNCs in agriculture and related industries of the internalization of transactions across borders (FDI),²⁸ as opposed to non-equity, contractual forms

of coordination of the supply chain. The TNC will choose the best mix that provides security of supply, flexibility and quality assurance. TNCs are, of course, faced with the costs of such global operations. These include coordination costs – requiring sophisticated management and information systems – and the potential risks of losses through unforeseen hold-ups, production failures and potential discrimination against foreign firms by hostile host-country elements.

D. Trends in FDI and other forms of TNC participation in agriculture

As mentioned in section C, prior to the Second World War, agriculture in developing countries, especially export-oriented production of crops such as bananas, sugar and tea, was an important host for TNC participation (mainly FDI, but also other forms of participation). After the war, as a result of the rise of FDI in manufacturing and then services, as well as the restrictions on FDI in agriculture imposed by newly independent developing countries, the relative importance of foreign investment in agricultural production declined considerably. However, in many cases TNCs from the earlier period retained control, as specialist traders and retailers, over trade and access to industrialized country markets. At the same time, to guarantee a supply of the relevant commodities, they partly moved over to contract farming in lieu of FDI. As this section shows, TNCs continue to be involved in plantation agriculture, although they constitute a smaller part of the total picture now.

After a long period of decline in TNC participation in agricultural production, a resurgence may however be under way. Although it is still too early to present a fully reliable statistical picture, this section maps emerging trends and patterns, documents how different forms of TNC involvement have evolved, and attempts to gauge the extent of agricultural production by new actors, such as private equity funds and a variety of investors from developing countries. An analysis of patterns of TNC participation in agricultural production shows that it takes various modes, from wholly-owned affiliates and joint ventures, to management contracts and contract farming.

Much of the analysis in this section and in the report focuses on FDI and contract farming because these are the two most common forms of TNC participation in agricultural production. To the extent that their impact is relevant for agriculture, data on TNCs in agriculture-related industries are also taken into consideration while discussing the role of TNCs in agriculture (section E). While efforts have been made to use a common industry or group of industries methodology based on standard international classifications, due to differing collection practices and methodologies, the industries covered vary slightly among the two data sets used: (a) FDI stocks and flows, and (b) cross-border M&As (box III.5).

1. FDI trends and patterns

a. FDI

In the recent past, allowing for data limitations (box III.5), the direct involvement of TNCs in agriculture has been limited. World inward FDI stock in agriculture comprised only \$32 billion – only 0.2% of total inward FDI stock in 2007 – despite significant growth in FDI since 2000, particularly in developing countries (table III.7). Between 1989 and 1991, world FDI flows in agriculture remained below \$1 billion per annum, as compared to more than \$7 billion in food and beverages (table III.7 and figure III.5). By 2005–2007, world FDI inflows in agriculture exceeded \$3 billion per annum. This still constituted less than 1% of total world FDI inflows. The low levels of FDI in agriculture may be partly explained by the regulated nature of the industry, restrictions on ownership of agricultural land by foreigners, and corporate strategies which favour control over the supply chain through upstream and downstream activities (section

C). FDI outflows in agriculture in 2005–2007 were even smaller than inflows: they remained on average around \$1 billion per year. This difference between inflows and outflows suggests that an important part of agricultural FDI is undertaken by TNCs coming from related industries (and therefore the capital outflows are registered under those industries in the outward data) (table III.7).

In terms of FDI stocks, agriculture accounts for a considerably smaller share than food and beverages, indicating a greater focus by TNCs on downstream activities (table III.7). The inward FDI stock in agriculture was higher in developing countries than in developed countries over the period 2001–2007. Moreover, in terms of its share in the total FDI stock of all industries in all sectors – primary, manufacturing and services – combined, agriculture has been much more important for developing countries than for developed countries. This may reflect various factors, including the relative importance of agriculture in the economies of developing countries in general, the availability of land for cultivation and government policies. On the other hand, developed countries consistently receive more FDI in food processing than developing countries, suggesting that the majority of higher value added activities in agri-food supply chains are still concentrated in the former group.

At the country level, the share of agriculture in total inward FDI flows is less than 1% for 17 of the 40 economies shown in figure III.6a, while agriculture's share in total FDI stock does not exceed 1% in 21 of the 40 economies shown in figure III.6b. However, in some LDCs, the share of FDI in agriculture in total FDI flows or stocks is relatively significant (e.g. Cambodia, Lao People's Democratic Republic, Malawi, Mozambique and United Republic of

Box III.5. Data sets used in *WIR09*

FDI data based on balance of payments. These data are available for 24–65 countries, for inward FDI and for 9–30 countries for outward FDI in agriculture, forestry and fisheries (in the primary sector); and for 20–50 countries for inward FDI and for 13–28 for outward FDI in food and beverages (including tobacco) (in the manufacturing sector), for 1990 to 2007. A detailed breakdown of data by sub-industries was not available, and neither were data for some important host and home countries. For example, there were no relevant outflow data for Brazil, Mexico and the Russian Federation.

FDI data based on completed cross-border M&A transactions: A full analysis of cross-border M&As along the supply chain is possible, as a detailed industry breakdown was available (including for agriculture and the above-mentioned manufacturing

and service industries, as well as for input industries such as fertilizers and agricultural machinery). Detailed information was available for individual deals from 1987 onwards. Data on some 840 deals in agriculture (primary production), 6,900 in food processing and food-support industries (manufacturing) and 2,200 in services related to agriculture and food were available for 1987–June 2009. Data have been calculated on a net basis: The value of net cross-border M&A sales takes the gross value of M&A sales of companies (either national or foreign) to foreign TNCs, from which is subtracted the value of the sales of foreign affiliates (to either national or foreign investors). The value of net cross-border M&A purchases takes the value of purchases of companies abroad by home-country based TNCs, from which is subtracted the value of sales of foreign affiliates of home-country based TNCs.

Source: UNCTAD.

Table III.7. Estimated FDI in agriculture, forestry and fishing^a and food and beverages^b, various years
(Billions of dollars and per cent)

Region	FDI flows				FDI stock			
	Inflows		Outflows		Inward stock		Outward stock	
	1989–1991	2005–2007	1989–1991	2005–2007	1990	2007	1990	2007
(a) Agriculture, forestry and fishing^a								
World	0.6 (0.3%)	3.3 (0.2%)	0.5 (0.2%)	1.1 (0.1%)	8.0 (0.4%)	32.0 (0.2%)	3.7 (0.2%)	10.2 (0.1%)
Developed economies	- 0.0 ..	0.0 ..	0.5 (0.2%)	0.6 ..	3.5 (0.2%)	11.8 (0.1%)	3.4 (0.2%)	7.5 (0.1%)
Developing economies	0.6 (1.8%)	3.0 (0.8%)	0.0 (0.7%)	0.5 (0.4%)	4.6 (1.3%)	18.0 (0.5%)	0.3 (1.5%)	2.4 (0.1%)
South-East Europe and the CIS	0.3 (0.7%)	0.0 (18.2%)	2.2 (0.7%)	0.3 (1.3%)
(b) Food and beverages^b								
World	7.2 (3.8%)	40.5 (2.8%)	12.5 (5.6%)	48.3 (3.3%)	80.3 (4.1%)	450.0 (2.9%)	73.4 (4.1%)	461.9 (2.8%)
Developed economies	4.8 (3.2%)	34.1 (3.2%)	12.2 (5.6%)	45.7 (3.4%)	69.9 (4.4%)	390.7 (3.4%)	73.1 (4.1%)	458.1 (3.2%)
Developing economies	2.4 (6.8%)	5.1 (1.4%)	0.3 (4.1%)	2.6 (1.9%)	10.4 (2.9%)	46.9 (1.2%)	0.3 (1.4%)	3.5 (0.2%)
South-East Europe and the CIS	1.4 (3.2%)	- 0.0 (-4.5%)	12.4 (4.2%)	0.3 (1.7%)

Source: Annex tables A.I.4–A.I.7.

^a Includes hunting.

^b Includes tobacco.

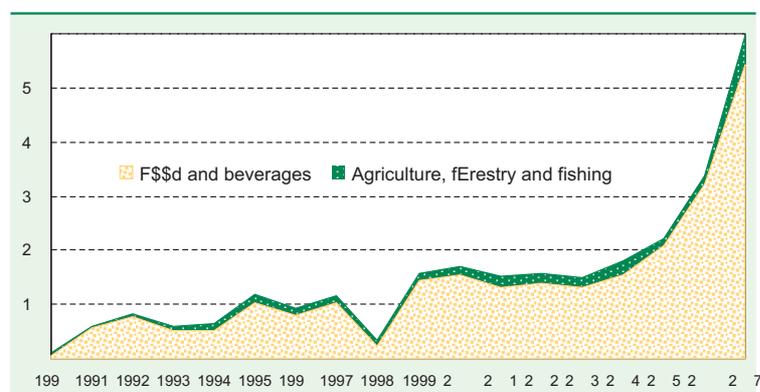
Notes: Data are estimates for global flows and stocks of FDI in agriculture, forestry and fishing, and in food and beverages and tobacco, projected from available data. Therefore, these estimates may not be comparable with data shown elsewhere. Figures in parenthesis show the share of these industries in total FDI to all industries. (For details on data sets used, see box III.5.)

Tanzania), as also in some other developing countries (e.g. Ecuador, Indonesia, Malaysia and Viet Nam) (figure III.6). Some reasons for this relatively high share relate to the structure of the domestic economy (especially the high share of agriculture in GDP),

availability of agricultural land (mostly for long-term lease), and national policies (including investment promotion in agriculture). Furthermore, some developing countries such as Egypt and Paraguay are also important host economies for food processing FDI: the share of food and beverages in their inward FDI is more than one tenth of their total inward FDI, and this results in linkages with agricultural production.

The importance of FDI and TNCs also varies by commodity. FDI is usually minimal in staple food items such as rice, but relatively important in some cash crops, such as cut flowers, and in the sugar industry in which crop production is closely linked with the first step of processing (i.e. in sugar mills) (box III.6). In some other commodities such as soya beans, TNCs control the value chain from their position in the wholesale trading segment, and are involved in production mostly through contractual arrangements (section C).

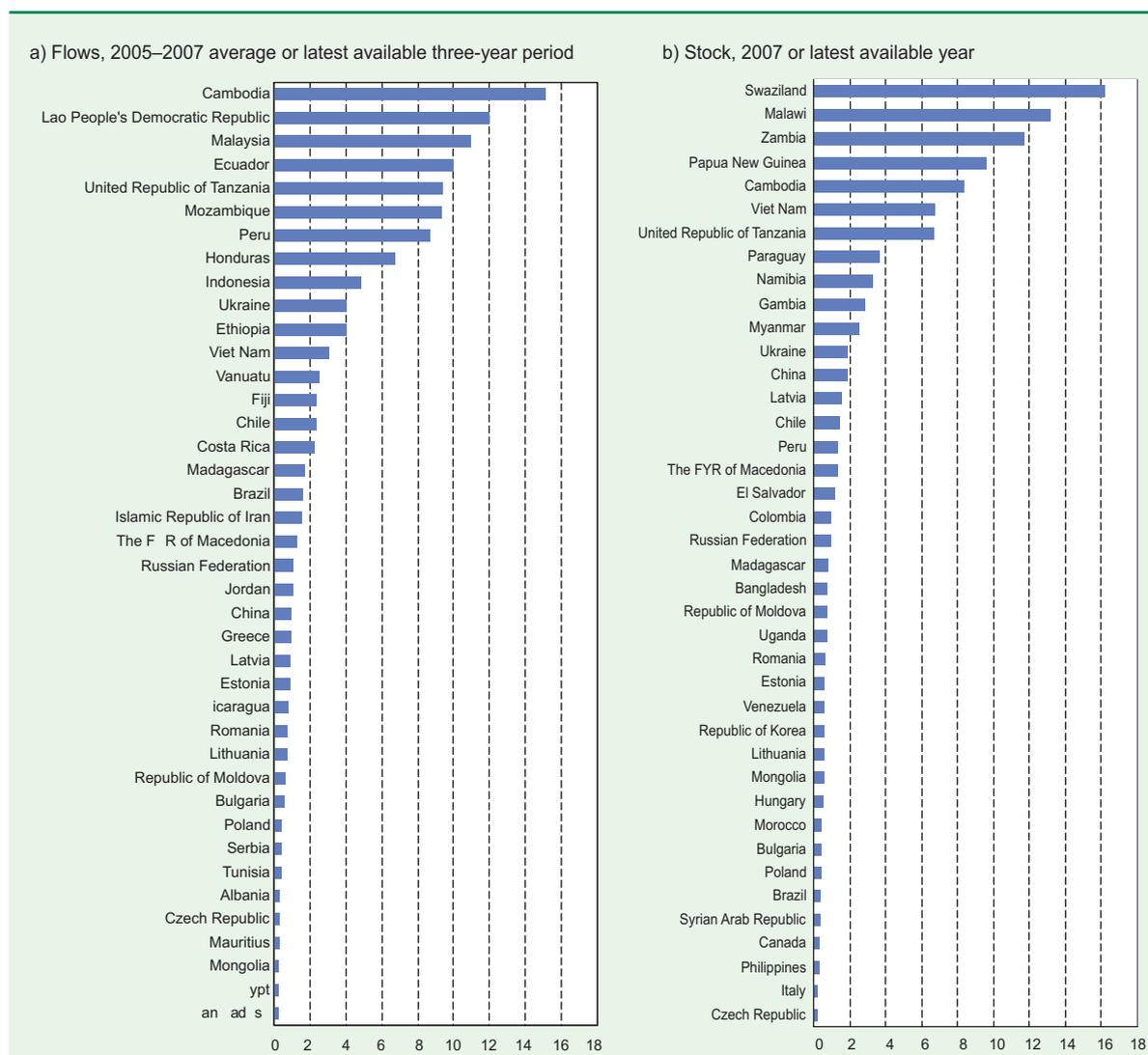
Figure III.5. FDI inflows in agriculture, forestry and fishing, and food and beverages, 1990–2007
(Billions of dollars)



Source: UNCTAD, FDI/TNC database.

Note: Agriculture, forestry and fishing include hunting; food and beverages include tobacco. Figures are for the sum of countries for which data were available for each year. Therefore, the number may vary from year to year, covering an average of 45 countries accounting for about two thirds of world inflows.

Figure III.6. Share of agriculture in inward FDI of selected economies, various years
(Per cent)



Source: UNCTAD, based on annex table A.III.3.

b. Cross-border M&As

Cross-border M&As have been a relatively important mode of TNC entry into agriculture and related activities (Rastoin, 2008) and hence may be viewed as another indicator of TNC involvement in agriculture. In some years (e.g. 1995 and 1998), the value of net cross-border M&A sales in agriculture has come close to that of FDI flows, and in other years, such as 1991 and 2005, their value has even exceeded that of FDI inflows (table III.8).²⁹

Cross-border M&A data for the most recent period (2007–2008) confirm a major rise of investments in agriculture and related activities. This co-evolution is linked to the fact that, until recently, greenfield investments have been very small in agricultural production (see below), and have had little influence on overall FDI flows. Net cross-

border M&A sales in agriculture reached \$1.8 billion in 2007 and \$2.1 billion in 2008 (table III.8). This is partly a parallel trend to that in the food processing industry, where M&As increased sharply in 2007 and 2008 (to \$33 billion and \$86 billion, respectively). A large proportion of M&A deals targeting agricultural production itself were undertaken by TNCs operating primarily in food processing and trade, confirming the importance of vertical integration.

Cross-border M&A data also throw light on the relative importance of the various stages of the value chain for TNC activities in recent years. Agriculture alone accounts for only a small part of the total value of net cross-border M&As, which is dominated by the food processing industry. Taking the agribusiness value chain as a whole, in 2007 agriculture (primary sector) accounted for 5% of total cross-border M&As and food processing (manufacturing) for 95%, while

Box III.6. TNCs in the production of bananas, coffee, cut flowers, rice, soya beans and sugar

The participation of TNCs varies widely between the six different products for which UNCTAD has prepared in-depth case studies: bananas, coffee, cut flowers, rice, soybeans and sugar. It is limited in rice production, and mostly confined to contractual arrangements through trading in the coffee and soya bean industries. On the other hand, it is fairly strong in bananas, cut flowers and sugar production.

There are no dominant players in global rice production. TNCs which are involved in contract farming in Asia and Africa are often rice wholesalers (e.g. Kitoku Shinryo in Viet Nam and VeeTee in Nigeria) or major food manufacturers (e.g. PepsiCo in India). In general, with the exception of Tilda's (United Kingdom) contract farming in Uganda, the scale of these TNCs' involvement, and thus their impacts on rice cultivation in host countries has been marginal relative to overall rice production in those countries.

In the major *soya bean* producer countries (Argentina, Brazil and the United States), a small number of TNCs dominate all the stages of the value chain except farming (Moussa and Ohinata, 2009). For instance, four TNCs (ADM, Bunge, Cargill and Louis Dreyfus) control over 40% of crushing capacity in Brazil. In the area of genetically modified soya, one TNC (Monsanto) alone provides 90% of the world's GM soya seeds.

Since the early twentieth century, international *banana* trade has been dominated by vertically integrated TNCs that control production, packing, shipping, import and ripening. Economic power in the banana trade today remains in the hands of a few large developed-country TNCs such as Chiquita, Dole, Del Monte and Fyffes (Liang and Pollan, 2009). It is estimated that about half of the bananas sold by Chiquita, Dole and Del Monte originate from their

own plantations. The role of TNCs in production varies considerably across regions and countries: in Central America, their direct involvement is still significant in Costa Rica, Honduras, Guatemala and Panama; in South America, they are involved in Colombia; in the Caribbean, they are no longer directly involved in production; in Africa and Asia, they have some control over production through joint ventures.

Coffee is grown mostly by local producers, the overwhelming majority being small farmers. TNCs play an important role at the stage of purchasing coffee beans in the major growing countries, such as Brazil, Colombia and Viet Nam, as well as in further processing (Krueger and Negash, 2009). At these stages of the supply chain, a few TNCs specializing in trading and roasting dominate the international market.

In certain developing countries where floriculture is a major export industry – such as Ethiopia, Kenya and Uganda – the participation of foreign firms in *cut flower* farming has been significant, and they provide an important opportunity for business linkages with local farmers through outgrower arrangements or contract farming (Wee and Arnold, 2009).

In countries such as Brazil, South Africa and some LDCs in Southern Africa (Malawi, Mozambique, the United Republic of Tanzania and Zambia), FDI has played a major role in expanding *sugar* production and exports (Van Giffen and Kalotay, 2009). In Brazil, sugar and ethanol production attracts TNCs – from traditional sugar producers to energy companies and investment funds. In Southern Africa, newly emerging investors, such as the Associated British Foods' South African affiliate Illovo, are becoming major players in local sugar production, while Tongaat Hulett, a South African sugar TNC, has expanded production to Mozambique, Swaziland and Zimbabwe.

Source: UNCTAD, based on the commodity case studies.

wholesale trade, which underwent restructuring in 2007 and 2008, had a negative value of net M&A sales, due to divestments in certain foreign locations (figure III.7).³⁰

The dominance of food processors as a target for M&As in the agricultural and food supply chain suggests that food TNCs (figure III.7) are major investors in primary production, distribution and marketing of food products (see also section E). In agricultural production alone there were 63 cross-border M&A purchases valued at \$4.5 billion in 2007, 70% of these M&As by value were undertaken by food-related manufacturing and services TNCs.

Data on the *international production* of affiliates of TNCs, including information on indicators such as sales, exports, employment and assets of foreign affiliates in host economies, are available on

a selective basis. Data for affiliates abroad of United States TNCs in agriculture, hunting, forestry and fishing show that in the total sales of affiliates, the share of domestic sales in host countries was the most dynamic element in 1983–2006, closely followed by sales to foreign countries. On the other hand, the value of sales back to the home country was shrinking (figures III.8 and III.9). These patterns suggest dual motivations on the part of investors: market-seeking motives related to local sales in host countries, and resource-seeking ones related to exports, mainly to third countries. The composition of exports themselves revealed that a large proportion of exports to third countries took place within the corporate network (i.e. between affiliates of the same firm), confirming a high degree of international integration of TNCs involved in agricultural production (section C).

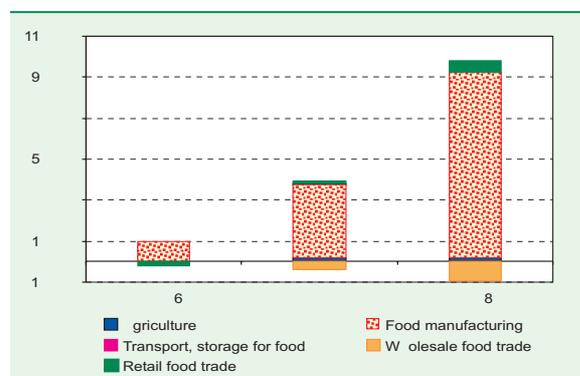
Table III.8. Comparison of FDI inflows and net cross-border M&A sales in agriculture and food processing, 1990–June 2009
(Millions of dollars)

Year	Agriculture (primary)		Food processing (manufacturing)	
	FDI inflows	Net cross-border M&A sales	FDI inflows	Net cross-border M&A sales
1990	559	112	505	9 261
1991	308	453	5 688	4 151
1992	363	- 25	7 846	5 632
1993	544	- 8	5 276	4 810
1994	1 194	- 113	5 218	10 180
1995	1 439	891	10 324	7 793
1996	1 346	- 36	8 027	397
1997	1 338	158	10 246	14 579
1998	1 127	595	2 330	1 621
1999	1 391	301	14 308	3 293
2000	1 601	485	15 337	44 595
2001	1 901	85	13 180	4 105
2002	1 627	121	13 997	21 333
2003	1 689	174	13 212	16 812
2004	2 471	306	15 575	8 178
2005	1 256	7 568	20 772	31 646
2006	1 420	56	32 252	9 196
2007	5 450	1 818	54 298	32 998
2008	..	2 102	..	86 338
January–June 2009	..	404	..	3 895

Source: UNCTAD, FDI/TNC database and cross-border M&A database.

Note: FDI data refer to agriculture, forestry, fishing and hunting; and food, beverages and tobacco. M&A data refer to agricultural production and food processing only, as detailed industry data are available. Figures for inward flows are the sum of countries for which data are available for each year. The number may vary from year to year, and covers an average of 45 countries accounting for about two thirds of world inflows. Cross-border M&A sales are calculated on a net basis as follows: cross-border M&A net sales in a host economy = sales of companies in the host economy to foreign TNCs (-) sales of foreign affiliates in the host economy. The data cover only those deals that involved an acquisition of an equity stake of more than 10%.

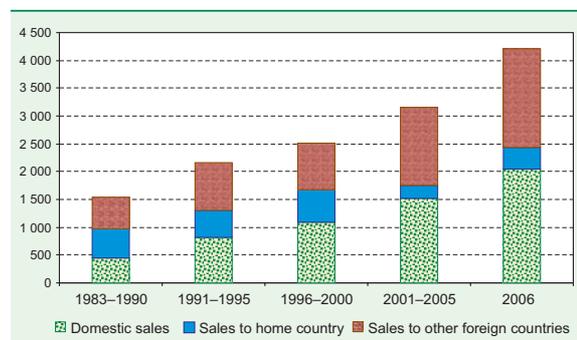
Figure III.7. Distribution of cross-border M&As along the value chain in agriculture and food industries, 2006, 2007 and 2008
(Millions of dollars)



Source: UNCTAD, based on the cross-border M&A database.

Note: Secondary for food includes the processing of food, the manufacturing of food processing machinery and fertilizers. For technical description of agricultural M&A data see note of table III.8.

Figure III.8. Sales and exports of majority-owned affiliates abroad of United States TNCs in agriculture, hunting, forestry and fishing, 1983–2006
(Millions of dollars)



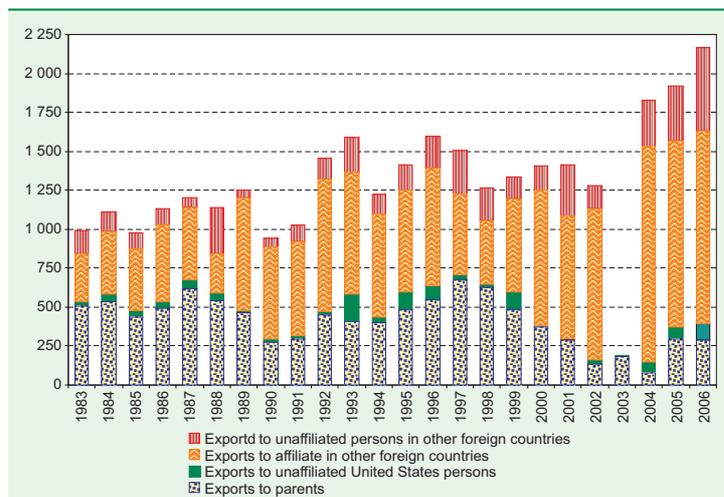
Source: UNCTAD, based on data from United States Bureau of Economic Analysis.

c. Geographical patterns

Data on FDI inflows in agriculture since 2000 indicate the increasing attractiveness of developing regions, particularly Asia and Oceania and Latin America and the Caribbean – and of the transition economies of South-East Europe and the CIS as hosts to FDI in agriculture (figure III.10). In contrast, flows to Africa appear to have declined.³¹ After 2000, the FDI inflows to agriculture in developed countries remained small and declined overall. These trends are also reflected in inward FDI stock data (figure III.11). The data suggest that, as mentioned earlier, countries with large territories (such as Australia, Canada, China, Indonesia, the Russian Federation and the United States) are hosts to significant levels of inward FDI stocks or flows in agriculture (table III.9). Other host countries which receive significant amounts of FDI (according to either inward FDI stock or flow data available) include various Asian countries, such as Cambodia, China, Indonesia, Viet Nam (in terms of both flows and stock); Malaysia (in terms of flows only); the Republic of Korea and Turkey (in terms of stock only); and Latin American countries, such as Brazil and Chile (in term of both flows and stock); Ecuador, Costa Rica, Honduras and Peru (in terms of flows only). There was only one African country (the United Republic of Tanzania) on the list of the 20 largest recipients of flows or stocks reported (table III.9). Among developed countries, important recipients include various EU members: France, Poland, Romania and the United Kingdom (in term of both flows and stock); Bulgaria (in terms of flows only); Hungary and Italy (in terms of stocks); as well as Australia, Canada and the United States (in terms of stocks only).

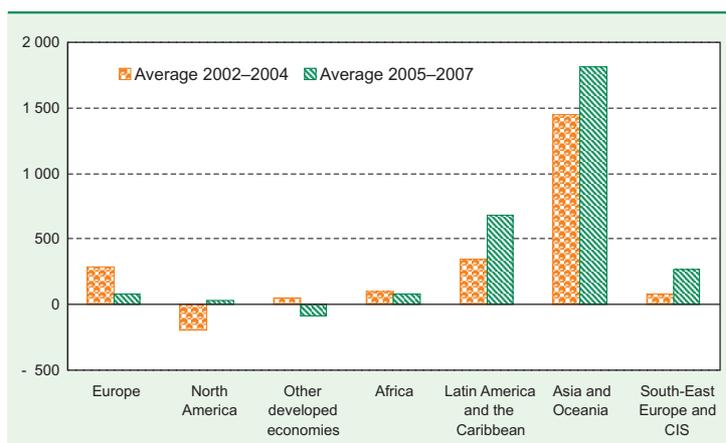
FDI and other forms of TNC participation in agriculture vary by product, region and time (figure III.12). In terms of the main produce targeted by foreign

Figure III.9. Exports of majority-owned affiliates abroad of United States TNCs in agriculture, hunting, forestry and fishing, by destination, 1983–2006
(Millions of dollars)



Source: UNCTAD, based on data from United States Bureau of Economic Analysis.

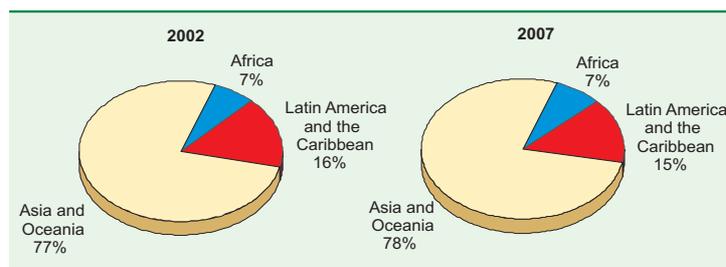
Figure III.10. Inward FDI flows in agriculture by region, 2000–2007
(Millions of dollars)



Source: UNCTAD, FDI/TNC database.

Note: Regional and sub-regional totals include flows to only those countries for which data are available.

Figure III.11. Inward FDI stock in agriculture by developing region, 2002 and 2007
(Per cent)



Source: UNCTAD.

Note: Regional shares cover only those countries for which data are available.

investors, each region and subregion of the world exhibits some degree of specialization. In developed regions, most of TNC activity has concentrated on cash crops such as fruits, vegetables and flowers, and on animal products like meat, poultry and dairy. Developing regions show a somewhat different and more diverse picture: For instance, South American countries have attracted FDI in a wide range of products such as wheat, rice, sugar cane, fruits, flowers, soya beans, meat and poultry, while in Central American countries FDI has focused mostly on fruits and sugar cane. In Africa, foreign investors have shown a particular interest in staple crops such as rice, wheat and in oil crops. But there is also TNC involvement in sugar cane and cotton in Southern Africa and in floriculture in East Africa. In South Asia, foreign investors have mainly targeted the large-scale production of rice and wheat, while TNC activities in other Asian regions have concentrated more on cash crops, meat and poultry. TNCs in transition economies have been mainly involved in dairy products but more recently they also seek to invest in wheat and grains. While the bulk of FDI in developing regions has targeted food and cash crops, various projects related to oil crops in Africa and sugar cane in South America aim at increasing biofuel production (box III.6, figure III.12).

Cross-border M&A sales data – the equivalent of inward FDI – show a slightly different picture: developed countries as targets of takeovers remained relatively important until recently, despite a rise in the share of developing countries in 1996–2000 (table III.10). Cross-border M&A sales of developing countries exceeded those of developed countries for the first time in 2007, and remained the main targets of M&As in 2008. The net cross-border sales of economies in transition, too, rose quickly after 2000. They nevertheless declined after the peak of 2007.

Information on the countries of origin of FDI in agriculture is available on a selective basis. Of the 20 most important countries of origin of outward FDI stock in agriculture, 12 were developed countries, with the United States and Canada occupying the top

Table III.9. Inward FDI flows and stock in agriculture, selected countries, various years
(Millions of dollars)

Host economy	Flows, average 2005–2007	Host economy	Stock, 2007 or latest year available
China	747.0	China	6 156.2 ^a
Malaysia	671.2	United States	2 561.0
Brazil	420.9	Viet Nam	1 753.1
Russian Federation	187.7	Canada	1 497.8
Indonesia	119.6	Indonesia	1 001.4 ^a
Cambodia	87.0	Russian Federation	953.0
United Kingdom	84.7	Chile	949.7
Poland	73.9	Italy	624.3
Papua New Guinea	71.1	Australia	624.2
Romania	67.7	France	616.4
France	61.5	Ukraine	557.6
Ukraine	57.3	Hungary	493.9
Viet Nam	51.4	United Kingdom	490.8
Peru	51.0	Poland	446.3
Chile	49.5	Romania	412.8
United Republic of Tanzania	40.5	Korea, Republic of	400.5
Honduras	36.2	Brazil	383.6
Bulgaria	34.6	Cambodia	318.7
Ecuador	31.8	Turkey	289.0
Costa Rica	31.4	United Republic of Tanzania	252.4

Source: UNCTAD, based on annex table A.III.3.

^a Based on approval data.

Note: Data were available for a selected number of countries only (box III.5). Moreover, certain countries reported only FDI flows or FDI stock in agriculture.

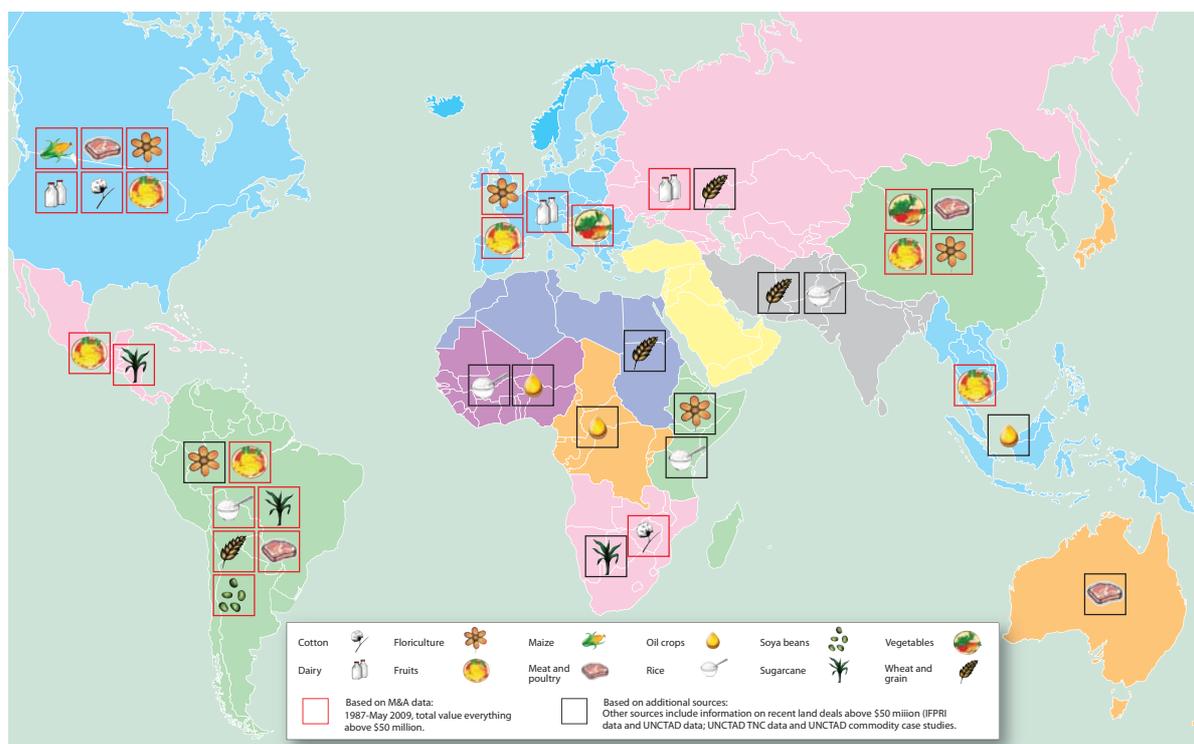
positions in 2007 (figure III.13). There were also six developing countries on the list – with China in third position and the Republic of Korea seventh – and one economy in transition (Croatia). Developed countries also continue to be the main home-countries of acquirers in cross-border M&As in agriculture, but since 2000, developing countries, mainly from South, East and South-East Asia as well as Latin America and the Caribbean, have been gaining in importance as sources of purchases.³² In 2008, developing economies became major sources of cross-border take-overs, with Latin American firms this time taking the lead.³³

2. Contract farming

As discussed in section C, contract farming is a significant alternative to FDI in terms of TNC participation in agriculture, and there are some indications that it is growing (Da Silva, 2005). The term contract farming covers a variety of arrangements (box III.7), differing by type of contractor, type of product, intensity of coordination (usually vertical) between farmer and TNC, and number of key stakeholders involved. Five different basic models of contract farming can be distinguished: centralized, “nucleus estate”, multipartite, informal and intermediary (box III.7).

TNCs in downstream stages of value chains, such as food manufacturers and retail TNCs, secure

Figure III.12. Main agricultural produce targeted by TNCs in foreign locations, by subregion, up to 2009



Source: UNCTAD, based on the sources cited above.

Table III.10. Net value of cross-border M&As in agriculture by target region, 1987–May 2009
(Millions of dollars)

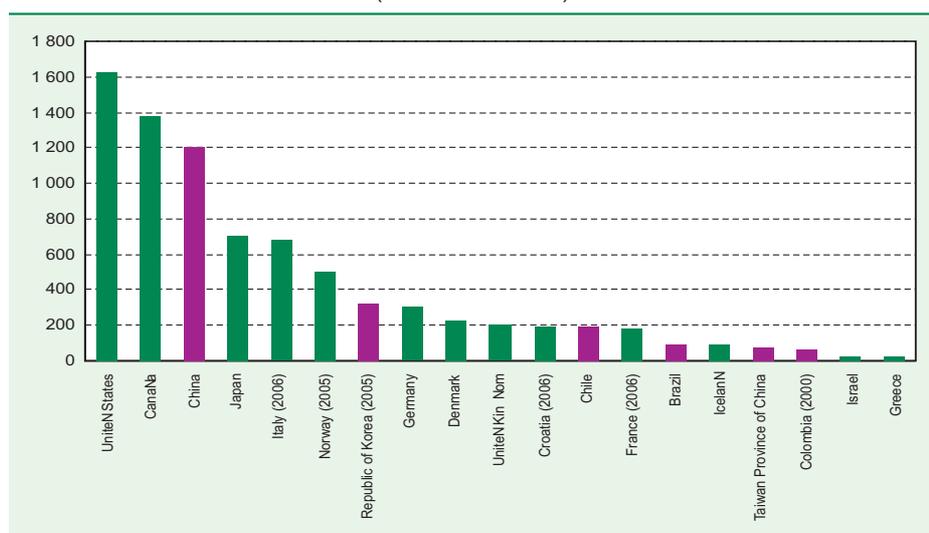
Target region / economy	1987–1990	1991–1995	1996–2000	2001–2005	2006	2007	2008	2009 ^a
World	444.9	239.9	300.7	1 650.6	56.3	1 818.3	2 102.1	400.8
Developed economies	393.3	249.9	160.6	1 639.1	50.8	315.3	1 049.5	348.5
Europe	8.3	29.9	134.3	1 286.1	7.7	277.2	235.2	13.7
North America	371.1	176.4	- 26.0	- 11.8	15.2	-	750.6	-
Other developed countries	13.8	43.6	52.4	364.9	27.9	38.1	63.7	334.7
Developing economies	51.6	- 10.0	140.0	8.1	- 30.9	1 101.2	1 050.3	52.4
Africa	-	-	2.3	-	-	-	-	-
Latin America and the Caribbean	51.6	12.9	93.7	19.8	- 6.0	277.8	849.5	43.0
South and Central America	51.6	12.9	93.7	21.4	- 6.0	277.8	849.5	43.0
Caribbean	-	-	-	- 1.6	-	-	-	-
Asia	-	- 22.9	44.0	- 11.7	- 24.9	778.9	200.8	9.4
West Asia	-	-	-	-	4.0	3.7	2.5	-
South, East and South-East Asia	-	- 22.9	44.0	- 11.7	- 28.9	775.3	198.3	9.4
Oceania	-	-	-	-	-	44.5	-	-
South-East Europe and the CIS	-	-	-	3.3	36.4	401.8	2.3	-
South-East Europe	-	-	-	2.4	18.6	397.9	-	-
CIS	-	-	-	0.9	17.8	3.9	2.3	-

Source: UNCTAD, cross-border M&As database.

^a Up to May 2009.

Note: Net cross-border M&A sales in a host economy are the sales of companies in the host economy to foreign TNCs minus the sales of foreign affiliates in the host economy. Data cover only those deals that involved an acquisition of an equity stake of more than 10%. (See also box III.5.)

Figure III.13. Outward FDI stock of selected economies in agriculture, 2007 or latest year available
(Millions of dollars)



Source: UNCTAD, FDI/TNC database.

Note: Data for Taiwan Province of China are on an approval basis.

agricultural inputs in host countries by entering into contracts with local farmers. These contracts can be negotiated and managed by the parent company, agents or local affiliates. There are no overall data available at the global level – and in the large majority of countries, even at the national level – to gauge the full extent and contours of contract farming in the same quantitative manner as for FDI or cross-border M&As. However, there are sufficient data available to measure the general magnitude of the phenomenon, as well as its wide geographic spread and considerable intensity in developing countries.

The global spread of the phenomenon across Africa, Asia and Oceania, and Latin America and the Caribbean can be gauged from the contract farming activities of the largest agribusiness TNCs – from manufacturers to traders. TNCs are engaged in this and other non-equity forms of participation in agricultural production in over 110 countries worldwide. For example, in 2008 the food processor Nestlé (Switzerland) had more than 600,000 contract farmers in over 80 developing and transition economies as direct suppliers of various agricultural commodities (Nestlé, 2008). Similarly, Olam

Box III.7. A typology of contract farming

In recent years, contract farming has spread widely, and particularly rapidly to developing countries, as a way to coordinate production and ensure quality. One reason is that it offers companies higher returns from high-value export crops and the introduction of new technologies. In Viet Nam, for example, there are indications that 90% of cotton and fresh milk, 50% of tea and 40% of rice production are being purchased by enterprises through contracts (Kirsten and Sartorius, 2002; Da Silva, 2005). There are five different models of contract farming:

- The *centralized model* is the classical model for contract farming in which a TNC buys produce from a large number of (small) farmers. In this model there is strict vertical coordination, which means that quality is tightly controlled and quantity is determined at the beginning of the growing season. Products produced and traded under this model are those requiring a high degree of processing (e.g. sugar cane, tea, coffee).
- The *nucleus estate model* differs from the centralized model in that the contractor not only sources from independent farmers but also has its own production facilities (an estate plantation). The central estate is usually used to guarantee throughput for the processing unit but is also sometimes used only for research and breeding purposes. This model is mainly used for perennial crops, but there are examples of its application for other crops as well. One *variation* of this model is *outgrowing*, under which a central facility is surrounded by growers who produce on their own land under contract; the central facility provides inputs and technical assistance to growers; it guarantees to purchase the growers' crop subject to meeting predefined standards; and offers growers a pre-agreed percentage of the final sale price of their product (UNCTAD, 2002a: 10–11). Outgrower schemes are most commonly organized around a processor, though they may also be constituted by other off-takers (including traders, exporters or end users), as well as input suppliers, governments or government agencies and non-governmental organizations. Outgrower schemes, in particular, play a special role in agricultural development.
- In the *multipartite model* the contractor is a joint venture between a statutory entity and a private company (such as a TNC). Public or private providers of credit, extension services and inputs may be part of the arrangement. This model has often been used by developing countries as part of the liberalization process. Vertical coordination often increases once the joint venture has sufficient control over its transactions with the farmers.
- The *informal model* is characterized by individual entrepreneurs or small companies contracting informally with farmers on a seasonal basis. The success of this model often depends on the availability of supporting services, sometimes provided by government agencies. An informal contractual relationship provides fewer options for vertical coordination than a more formal relationship. This model is used particularly for crops that require only a minimal amount of processing, such as fresh fruit and vegetables.
- In the *intermediary model*, contractual arrangements are made between at least three different levels: a processor or major trader formally contracts with a collector (or “middle person”), who then informally contracts with a number of farmers. The model has both elements of the centralized and the informal models. Vertical coordination is more difficult under this model as there is no direct link between the principal contractor and the farmers.

Source: UNCTAD, based on Eaton and Shepherd, 2001; and Bijman, 2008.

(Singapore), a developing-country TNC, has a globally spread contract farming network: in 2008, it sourced 17 agricultural commodities from approximately 200,000 suppliers in 60 countries (most of them developing countries) (Olam, 2008). As for Unilever (United Kingdom/Netherlands), agricultural crops which make up two thirds of the raw materials used by the company, are sourced mostly from 100,000 smallholder farmers and larger farms in developing countries.

Apart from these global players, many other TNCs are involved in contract farming on a regional or geographically selected basis. For example, SAB Miller (United Kingdom) has contract farming programmes with smallholder farmers in India, South Africa, Uganda, the United Republic of Tanzania and Zambia. The number of smallholder farmers involved in contract farming in these countries with SAB Miller has increased from 62 in 2000–2001 to 16,829 in 2009.³⁴ Another example is Grupo Bimbo

(Mexico), which in 2008 had more than 3,000 contract suppliers spread across various Latin American countries (Grupo Bimbo, 2008). Supermarket TNCs such as Wal-Mart (United States) and Carrefour (France) are other prime examples of companies with geographically selected contract farming. The latter, for instance, is sourcing from large numbers of contract farmers in 18 developing countries.³⁵

In various developing economies, including more advanced and lower-income countries, the share of contract farming in total farming is high, and the intensity of TNC involvement is important. For instance, in Brazil, 75% of poultry production and 35% of soya bean production is sourced, largely by TNCs, through contract farming (UBA, 2005; Moussa and Ohinata, 2009); in Viet Nam the story is similar, with 90% of cotton and fresh milk, 50% of tea and 40% of rice being purchased through farming contracts (Anh, 2004); and in Kenya, about 60% of tea and sugar are produced through this mode.³⁶ Among

the poorest countries, contract farming – primarily by TNCs – in some cash crops can be exceptionally high: for example, in Mozambique this was the case for 100% of cotton production, as also in Zambia for both cotton and paprika. An extreme example of TNC involvement in contract farming is Nestlé in Pakistan where in 2007 the local affiliate collected milk from 140,000 farmers over an area of 100,000 square kilometers.³⁷

Case study evidence (as illustrated below) highlights the major role that contract farming plays in various host countries. These cases confirm that contract farming with TNC involvement is present in all developing regions and significant in some instances. In countries where FDI in agriculture is permitted (through leasing or ownership of land), contract farming can still be a leading choice of TNCs, because it is midway between coordination through markets or standards on the one hand and FDI on the other. Compared with coordination of standards, contract farming is riskier, but ensures better control over product specifications, and compared with FDI, it may be less capital-intensive and less risky, but requires that farmers develop better capabilities.

- In *Asia*, an example of a contract farming scheme that is part of a GVC is provided by Nestlé India

which has a retail network of some 700 outlets in India, serviced by 4,000 distributors and covering 3,300 towns. Its products include baby food, infant milk powder, dairy whiteners, sweetened condensed milk, ghee, UHT milk, curd and butter. In 2001, Nestlé sourced milk from over 8,500 local farmers, from larger ones directly and from smaller ones through agents.³⁸ In Malaysia, Nestlé was reported to have started a red rice contract farming project in 2007, with the support of the Agricultural Department of Sarawak, to supply its global production of infant cereals (GRAIN, 2008a).

- Again in *Asia*, Pepsi (United States) has been involved in the export of Basmati rice from India since 1990. After extensive R&D in the country, Pepsi ventured into contract farming in Basmati rice in 1999 after having invested over Rs.5 million in a processing plant (MANAGE, 2003). By the end of 2004, the company extended contract farming from 800 hectares to 4,000 hectares to meet the requirements of its manufacturing plant.
- In China's rice industry, Japanese trading TNCs started procuring specific Japanese rice varieties through contract farming in the late 1990s, and exported them back to Japan. For example, Mitsui

Box III.8. Contract farming in the Lao People's Democratic Republic

In the Lao People's Democratic Republic, contract farming takes various forms mentioned in box III.7. In the *rice* industry, the Lao Arrowny Corporation, a joint venture between a Lao and a Japanese investor, established in 2002, produces organic Japanese rice for export to Japanese expatriates in South-East Asia. The company recruited small farms throughout the country, covering a combined area of 18,500 hectares countrywide. In 2004, the company had approximately 2,000 households under contract. In the *tea* industry, contract farming involves 520 households and covers a production area of approximately 400 hectares. The contracts are signed between Chinese traders and a local Provincial Government, which organizes farmers to grow the tea for a predetermined price. The Chinese investors provide seeds and technical assistance on production and processing methods, and they purchase all of the tea from the farmers to sell in the Chinese market. In the *maize* industry, verbal contracts have been made between a Thai import firm and approximately 600 households with a total cultivation area of 1,136 hectares. The firm supplies contracted farmers with inputs including seeds, fertilizer and credit. In *Soya bean* production, contract farming is organized mostly by a United States–Lao joint venture feed mill firm, although in 2004, many contracts were breached and the supply chain broken when Chinese traders offered more competitive prices and purchased soya beans from the contracted farmers. In the *sugar*

industry, Lao farmers produce sugar cane for a Chinese sugar mill across the border. The buyers provide some seeds and fertilizer, but do not offer a guaranteed price. In *sweetcorn* production, Vientiane Province Lao Agro Industry Co. (LAI) is a Thai–Lao joint venture affiliated with Lampang Food Products, a Thai food processor and exporter. LAI has been operating in the country since 1994, processing bamboo shoots, baby corn, mangoes, and sugar palm seed. LAI contracts households from the sweetcorn farmer production and marketing group (FPMG) to supply sweetcorn to its cannery. The company provides credit for seeds and fertilizer, while the local government provides credit for land preparation. Although only 11 households on 3.5 hectares were contracted in the 2006/07 dry season, LAI is targeting a planting area of approximately 160 hectares to produce 2,000 tons of sweetcorn. In *horticulture*, Thai processing firms organize contract farming of horticulture crops such as mustard cabbage. Finally, in the *rubber* industry, Pará rubber tree cultivation was introduced in the mid-1990s with Chinese assistance. The area under rubber cultivation in the Northern provinces has since expanded steadily due to growing demand from China. Although large-scale concession areas currently account for most of the rubber production, the Government is promoting smallholder rubber production as a way of stabilizing shifting cultivation and increasing upland farmers' incomes.

Source: UNCTAD, based on Setboonsarng, Leung and Stefan, 2008.

has been engaged in rice contract farming in China since 1998 through a joint venture with Satake (a Japanese manufacturer of machinery for rice and other food products) and a local company.³⁹

- In the rice industry of Viet Nam and its neighbours in Indochina, Kitoku Shinryo (Japan), which is mainly a wholesale dealer of rice and maize products, established a joint venture in 1991 with An Giang Import-Export, a local SOE, to construct a rice-processing mill in Viet Nam. The joint venture company procures high-quality rice from 2,000 contracted farmers from An Giang Province of Viet Nam, as well as adjacent provinces in Cambodia and Thailand (ADB, 2005; Khiem, 2005).
- In some countries, such as the Lao People's Democratic Republic, there is relatively ample information available on the product scope of contract farming (box III.8). It covers rice, tea, soya beans, sugar cane, sweetcorn, horticultural and rubber production, and involves various types of foreign investors. In the provinces of the Lao People's Democratic Republic (as well as Cambodia) which border Thailand and China, contract farming has emerged in response to the lack of local markets and the attraction of the markets of the larger neighbouring countries (Setboonsarng, Leung and Cai, 2006).
- In *Latin America and the Caribbean*, large banana TNCs, such as Chiquita, Dole, Del Monte and Fyffes, have developed extensive contract farming schemes since the 1970s (Hall, 2008; Arias et al., 2003), and have kept their own plantations only in some countries (e.g. Chiquita, Del Monte and Dole in Colombia, Costa Rica, Ecuador, Guatemala and Honduras). In countries such as Ecuador, Nicaragua and the Caribbean countries, TNCs involvement in banana production is mainly through contract farming (Hall, 2008).
- In *Africa*, one example of contract farming is horticulture and floriculture in Kenya. Over time, the country has become a major source of horticultural exports to various developed countries (Wee and Arnold, 2009). TNCs have established business linkages with local farmers through various outgrower arrangements. Wholesalers that source flowers from different parts of the world also contribute to contract farming, which involves many local smallholders. One of the South African affiliates of the Flower Group (Netherlands) sources flowers from more than 70 growers in Kenya. Flamingo Holdings (United Kingdom), a flowers and vegetables TNC, involves over 600 smallholders in growing vegetables for the company in Kenya.
- In *Africa's* coffee industry, an important contract farming scheme in Uganda involves the production

of Kawacom Sipi Organic Arabica coffee. The scheme is run by Kawacom (U) Ltd., an affiliate of Ecom Agroindustrial Corporation (a commodity trading company incorporated in Switzerland). In the area covered by the scheme, 62% of households have registered in it. Kawacom pays an organic premium which gives the farmers the incentive to undertake more stages of the production process on the farm, including assuming the risks associated with the necessary investment in equipment and labour (Bolwig, Gibbon and Jones, 2009).

- In the banana industry in *Africa*, TNCs' involvement takes place mostly via contract farming, with the exception of Cameroon and Côte d'Ivoire (Hall, 2008). These TNCs still control banana exports.

3. Trends in South-South investment in agriculture

Although no clear trends can be discerned so far, there are indications that South-South investment in agricultural production, both FDI and non-equity forms, is on the rise. The drivers behind most of these investments do not differ in kind from those of developed-country TNCs. For instance, Sime Darby's (Malaysia) \$800 million investment in a plantation in Liberia in 2009 is a horizontal diversification by the world's largest firm in the oil palm industry.⁴⁰ Similarly, Chinese investments and contract farming in commodities such as maize, sugar and rubber in the Mekong region – especially in the Lao People's Democratic Republic and Cambodia – are driven by the home country's strategy to gain access to resources for its agribusinesses, and the host countries' objective to secure investments for developing their agriculture (Rutherford, Lazarus and Kelley, 2008). The proximity of home and host countries means that relatively small companies can be involved in the China-Mekong region investments. At a more modest level, regional expansion also underlies Zambeef's (Zambia) expansion into Ghana and Nigeria.⁴¹ In Latin America, the Grupo Bimbo (Mexico) has ventured into a number of countries in that region.⁴²

However, in the wake of the food crisis (section B.3), an additional significant home-country driver of the expansion of South-South investments is the push for food security by countries such as China, the Republic of Korea and, most significantly, the Gulf Cooperation Council countries of West Asia. All of these countries are major importers of grains, with large populations relative to arable land (Woertz, 2009; World Bank, FAO and IFAD, 2009a; Freeman, Holslag and Wei, 2008). To varying degrees, the governments of these source countries have decided that investment abroad in countries, which gives them control over crop production and export of the output back to the home economy, can contribute

towards ensuring food security for their populations. In fact, historically there has been a recurring cycle of reliance on foreign investment in agriculture.⁴³ However, inasmuch as the recent food crisis seems to be the result of a confluence of factors, the drivers of food-security-related FDI may be less volatile than before.

Until recently, the availability of underutilized agricultural land was seen as perhaps the main host-country factor driving for food-security-related FDI in agriculture (Woertz et al, 2008). However, it is now increasingly recognized that perhaps the most crucial factor or driver is not land per se, but rather the availability of water resources to irrigate the land. For example table III.11 shows that many West Asian economies possess very little fresh water (per capita), and a number of these countries are making (or considering making) investments in relatively water-abundant countries and land. It is this critical water situation that primarily explains why a number of GCC countries have overturned their decades-old policy of fostering agricultural production in their own economies to undertake agricultural investments in other developing countries, as well as transition economies. Saudi Arabia is an example of this policy shift (box V.14). Apart from the GCC, other investor countries from the South, including China, face severe water shortages for agricultural production (FAO, 2003; UNESCO, 2009; Xie et al., 2009).

Irrespective of longer term considerations, South-South FDI that is driven by food security concerns is currently in a cyclical upswing, but its scale is not easy to determine because many relevant deals have only recently been signed; others are being considered or in negotiation. So far, of the definite larger scale investments involving land acquisitions (i.e. outright ownership and long-term leases), the largest investing countries from the South include Bahrain, China, Qatar, Kuwait, the Libyan Arab Jamahiriya, Saudi Arabia, the Republic of Korea and the United Arab Emirates. The leading developing host countries are in Africa, with Sudan, Ethiopia, and the United Republic of Tanzania among the foremost recipients of investments (figure III.14).

As mentioned earlier, the scale of South-South FDI for food security cannot be gauged, as the majority of projects are at early stages of negotiation, and it is unclear whether they will become actual investment projects in the future. Nevertheless, the scale of some of these potential investments is large and controversial, especially as they affect the existing use of agricultural lands and the production structures of host economies, thereby creating major changes and potential displacements in traditional agriculture (chapter IV).

Table III.11. Water resources in selected regions and countries, 2008
(Cubic metres)

Region / country		Fresh water resources per capita
Selected West Asian countries	Bahrain	..
	Iran, Islamic Republic of	1860
	Iraq	..
	Kuwait	..
	Oman	399
	Qatar	126
	Saudi Arabia	104
	United Arab Emirates	49
	Yemen	194
Regions	Latin America and the Caribbean	24 471
	Europe and Central Asia	11 473
	Sub-Saharan Africa	5 093
	East and South-East Asia, and Oceania	5 022
	South Asia	1 230
West Asia and North Africa	757	
Major host countries for investors seeking to operate farms for food security	Australia	24 118
	Brazil	29 000
	Cambodia	8 642
	Ethiopia	1 623
	India	1 152
	Kazakhstan	4 978
	Kenya	581
	Myanmar	..
	Pakistan	366
	Philippines	5 664
	Sudan	813
	Thailand	3 333
	Turkey	3 150
	Ukraine	1 127
	Viet Nam	4 410

Source: UNCTAD, based on FAO data.

E. Major TNCs in agriculture and related activities

This section identifies the major TNCs involved in agriculture and related industries, and examines their characteristics and competitive or ownership advantages. Most major TNCs operating in agriculture and related industries – with the notable exception of “new investors” – have operated overseas for many decades. However, a number of them no longer focus on agricultural activities, trying instead to influence these activities by controlling and coordinating value chains via various forms of non-equity participation. This does not mean, however, that they are entirely absent from agricultural production (section C). For example, TNCs in the banana industry still source about half of their produce from their own plantations (box III.6). TNCs therefore may be directly involved in agricultural production, or they may be purchasers of agricultural output, or key suppliers of critical inputs to agriculture, or distributors of that production, or they may internalize downstream activities such as processing, marketing, branding and merchandising downstream outputs.

Table III.12. Top 25 TNCs in agribusiness industries, ranked by foreign assets, 2007
(Companies in bold are based in a developing or transition economy)

Rank	Agriculture-based	Suppliers	Food and beverages	Retail	Privately owned (ranked by agri-food sales)
1	Sime Darby Bhd. ^a (Malaysia)	BASF AG ^b	Nestlé SA	Wal-Mart Stores	Cargill Inc.
2	Dole Food Company, Inc.	Bayer AG ^b	Inbev SA	Metro AG	Mars Inc.
3	Fresh Del Monte Produce ^c	Dow Chemical Company ^b	Kraft Foods Inc	Carrefour SA	Lactalis
4	Socfinal SA	Deere & Company	Unilever	Tesco PLC	Sunbury Ltd.
5	Charoen Pokphand Foods Public Company Ltd. ^d (Thailand)	EI Du Pont De Nemours	Coca-Cola Company	McDonalds Corp.	Dr August Oetker KG
6	Chiquita Brands International, Inc.	Syngenta AG	SAB Miller	Delhaize Group	Louis Dreyfus Group
7	Kuala Lumpur Kepong Bhd. (Malaysia)	Yara International ASA	Diageo Plc	Koninklijke Ahold NV	Barilla
8	KWS Saat AG	Potash Corp. of Saskatchewan	Pernod Ricard SA	Sodexo	Ferrero
9	Kulim (Malaysia) Bhd. (Malaysia)	Kubota Corp.	Cadbury PLC	Compass Group PLC	Keystone Foods LLC
10	Camellia PLC	Monsanto Company	Bunge Limited	Seven & I Holdings Company Ltd.	McCain Foods Ltd
11	Seaboard Corp.	Agco Corporation	Heineken NV	China Resources Enterprise Ltd. (Hong Kong, China)	OSI Group Companies
12	Sipef SA	The Mosaic Company	Pepsico Inc	Yum! Brands, Inc.	Perdue Farms Inc.
13	Anglo-Eastern Plantations PLC	ICL-Israel Chemicals Ltd	Molson Coors Brewing Company	Autogrill	Bacardi Ltd.
14	Tyson Foods Inc	Provimi SA	Kirin Holdings Company Limited	Alimentation Couche Tard Inc	Groupe Soufflet
15	PPB Group Bhd. (Malaysia)	Bucher Industries AG	Archer-Daniels-Midland Company	Safeway Incorporated	Golden State Foods
16	Carsons Cumberbatch PLC (Sri Lanka)	Nufarm Limited	Associated British Foods PLC	Sonae Sgsp	Groupe Castel
17	TSH Resources Bhd. (Malaysia)	CLAAS KGaA	Carlsberg A/S	George Weston Limited	J.R. Simplot
18	Multi Vest Resources Bhd. (Malaysia)	Sapeac SA	HJ Heinz Company	Dairy Farm International Holdings Ltd. (Hong Kong, China)	Schreiber Foods
19	Bakrie & Brothers Terbuka ^e (Indonesia)	Terra Industries Inc	Danone	Jeronimo Martins SA	Muller Gruppe
20	PGI Group PLC	Aktieselskabet Schouw & Co.A/S	Anheuser-Busch Companies Inc	Kuwait Food Company (Americana) (Kuwait)	Bel
21	Firstfarms A/S	Genus PLC	Wilmar International Ltd. (Singapore)	Kesko OYJ	Perfetti Van Melle
22	New Britain Palm Oil Ltd. (Papua New Guinea)	Scotts Miracle-Gro Company	Sara Lee Corp.	Starbucks Corp.	Rich Products
23	Karuturi Global Ltd. (India)	Kverneland ASA	Constellation Brands Inc	Burger King Holdings, Inc.	J. M. Smucker
24	Nirefs SA	Sakata Seed Corp.	Fraser & Neave Ltd. (Singapore)	Maruha Nichiro Holdings, Inc.	Haribo
25	Country Bird Holdings Ltd. (South Africa)	Auriga Industries A/S	Danisco A/S	Familymart Company Limited	Eckes-Granini

Source: Annex tables A.III.4–8.

^a A conglomerate with its core business in agriculture and plantations.

^b General chemical/pharmaceutical companies with large activities in agricultural supply, especially crop protection, seeds, plant science, animal health and pest management.

^c Legally unrelated with Del Monte Foods.

^d Members of the Charoen Pokphand (CP) Group report their activities by company.

^e Diversified company with important presence in agriculture.

Note: Various companies are present in more than one agribusiness industry. In those cases, they have been classified according to their main core business.

split between developed- and developing-country firms, indicating that while agriculture-related TNCs from developed countries dominate the international markets, firms from developing countries are also emerging as important players in global food and non-food agricultural production (box III.9). For instance, 12 of the top 25 agriculture-based TNCs are headquartered in developing countries and 13 in developed countries (annex table A.III.4). Indeed, a developing-country TNC, Sime Darby Berhad (Malaysia), occupies the top position (box III.9), while United States firms (Dole Food and Del Monte) are in second and third positions (table III.12).

Of the top 25 agricultural TNCs, Malaysia, a developing country, has the largest number of TNCs (6), followed by the United States (5) and the United Kingdom (3) (annex table III.14). By region, the developed-country TNCs on the list are

split between the EU (8) and North America (5), while all but two of the developing-country firms are headquartered in Asia. The remaining developing-country TNCs are from South Africa and Papua New Guinea. It is notable that TNCs from some major agricultural regions and countries – including Latin America and the Caribbean, South-East Europe and the CIS, and developed countries such as Australia and New Zealand – are missing from this list.⁴⁶ This picture remains similar even if privately owned large agricultural TNCs such as Lactalis (France) and Perdue Farms (United States), listed separately (annex table A.III.8) are taken into account, as these firms are also headquartered in either the EU or North America.

In terms of international assets, there is a big gap between the top five companies, each of which have foreign assets exceeding \$1 billion, and the

bottom nine companies, each of which have foreign assets below \$100 million. A general characteristic of the largest agricultural TNCs is that, in addition to horizontal integration (investments in agriculture in foreign countries), they are often engaged in downstream (especially food processing activities, or vertical integration), and in unrelated activities (conglomeration). Examples include firms such as Sime Darby (Malaysia) and Charoen Pokphand Foods (Thailand) (box III.9).

2. TNCs from other segments of the value chain

The universe of agriculture-related TNCs includes food processors/manufacturers, retailers, traders and suppliers of inputs. They can participate in agricultural production through FDI in farming/plantations, as well as contract farming and other contractual forms (section D.2). These TNCs are usually larger than agricultural TNCs. For example, the world's largest food and beverages TNC, Nestlé (Switzerland), controls \$66 billion in foreign assets, while the largest food retailer, Wal-Mart (United States), has \$63 billion in foreign assets. In contrast, the largest agricultural TNC, Sime Darby (Malaysia), has foreign assets of only \$5 billion. In addition to FDI, the largest agriculture-related TNCs are extensively involved in agricultural production through contract farming and the setting/implementing of standards for products in the cultivation of which they are involved through non-equity forms or other means (section D.2; chapter IV). These firms are still predominantly headquartered in developed countries. Indeed, the largest suppliers to farming operations are headquartered *only* in developed countries. Their main features include the following:

- *Suppliers of inputs such as equipment, fertilizers and seeds:* Only developed-country firms figure on the list of the largest TNC suppliers to agriculture, as mentioned earlier (annex table A.III.5). Eight of them are headquartered in the United States, three in Germany, while Denmark, Japan, Norway and Switzerland are each home to two of them. The largest suppliers are diversified firms (such as BASF, Bayer and Dow Chemicals) engaged in the production of all kinds of chemical products, including agricultural supplies (table III.12). The power of TNC suppliers of inputs over their buyers can be significant, especially when the TNCs control key technologies. Some of the largest TNCs, such as Monsanto, have close links with trading companies (e.g. Cargill).
- *Manufacturers/processors:* Manufacturers and processors that are closely linked with production (e.g. through contract farming, and in some cases, direct production) can have a major impact on

agriculture. Food and beverage processors are large firms, and the majority are headquartered in developed countries (39 of the largest 50) (annex table A.III.6). In terms of foreign assets, the largest agricultural TNC, Sime Darby, is only comparable in size to the 24th largest food and beverages TNC (Fraser & Neave). The top three food manufacturing TNCs (Nestlé, Inbev and Kraft Foods) are particularly large. The international activities of food and beverages TNCs are highly concentrated: the nine largest, all headquartered in developed countries, control more than \$20 billion in foreign assets each; together, they represent about two thirds of the foreign assets of the top 50 such firms. In comparison, the foreign assets of the largest developing-country food processing TNC, Wilmar International Limited (Singapore) (box III.10), amounted to only \$6 billion in 2007.⁴⁷ The United States is home to by far the largest number of food processing TNCs (14 of the top 50, of which Kraft Foods and Coca-Cola have the largest foreign assets), followed by the United Kingdom (5 TNCs plus co-ownership of Unilever), and the Netherlands (3 TNCs plus co-ownership of Unilever). Of the 11 developing-country firms, 8 are headquartered in Asia and 3 in Latin America and the Caribbean (Mexico). In the developing world, Hong Kong (China), Singapore and Mexico are the most important home economies. There are no African firms in the top 50 list. Some of the major food processors, such as Mars (United States), Barilla (Italy) and Suntory (Japan), are privately owned and thus listed separately (annex table A.III.8).

- *Retailers/supermarkets:* Retailing and supermarket TNCs also play a major role in international agricultural supply chains. The majority of the 25 largest TNCs in this industry (22) are from developed countries (table III.12 and annex table A.III.7). The largest TNCs are engaged in the distribution of not only agricultural or food products, but also a wide range of other goods. The largest supermarket TNCs have significant buying power vis-à-vis suppliers such as farmers. Seldom engaging in direct production of crops or agricultural commodities (Weatherspoon, 2003; Bijman, 2008), they are more likely to participate in agriculture in developing countries through contract farming. The United States is the most important home country of large retail TNCs (6 companies), including Wal-Mart, which, with assets abroad of \$63 billion, is in a league of its own. It has an international presence similar to that of Nestlé (Switzerland), the world's largest food processing TNC, with \$66 billion of assets abroad. The other TNCs on the list are geographically disperse; no other country has headquarters of more than two firms. By region, 11 of the top 25 firms

Box III.9. Selected agriculture-based developing-country TNCs

Recently, agriculture-based companies from developing countries have started emerging as TNCs, investing in both agricultural production abroad, and in downstream activities further afield. Some agriculture-based developing-country TNCs have a long corporate history, started in some cases with colonial-linked expatriates (e.g. in South-East Asia's rubber plantation industry). Over time, these companies have diversified into oil palm and other crop plantations. Some of them also evolved into locally owned conglomerates through change of ownership and acquisition of shares by investors of the host country (e.g. Sime Darby). These companies figure prominently on UNCTAD's list of the largest agriculture-based TNCs (annex table A.III.4).

Sime Darby Berhad (Malaysia) (which tops the list of largest agriculture-based TNCs) is today a major developing-country TNC, involved in a wide range of activities, with agriculture remaining its main business. With 633,000 hectares of land ownership, Sime Darby Berhad is today one of the largest plantation companies in the world. The merger with Golden Hope Plantations Berhad and Kumpulan Guthrie Berhad in 2007 helped Sime Darby Berhad become the world's largest palm oil producer, with the potential to produce 8% of the world's total palm oil output. Sime Darby Berhad has operations that span 20 countries with a total workforce of 100,000. Its plantation operations are mainly in oil palm in Malaysia and Indonesia. Its plantation operations in Indonesia account for about 35% of its total planted oil palm land. It is also involved in rubber plantation and processing. Apart from plantations, Sime Darby Berhad is involved in downstream activities such as oils, fats and oleochemical businesses in 15 countries in Asia, Western Europe, Africa, West Asia, Latin America and North America.

Charoen Pokphand (CP) (its affiliate Charoen Pokphand Foods Public Company is 5th on the list) is the largest agro-industrial and food conglomerate in Thailand. The main business of CP is in livestock and aquaculture operations, involving upstream and downstream activities such as animal farming, animal feed production, food processing and fish farms. While

most of its business is based in Thailand, CP has expanded abroad, with operations in China, India, ASEAN countries, Turkey, the Russian Federation and the United Kingdom. In 2008, 15% of its \$4.7 billion revenues came from its overseas operations.

Kulim Berhad (Malaysia) (9th on the list) was originally incorporated in the United Kingdom in 1933 and started rubber plantation operations in Malaysia in 1947. It is now a leading Malaysian plantation and processing TNC in oil palm and is also involved in oleochemicals production, other downstream activities and processing. Other important operations relate to foods and restaurants, and manufacturing. The drive for more land for oil palm cultivation had pushed Kulim to internationalize actively since 1996 with investments in Papua New Guinea and later in Indonesia and the Solomon Islands. Its overseas investments in oil palm plantations were made through a series of acquisitions. In 2008, Kulim generated total revenues of \$1.2 billion, of which only 37% were generated in Malaysia. As at 31 December 2008, some 70% of the plantation land the company owned was outside Malaysia, in particular in Papua New Guinea and the Solomon Islands.

Karuturi Global Limited (23rd on the list), headquartered in India, was incorporated in 1994. It is today a global leader in the production and export of roses through both the growth of existing business and acquisition of assets abroad. In 2007, it acquired Sher Agencies, the world's largest rose farm in Kenya, for \$69 million. Started as a floriculture company, Karuturi has now expanded into food processing in India, and large-scale agricultural farming in Ethiopia.^a In 2008, it acquired more land in Ethiopia to expand operations into production of rice, wheat, palm oil and sugar cane for sugar and ethanol. The company is involved in the entire value chain in floriculture – from R&D and production to marketing of cut flowers from its farms. It supplies flowers on a contractual basis to Tesco supermarkets in the United Kingdom and Edeka in Germany. In the financial year ended March 2008, the company generated \$100 million revenue of which the lion's share was generated from its operations abroad.

Source: UNCTAD, based on annual reports of companies and company information from their websites.

^a In 2008, its operation in Ethiopia employed 1,200 workers and 4,000 in Kenya.

are from Europe (all of them headquartered in the EU-15), 8 from North America and 3 from Japan. There are only a few developing-country TNCs on the list, and their foreign assets are much smaller than those of their developed-country counterparts. The largest developing-country TNC in this group (China Resources Enterprise) is one-tenth the size of the largest developed-country TNC in terms of foreign assets.

- *Traders/wholesalers:* Data on trading TNCs is scarce, as most of these firms (e.g. Cargill, Louis Dreyfus) are privately owned and do not provide detailed statistics on their foreign activities.

However, they are large players on the international scene (UNCTAD, 2008d), and have a major impact on agricultural producers through their purchasing schemes. They seldom invest or participate, through contract farming, in agricultural production in host countries. There are also various TNCs that are active in both trading and manufacturing, such as Noble Group (Hong Kong, China) and Baywa (Germany) (annex table A.III.6). Certain traders, such as Olam International (Singapore) (box III.10) are headquartered in developing countries. In certain industries, such as coffee growing, trader TNCs have a major influence on

Box III.10. Selected agriculture-related developing-country TNCs

There are various developing-country TNCs with important activities in agriculture that have evolved from downstream segments of the value chain. Most of them started their activities in manufacturing, and then diversified their activities to the whole value chain, including agricultural production. Examples of agriculture-related developing-country TNCs, some of which are on the list of the top 25/50 of their industries, are described below.

Wilmar International (21st on the list of food processors), headquartered in Singapore, is one of the largest agriculture-related TNCs in the world. With operations in 20 countries on four continents, and annual revenues of roughly \$29.1 billion in 2008, the company has evolved rapidly since it was established as a palm oil trading company in 1991. It has systematically internalized nearly the entire palm oil value chain – from cultivation to sales of retail products. Today, the company is a substantial plantation operator in Malaysia and Indonesia; it operates 250 processing plants in Asia and Europe; and sells edible oils under its own brands in China, India and Indonesia.

San Miguel Corporation (35th on the list of food processors) is headquartered in the Philippines. Established in 1890 as a brewery, today it is a conglomerate with beverages, food, agribusiness and packaging businesses. It has brewery operations in many ASEAN countries and China, and owns meat processing plants in Indonesia and Viet Nam, as well as a feed mill and hog farm facility in Viet Nam.

Grupo Bimbo (42nd on the list of food processors) is a leading Mexican producer of baked foods with a significant presence in many Latin American countries and in the United States. The group comprised more than 108,000 associates in 18 countries, including China and the Czech Republic. It produces, distributes and markets over 5,000 products, including breads, buns, cookies, cakes, pastries, bagels, packaged foods, tortillas, salted snacks and confectionary goods. It has internationalized rapidly through both greenfield and M&As. In 2008, Grupo Bimbo generated \$9.4 million

in sales of which half came from its operations based in the United States and Latin America.

IOI Corporation (44th on the list of food processors), headquartered in Malaysia, started as a real estate company in 1982. Today it is an integrated palm oil company involved in the entire value chain, from seedling, extraction and other value added manufacturing, to processing, refinery and commodity trading activities. In 1985, it started oil palm plantation activities in Malaysia and extending those activities to Indonesia in 2007. Most of its plantations are in Malaysia and it employs about 30,000 people in 15 countries.

Olam International Limited (Singapore) (not on the list), is often portrayed as one of the world's leading traders of agricultural commodities such as cocoa, coffee, cotton, cashew, rice, sesame, sugar and timber. It has 43 majority-owned affiliates abroad, most of which are located in developing countries. The most important ones are located in Nigeria, Ghana, Indonesia, Viet Nam and Côte d'Ivoire. Developing countries account for 82% of its foreign assets. Today, with global sales of over \$5 billion and 8,000 employees worldwide, Olam is "a global leader in the supply chain management of agricultural products and food ingredients".^a Its activities in each product include not only sourcing but also primary processing, storage, transport, warehousing, marketing and distribution. The company sources 16 agricultural commodities from 200,000 suppliers in 56 countries (most of them developing countries) selling them to 6,500 of customers in over 60 destination countries. Olam supplies many of its products to international brand owners and processors such as Cadbury, Cargill, Lavazza, Kraft, Mars and Nestlé.

Zambeef Products Plc (not on the list) is one of Zambia's leading agri-businesses based in Zambia with a presence in West Africa, particularly in Ghana and Nigeria. It is involved in the production, processing, distribution and retailing of livestock, dairy products and edible oils, as well as in the plantation of sugarcane and oil palm. In 2008, more than 20% of the group profits of \$10 million came from crop farming operations, mainly in Zambia.

Source: UNCTAD, based on companies' annual reports and their websites.

^a Olam: News release: "Milestone Year for Olam" (accessed 13 June 2009).

the production process. Trader TNCs, such as Louis Dreyfus, have affiliates operating in all key coffee producing countries, carrying out milling, trading and warehousing operations. TNCs often purchase raw or semi-processed coffee directly from growers or their cooperatives, through both contract farming and spot market transactions (Krueger and Negash, 2009).

3. New investors in agriculture

Certain trends with respect to FDI in agriculture, observed from the end of the Second World War have been showing signs of a reversal since the beginning of

the new millennium. The emergence of new investors in agricultural production signals the possibility that FDI in this industry could become more significant in the new millennium. For some home countries, this could be for strategic reasons similar to those of the first industrializing countries: ensuring the supply of agricultural goods for their growing populations and industries. Additional, and relatively new, factors include securing agricultural feedstock for new industries such as biofuels (sections B.3 and D.3). Historically, foreign private investors were not the only cross-border actors involved in agricultural production. States, international public institutions (e.g. aid agencies), trading houses, and individual

migrant farmers, to mention a few, also participated in international investment in agriculture. Today, there seems to be a revival of this trend, and if these actors retain their residence in their home country, their activities can be regarded as FDI. In other cases, for example when farmers move their residence abroad together with their operations (essentially an act of migration), these activities are not FDI in the narrow sense of the definition. However, their patterns of involvement in agricultural production and their impact may be similar to those of TNCs.⁴⁸ Overall, FDI by the new investors is relatively recent, and its scale not yet known. Nevertheless, it is important to examine these trends because these investors represent a relatively untapped source of investments for agricultural development.

Some developing-country governments (e.g. China, the Republic of Korea and GCC countries) have shown a growing interest in investment in food production abroad, which has contributed to the rise of FDI and other contractual arrangements in agricultural production from those economies. Some of this investment is by SWFs, which often act in tandem with their respective governments. These activities have contributed to strengthening further the South-South dimension in international investment in agriculture. As most of the SWFs have limited reporting on their international activities, it is difficult to separate their foreign agricultural involvement from the rest of their activities. For that reason, it is not possible to draw a list of the most important SWFs ranked according to their foreign agricultural production. Moreover, most of the agricultural projects of SWFs are currently in the phase of exploration and consultations.⁴⁹

New investors in agricultural production are “new” for a number of reasons: for instance, they may originate from countries, such as those of the GCC, which have not traditionally invested overseas in this industry; or they may be cross-industry TNC entrants into the industry, such as Daewoo Logistics (Republic of Korea) and ExxonMobil (United States); or they may be non-TNC actors, usually private equity or State-owned funds, sometimes especially established for this purpose, such as Palmer Capital/Bidwells private equity fund (Germany/United Kingdom) and Gulamerah Fund (Malaysia) (table III.14). The main drivers (or motives) behind the rise of the new investors are both threat and opportunity. For example, Agricapital (a State-owned fund based in Bahrain) and Hadco (Saudi Arabia) are investing in food crops overseas to support government food security policies, while at the same time supplying food to the world’s burgeoning markets. These markets are seen as a considerable opportunity, which is spurring international investment in agriculture by companies and funds such as Vision 3 (United Arab Emirates) and Goldman Sachs (United States) (table III.13).

Similarly, companies such as ExxonMobil (United States), Al Jenat (Saudi Arabia) and Wuhan Kaidi (China) see the production of food crops for biofuels as both a way of fending off the threat of an energy crisis and an opportunity to enter a new market (table III.13).

Some of the opportunities have arisen from policy changes in host countries, which, though generally aimed at increasing investment in agriculture, also encourage niche investments, such as research into the medicinal properties of plants in Cambodia and the Lao People’s Democratic Republic, and—in this case—links to the pharmaceutical industry (Shaw and Callander, 2007; George 2005). The likely importance of agricultural production in the future, especially because of the rising world population and change in consumption patterns (section B), has also prompted large-scale speculative overseas purchases of land by companies and funds, such as Jarch Capital (United States) and Landkom (United Kingdom) (table III.13). Many of these speculative land purchases take place in developed or transition economies, but a large number are also developing countries (figure III.14), which has drawn much attention, including accusations of “land grabbing” (Cotula et al., 2009, Smaller and Mann, 2009; chapter IV, section D.4).

F. Conclusions

This chapter has examined the main characteristics of agriculture, as well as the involvement of TNCs in agricultural production and related activities. Its major findings, summarized below, indicate that the participation of TNCs in developing country agriculture is on the rise, with major implications for these economies’ modernization, and consequent policy challenges for their governments.

Agriculture is an important and socially, as well as politically, sensitive industry in developing countries, despite a history of relative neglect after the Second World War. It differs considerably from manufacturing and services because it is central to the provision of food, the eradication of hunger and poverty alleviation, and is usually a major source of employment. Moreover, recent trends in agricultural production have given rise to a host of politically charged issues, including those related to food security and food crises; non-food uses of agricultural produce such as biofuels; its impact on the environment (such as depletion of water resources, deforestation and soil degradation) and biodiversity; the high levels of carbon emissions from some forms of agriculture and their impact on climate change; and the controversial use of GM crops. Agriculture is diverse in terms of the different actors involved, the types of crops that

Table III.13. Examples of new investors in agricultural production in developing countries, based on their motivations for investment

Purpose of agricultural production	Overall context of investment			
	Threat (e.g. food security)		Opportunity (e.g. new profitable niches)	
	Type of Investor	Examples	Type of Investor	Examples
Food crops	State-owned funds (including SWFs)	- Agricapital (Bahrain) - G2G (Qatar) - Libya Africa Investment Portfolio (Libyan Arab Jamahiriya)	Start-up companies	- Trans4mation Agritech (United Kingdom)
	Private sector investors with state support	- Hadco (Saudi Arabia) - Ald Dahra (United Arab Emirates) - IFFCO (United Arab Emirates)		
			Private equity funds	- Gulamerah Fund (Malaysia) - Palmer Capital/Bidwells PEF (Germany/United Kingdom) - Nagathom Fund (Cambodia) - Vision 3 (United Arab Emirates)
	Large (cross-)industry entrants, including SOEs	- Zad Holding Co. (Qatar) - ZTE (China)		- Goldman Sachs (United States) - Dubai World Trading (United Arab Emirates) - Mitsui (Japan)
Non-food crops/activities			Start-up companies	- Sun Biofuels (United Kingdom) - Skebab (Sweden) - Flora EcoPower (Germany) - CAMS Group (United Kingdom) - ScanFuel (Norway) - Agroils (Italy)
			Investors in land (and "land rush")	- Jarch capital (United States) - Landkom (United Kingdom)
	Large cross-industry entrants, including SOEs	- ExxonMobil (United States) - Al Jenat Consortium (Saudi Arabia) - Wuhan Kaidi (China)	Private equity funds	- Renaissance Capital (Russian Federation) - CNOOC (China) - ZTE International (China)

Source: UNCTAD.

Note: Investors can have multiple motives, some of which are indicated by arrows. For example, large TNCs such as Daewoo Logistics (Republic of Korea) and Zad Holding Co. (Qatar) are investing in food crops for food security reasons (sometimes at the behest of their home Governments), but also because they see investment in crops as a viable long-term opportunity.

are produced and the dominance of certain regions in the production of particular commodities because of historical and climatic factors and policy influences.

In developed and certain developing countries, increased investment and technological progress have transformed agriculture into high-productivity activities, but in other developing economies, agriculture continues to suffer from a chronic lack of investment, leading to food insecurity and the underutilization of the industry as a motor for development. In developing countries that suffer from an investment gap in agriculture, public spending has been low and declining as has foreign financial support in the form of ODA. Consequently these countries face difficulties in meeting objectives such as the MDG target of halving hunger and poverty by 2015.

This chapter has found that FDI and TNC involvement may be one possible channel for meeting the investment needs of agriculture. However, considering the mixed historical record of foreign investors in the industry and the policy challenges that agriculture raises, TNC participation is far from being the only channel; and this participation needs to be followed closely by policy makers, in order to maximize the potential benefits and minimize the potential negative impact (chapters IV and V).

FDI in agriculture is unevenly spread within and between countries. In most countries of the world, agriculture accounts for a very small share of inward FDI (typically less than 1%). There are, however, some developing countries (such as China, Malaysia, Peru, Swaziland and Viet Nam), and LDCs (such as Cambodia, Ethiopia, the Lao People's Democratic Republic and the United Republic of Tanzania) where the share of agriculture in inward FDI exceeds this level by a substantial margin. Data also indicate that Asia is the developing region that has attracted the most FDI in agriculture. Moreover, its share in the total of developing economies increased in the 2000s. A caveat to this finding is data scarcity that could result in underreporting of FDI in agriculture in some countries and regions.

TNC involvement in agricultural production goes beyond FDI; it also encompasses a wide range of non-equity, short- and long-term contractual arrangements. Of these latter arrangements, much TNC participation in agricultural production appears to be in the form of contract farming. Indeed, the post-war withdrawal of TNCs from investment in developing countries' agricultural production did not necessarily rollback their involvement in agriculture. Among others, they continued to play an important role through segments of the agribusiness value chain,

for example as suppliers of inputs or in the form of contractual agreements between traders, processors and retailers with farmers in developing countries. This chapter has found that contract farming is a key channel for linkages between TNCs located at various stages of the agribusiness value chain – both upstream and downstream of agriculture – and in agriculture itself. Hence, the impact of TNCs on agriculture should be evaluated by considering the full extent of their participation, whether direct or indirect; and, within direct participation, whether it is in equity (FDI) or non-equity (non-FDI) forms.

After a long period of relative decline, since the 1990s there have been signs of increased TNC participation in agricultural production in developing countries. Foreign investors are evincing renewed interest in agriculture, as indicated for example by a rising number of deals aimed at securing access to arable land in host countries. However, most of these deals are so far at an early stage of negotiations. There are also “new” investors emerging in agriculture, including not only TNCs, but also investors such as sovereign wealth funds, private equity funds and, sometimes, farmers themselves going abroad. Many of these new investors originate in developing countries, and there are indications that South-South investment in agricultural production, both FDI and non-equity forms, is on the rise. Cross-border M&As undertaken by investors from developing countries have started to exceed those from developed countries, and are targeted mostly at other developing countries.

Despite the rise of new investors, the universe of large TNCs in the agribusiness value chain is still dominated by developed-country TNCs – with one exception: agricultural production itself. The list of the largest agriculture-based TNCs contains a relatively large number of developing-country firms (12 out of the 25 firms), including the largest agricultural TNC, Sime Darby (Malaysia). In contrast, TNCs participating in agricultural production from the upstream (suppliers) or downstream (processors, retailers, traders) segments of agribusiness value chains are primarily based in developed countries. This is particularly true of suppliers of inputs.

TNCs usually target specific crops in individual host countries and regions. These preferred crops may vary by region, subregion and country. In general, however, apart from some new investors, TNCs target staple crops less frequently than cash crops. According to the findings of this chapter, TNCs have invested mostly in cash crops (e.g. fruits, vegetables and flowers), and in animal products (e.g. meat, poultry and dairy) in developed countries. In some developing regions, such as South America and some African countries, TNCs also target staple crops such as rice and wheat. Nevertheless, they focus mostly on

export commodities such as flowers, fruits, oil crops, soya beans and sugar cane, to mention a few.

The home-country drivers of FDI and other forms of TNC involvement in agriculture include a number of factors, which are not mutually exclusive, and which have evolved over time. New push drivers include, rapid rates of growth, especially in emerging economies, leading to higher incomes and expenditures on foodstuffs and imports of some food items; the rising use of agricultural produce for biofuels; and policy changes favouring overseas investment by developing home countries with scarce water and land resources. TNC participation in agriculture has been further spurred by economic and political factors, such as the rise in food prices and shortages – resulting in some export bans – in certain commodities over the past few years. These drivers have also encouraged some speculative international investments in agriculture. In the wake of the food crisis, the push for food security has become a major driver of new investment in agriculture. Looking to host countries, the availability of underutilized agricultural land, increasingly coupled by the availability of water resources to irrigate the land, as well as more open policies towards land ownership and lease, have been the most important pull factors of investment in agriculture.

Although TNC involvement in agriculture varies considerably by host region and country, in those host countries, especially LDCs, where TNCs play a major role, they can have a wide range of economic, environmental, social and political impacts. Given the social and political sensitivity of agriculture, these effects need to be examined carefully, including implications for food security in host and home countries (chapter IV). FDI and other forms of TNC involvement in agriculture pose a major challenge, as well as an opportunity, for policymakers in both home and host countries, especially in managing the impact of such investment (chapter V). As mentioned above, a new salient issue of particular relevance to host country policymakers is the acquisition of large areas of land by foreign investors. This and other issues will be analysed in the following two chapters.

Notes

- ¹ Also known as “agrofuels”.
- ² This aspect has led some water scarce countries to invest in major agriculture producing locations to address their food security concerns (section D.3). Instead of using scarce water resources at home for food production, water-scarce countries can import food farmed in water-rich countries.
- ³ Steady genetic improvements and generation of new plant varieties in a number of crops as a result of R&D have contributed to continuing gains in yield (World Bank, 2007: 160–163).

- ⁴ For instance, the number of countries planting GM crops increased to 25 in 2008, from 6 in 1996. The number of farmers who use GM crops increased by 1.3 million in 2008 to 13.3 million, and more than 90% of farmers who use GM crops in developing countries are small and resource-poor (James, 2008).
- ⁵ Four types of companies – mostly TNCs – have had an impact on the development and adoption of GM technology. These are agriculture seed and biotechnology companies, chemical pesticide companies, food and feed companies, and major retailers such as supermarkets and fast food chains. Seeds and biotech TNCs, such as Monsanto, DuPont/Pioneer and Syngenta, developed most of the GM crops currently on the market, and remain dominant players (Paarlberg and Pray, 2007).
- ⁶ Excluding deforestation.
- ⁷ According to data collected by UNCTAD and summarized in table III.3.
- ⁸ Bangladesh, Cambodia, Cameroon, China, Indonesia, Ethiopia, Madagascar, Mali, Mongolia, Nicaragua, Nepal, Pakistan, Papua New Guinea, Sierra Leone, the United Republic of Tanzania, Thailand, Uganda, Viet Nam and Zambia, according to data collected by UNCTAD and summarized in table III.3.
- ⁹ For instance, more than 70% of employment in East Africa during 2002–2006 was in agriculture, compared with only 32% in North Africa.
- ¹⁰ MDG-1: refers to “Eradicate Extreme Hunger and Poverty” by halving, between 1990 and 2015, the proportion of people whose income is less than \$1 a day and the proportion of people who suffer from hunger.
- ¹¹ Gross capital formation is measured by the total value of the gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables.
- ¹² For instance, Africa and South, East and South-East Asia have a relatively high share of agriculture in total investments, which suggests the greater importance of agriculture for economies in these regions.
- ¹³ The term *food crisis* refers to a situation of food shortages arising from the imbalance between the basic needs of a society in terms of the supply of food and the means of providing for the population’s dietary needs and food preferences. A food crisis is always context-specific in time and cause. Thus the 2007–2008 food crisis was associated with a major increase in world food (and fuel) prices (FAO, 2008b), fuelled by changing patterns in global food (and energy) consumption and trade.
- ¹⁴ With the exception of coffee and palm oil.
- ¹⁵ See “Soaring food prices: Facts, perspectives, impacts and actions required”, document HLC/08/INF/1 of the “High-level conference on world food security: the challenges of climate change and bioenergy”, Rome, 3–5 June 2008.
- ¹⁶ Food security refers to the availability of sufficient quantities of food of appropriate quality and a given society’s access to as well as utilization of it (FAO, 2006a). The supply of food is secure if all people of the given society, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (FAO, 2008a). Conversely, “the two most basic causes of food insecurity” are “inadequate food availability at national level and inadequate access to food due to poverty” (Smith, El Obeid and Jensen, 2000: 205).
- ¹⁷ The energy crisis and high fuel prices have encouraged the growth in biofuel crop production (III.B.3.c), putting additional pressure on the global food supply. Speculative activities to take advantage of high food prices have further worsened the food supply situation and pushed prices up even further (FAO, 2008b).
- ¹⁸ One third of this amount relates to financing immediate requirements for food assistance, agricultural inputs and budgetary as well as balance-of-payments support.
- ¹⁹ See also Maputo Declaration on Agriculture and Food Security: “10 percent national budget allocation for agriculture development”, African Union, July 2003 (www.africa-union.org/root/UA/Conferences/2008/avril/REA/01avr/Pamphlet_rev6.pdf).
- ²⁰ See also Declaration of the High-level Conference on World Food Security: The Challenges of Climate Change and Bioenergy, 5 June 2008, Rome. Available at: www.fao.org/fileadmin/user_upload/foodclimate/HLCdocs/declaration-E.pdf.
- ²¹ For instance, ZTE International (China), Flora EcoPower (Germany), Sun Biofuels (United Kingdom) and CAMS Group (United Kingdom) have signed land deals with African countries for production of biofuel crops. Similarly, Sinopec (China) and Chinese National Overseas Oil Corporation (China) have interests in Indonesia to grow maize for biofuel production (“Sinopec reportedly to invest \$5 billion in biofuels in Indonesia”, *Biopact*, 28 January 2008, at: <http://news.mongabay.com/bioenergy/2008/01/sinopec-reportedly-to-invest-5-billion.html>), and “CNOOC to build 3 biodiesel plants in West Kalimantan”, *Biopact*, 7 May 2007, at: <http://news.mongabay.com/bioenergy/2007/05/cnooc-to-build-3-biodiesel-plants-in.html>).
- ²² See, the Declaration of the High-level Conference on World Food Security: The Challenge of Climate Change and Bioenergy, 5 June 2008, Rome.
- ²³ However there are variations of this situation. For example, until the 1980s, a number of foreign investors in Latin America’s food industry integrated vertically into primary production, controlling vast areas of land and engaging in local processing, as well as the exports of goods such as sugar, bananas or meat to Europe and the United States (Dinham and Hines, 1983; Striffler and Moberg, 2003).
- ²⁴ This can be a point of concern. It has been argued, for instance, in a critical analysis of the nature of intellectual property as applied to plants, that there are significant commercial and political pressures towards classifying, say, new plant varieties as ‘inventions’ (patentable) rather than ‘discoveries’ (not patentable) (Van Dooren, 2008).
- ²⁵ Such changes can have a large influence on farmers — among others — in developing countries. Fold and Gough (2008) show how EU consumers’ tastes have changed for a new variety of pineapple ‘MD2’ (marketed by plantation TNCs via supermarkets) over another variety also grown in Ghana, ‘smooth cayenne’. Local smallholders growing smooth cayenne have seen a large fall for their produce, without being able to switch to ‘MD2’.
- ²⁶ For instance, there are likely to be four principle transaction costs incurred by TNCs (or other companies) in contract farming, especially smallholders: (a) costs of drafting, negotiating and enforcing contracts; (b) maladaptation costs when contract specifications are not met; (c) set-up and running costs associated with governance; and (d) bonding costs of implementing secure commitments. These costs can be reduced to mutual advantage, as in the case of contract farming in seed maize involving a TNC and smallholders in Indonesia (Irianto, Yuniarti and Santoso, 2006).
- ²⁷ Because of the critical role of breeding and propagation in the floriculture (and horticulture) value chain, a number of suppliers of other inputs have recently acquired companies

- in this segment. In a number of cases, these acquisitions have resulted in participation in agricultural production. For example, Syngenta AG (Switzerland) has bought a number of breeders/propagators, including Fischer (Germany) in 2007 and Goldsmith Seeds (United States) in 2008. These two companies, now part of Syngenta, are producing/farming flower seeds and bedding plants, among others, in developing countries as far afield as Guatemala and Kenya.
- ²⁸ For TNCs, operating their own production sites (for example, plantations) abroad may be an efficient way of influencing the quantity, price and quality of the commodity produced. However, it might also entail high costs. One of the main costs is that of supervision, reflecting a relatively high cost of monitoring labour (because, despite mechanization, certain parts of agricultural production are still labour-intensive). This applies to complex crops, in particular, which require specific technologies or management. Other costs are associated with land and labour, such as the establishment of infrastructure, costs of permanent staff and costs arising from political opportunism (e.g. taxation or extortion) (Simmons, 2003: 5).
- ²⁹ These results may be due to differences in statistical accounting, but also to only partial availability of FDI data (box III.5), compared to a relatively comprehensive coverage of M&As.
- ³⁰ In 2008, the breakdown remained similar, with agriculture accounting for 2% of the total and food production for 97% (figure III.7).
- ³¹ This low level may be partly due to a lack of adequate statistical information.
- ³² Examples of TNCs from developing countries active in cross-border M&A purchases include Guthrie Group and Sime Darby Group (both Malaysian) in primary production (section E).
- ³³ For example, J&F Participacoes SA (a cattle company in Brazil) acquired Smithfield Beef Group in the United States; Los Grobo (an Argentinian wheat company) acquired majority interest in Sementes Selecta (a Brazilian soybean company); JBS SA (a Brazilian cattle company) acquired majority interest in Inalca (an Italian sausage and meat producer); and the same company acquired Tasman Group Services (a meat packing company in Australia).
- ³⁴ 7,500 in India, 5,800 in Uganda, 2,685 in Zambia, 686 in the United Republic of Tanzania and 158 in South Africa (SAB Miller, 2009).
- ³⁵ www.carrefour.com/docroot/groupe/C4com/Pieces_jointes/RA/Part3_ra_2004_GB.pdf.
- ³⁶ "Contract farming offers fresh hope for Africa's declining agriculture", East Africa Policy Brief, No. 2. NEPAD, 2005.
- ³⁷ "Nestlé opens new milk factory in Pakistan, its largest milk reception plant in the world", Nestlé Press Release, 16 March 2007.
- ³⁸ In the latter case, contracts were concluded with the agents (Birthal et al., 2008).
- ³⁹ www.nouminren.ne.jp/dat/200107/1001070902.htm (accessed on 18 February 2009).
- ⁴⁰ "Malaysian investors take over Guthrie as Ellen signs \$800 mn deal", *Informer Newspaper*, Liberia, 1 May 2009. Interestingly, Sime Darby has taken over most of the rubber plantations previously owned and operated by Guthrie, another Malaysian TNC, which were overrun and looted by rebels during the Liberian civil war.
- ⁴¹ Zambeef Annual Report, 2008, and company website at: www.zambeef.com.
- ⁴² Grupo Bimbo Annual Report, 2008, and company website at: www.grupobimbo.com.
- ⁴³ For instance, in the 1970s, GCC countries also engaged in FDI in agricultural production, mostly in Arab League countries, prompted by threats of a boycott in food delivery to the region during the oil crisis. Later this investment thrust was diluted – though not fully abandoned – as their international relations stabilized. Similarly, in the 1960s and 1970s the Republic of Korea tried to develop overseas food production centres in South America, mainly in Argentina, Brazil, Chile and Paraguay.
- ⁴⁴ For example, the IJM Group (Malaysia), a TNC with core assets in construction, property and infrastructure operations, created an affiliate, IJM Plantations, in 1985. IJM Plantations has expanded its oil palm operations to Indonesia and, through a joint venture, to India. It is involved in oil palm cultivation, plantation, processing and downstream activities including trading of agrochemicals and fertilizers, agro-management services and R&D.
- ⁴⁵ For example, in 2006, Mitsui (Japan) invested \$76 million in a joint venture with CHS (a diversified energy, grains and food company in the United States) called Multigrain (headquartered in Switzerland), which grows soya beans, maize, and cotton, produces flour, gins cotton, sells fertilizers, exports soya beans, markets and exports cotton and sugar, and imports wheat, all in Brazil. In 2008, Mitsui agreed to increase its original investment by \$124 million (www.mitsui.co.jp/en/release/2008/1188983_2849.html).
- ⁴⁶ In the case of the latter two, this is due to a lack of detailed statistics on certain large co-operatives and product boards.
- ⁴⁷ In 1999, SAB Miller, originally established in South Africa, moved its headquarters to the United Kingdom, and hence can no longer be considered a developing-country TNC. If it had remained South African, it would have been the largest developing-country food and beverages processor in 2007.
- ⁴⁸ Evidence of migrant farmers as international investors is very limited. However, the phenomenon exists and can be important locally. For example, with the help of local investment promotion agencies, a relatively significant number of farmers have been moving from India to arid lands in Kenya and Uganda to grow cotton, sugarcane, groundnuts, paddy, bananas and citrus fruit and flowers ("Kenya woos Andhra farmers", *IST Financial Express*, 20 October 2004; "Debt-ridden Andhra Pradesh farmers eye Uganda for new start", *IST Financial Express*, 8 November 2004; "1,000 Indian Farmers Coming to EA", *The Nation* (Nairobi), 29 October 2004). These migrants cultivate 50,000 acres of land, leased to them for 99 years ("Kenya: Indian Farmers to Receive 99-Year Arid Land Lease", *The East African Standard*, 13 November 2004).
- ⁴⁹ For example, the Kuwait Investment Authority has organized the visit of its high-level delegations to countries such as Cambodia, the Lao People's Democratic Republic and Myanmar, aimed at exploring investment opportunities in agriculture and manufacturing (*Gulf News*, 16 Aug 2008; *Asia Times*, 26 Sept 2008).

CHAPTER IV

DEVELOPMENT IMPLICATIONS OF TNC INVOLVEMENT IN AGRICULTURE

A. Introduction

Given the importance of agriculture for economies and societies, the impact and implications of TNC participation in the industry, especially in developing countries, are of considerable significance. This impact varies, depending partly on the nature of TNC participation, in particular whether the mode of involvement is FDI or a non-equity form such as contract farming (significant types and channels of impact are illustrated in figure IV.1). FDI in farming may have a positive effect on agricultural production and the host economy by providing financial resources, introducing new technologies, training workers, creating linkages with local input suppliers and encouraging – through example – the entry of other firms into the industry. Negative effects may result from TNC-run operations driving farmers out of business, for instance, with adverse consequences for employment and rural society. TNC involvement through contract farming can affect domestic agriculture via different channels, among others by providing local farmers with inputs such as seeds and fertilizers, and linking them to the global marketplace through their international supply chains. On the other hand, these links run the risk, for instance, of making farmers highly dependent on large and powerful companies.

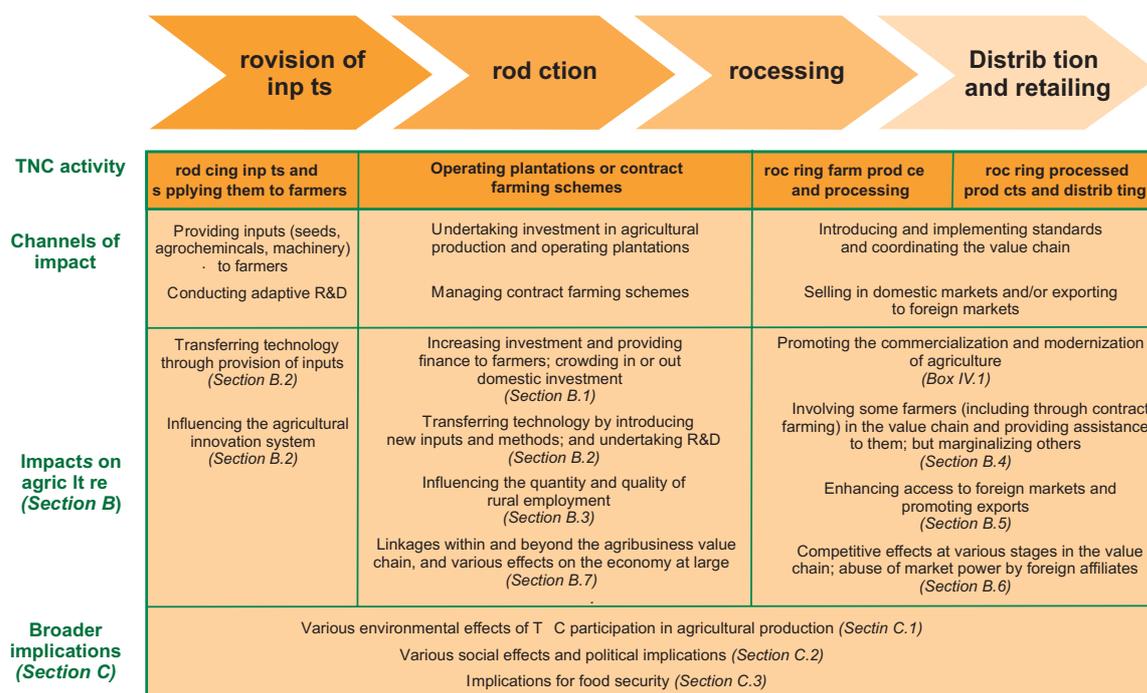
In their international production activities, TNCs deploy a package of assets and resources that are useful for development, but are often in short supply or simply not available in host developing countries (chapter III). The challenge faced by a developing country is how to ensure that the ownership advantages possessed

by TNCs in agriculture and agriculture-related activities can best contribute to its agriculture and the wider economy. There are potential synergies and beneficial effects to be gained from combining TNC advantages with underutilized agricultural resources – including labour and land – in developing countries, but there are also drawbacks. Some important questions therefore need to be borne in mind when assessing the impact of TNC participation in developing-country agriculture. For example, to what extent has TNC participation increased agricultural production and created value? To what degree has the value created in the host economy been retained domestically? And how has this retained value been distributed among various stakeholders, especially local farmers and the rural poor? In addition, against the backdrop of the current food crisis, what are the development implications of rising South-South FDI in food crop production?

Drawing on existing literature, as well as on a series of commodity and country case studies, this chapter examines the positive and negative impacts of TNC participation on agricultural development in host developing countries. The analysis focuses on the effects of their participation on agricultural production, but also considers the wider economic, environmental, and social implications for host countries. It takes into account the significance of contextual variables in determining the outcome of TNC involvement, including, for example, country/location characteristics and endowments, the types of TNCs involved, their specific forms of participation, their stage in agribusiness value chains and the attributes of particular agricultural



Figure IV.1. TNC activities along agribusiness value chains and types of impact in host developing countries



Source: UNCTAD.

Note: The impacts and implications listed in the figure are discussed in the respective sections of chapter IV indicated in brackets.

products. For any specific agricultural operation with TNC involvement, the effects described in figure IV.1 are not necessarily attributable to TNCs. A major methodological challenge is therefore to isolate TNC-specific effects from more general ones; and the analysis needs to take into account the relevant alternatives and counterfactuals.

Bearing such issues in mind, section B of the chapter assesses the impact of TNC participation on agriculture production, looking at various areas of impact such as the provision of finance and investment, technology transfer and innovation, and foreign market access and exports. It also considers the overall impact on agriculture and wider economic implications. Section C addresses a number of environmental, social and political issues, taking into account factors related to sustainable agricultural development. Section D concludes, with particular attention to findings relevant for policy.

B. Impact on agricultural production in host developing economies

In developing countries, the involvement of TNCs in agricultural production, which is often linked to their participation in other parts of the agribusiness

value chain, can intensify and accelerate the commercialization and modernization of agriculture (box IV.1). These processes influence, in varying degrees, all aspects of TNC impact on agricultural production examined in this section.

1. Financing and investment

a. Contributing capital and increasing investment through FDI

As TNCs in agriculture-related activities focus on their core competencies and undertake only limited FDI in agricultural production, their contributions to overall capital inflows to agriculture in developing countries are small (chapter III). However, when agricultural FDI is compared to total investment or value added in agriculture in a host country (a more appropriate comparison than that to overall FDI), or, even better, to private investment in agriculture, it shows that the share of such FDI can be quite significant in some cases.

Overall, the ratio of FDI to gross capital formation (GCF) in agriculture in developing countries is small, at 1.1%, compared with a ratio of 12.7% for total FDI inflows to total GCF of developing countries in 2007.¹ Nevertheless, there are several developing

Box IV.1. TNC participation and the commercialization and modernization of agriculture in developing countries

The shift from subsistence to commercial farming is an integral part of the overall process of modernization of agriculture in developing countries. By helping expand production, enhance efficiency and release labour from agriculture, the commercialization of farming underpins the role of agriculture in economic development.

Commercialization is a process that takes place with or without TNC involvement. However, the participation of agribusiness TNCs can accelerate the process of commercialization, for example by favouring farming operations that are specialized, large-scale, and capital- and knowledge-intensive. Moreover, in order to comply with the requirements of agribusiness

TNCs, farmers have to become more responsive to market trends and requirements, with a strong emphasis on delivery, quality and other specifications and standards. In practice, this means that not only do local farms need to invest in physical capital (e.g. storage and transport facilities, irrigation systems), but they also have to adopt modern business practices (e.g. managing financial flows, meeting various standards and traceability requirements) and improve logistics. In this respect, agribusiness TNCs play an important role in modernizing agriculture in host countries. However, their participation can also have negative consequences which need to be addressed, such as the decline of small-scale farms and unfavourable effects on the environment.

Source: UNCTAD.

countries, in which the share of FDI relative to domestic agricultural investment is much higher than the average for all developing countries (table IV.1). China and Viet Nam are examples of two countries that have included agriculture among their priority areas for attracting FDI, and, unlike some other developing countries which also do so, they have managed to attract significant amounts of such investment. This has made a distinct difference to their agriculture, not only in terms of capital and investment, but also, for example, by way of upgrading productivity and exports (boxes IV.2 and IV.3).

As noted in chapter III, there are many agriculture-related TNCs that engage directly in agricultural production in host developing countries, provided that those countries manage to reduce risk factors and create a more conducive environment. In addition, new investors are emerging, such as TNCs from developing countries and private equity funds, and some of their actual and proposed investment projects are very large (chapter III). As more developing countries seek to promote agricultural FDI, it can be expected to help raise investment levels in agriculture in these countries.

In addition to their direct impact on investment, TNCs can indirectly influence investment levels in host-country agriculture through their effects on investments of domestic entities. These effects vary: the direct participation of TNCs in agricultural production may substitute for domestic investment; but it may also “crowd in” other investors through demonstration and/or spillover effects. Domestic private investment is always important for agricultural development, but FDI can play a complementary role, both by increasing the total amount of investment, as noted above, and by directing investment to preferred areas such as the production of high-value-added crops, as discussed in the following sections.

Nevertheless, the importance of public investment in agriculture needs to be emphasized, as it helps pull infrastructure into rural areas, empowers small farmers, and provides an enabling environment for private investment.

b. Easing financial constraints through contract farming

While FDI accounts for a relatively small share of capital inflows and agricultural investment in most developing countries, an important form of TNC involvement is contract farming. This form

Table IV.1. FDI in agriculture in selected major host developing countries: ratios of FDI inflows to GCF and of FDI stock to GDP, in agriculture and in the entire economy, 2007
(Per cent)

Country	FDI inflows in GCF		FDI stock in GDP	
	Agriculture	Economy	Agriculture	Economy
	2005–2007 ^a	2007	2007	2007
Average of developing countries	1.1	13.1	..	29.7
Malaysia	21.9	20.6	..	41.0
Cambodia	19.1	51.9	..	44.2
Guyana	15.1	57.9	..	117.4
Honduras	9.2	21.8	..	34.3
Costa Rica	8.1	33.1	..	34.0
Fiji	6.7	45.8	..	44.1
Tanzania, United Rep. of	6.1	17.7	..	41.0
Lao PDR	5.7	19.6	..	28.3
Mozambique	5.5	23.1	..	41.5
Ecuador	4.9	2.0	..	23.2
Chile	4.0	38.4	19.7	60.7
Brazil	3.9	14.8	..	23.2
Viet Nam	1.5	25.5	17.6	56.6
China	0.5	6.0	18.6	9.7
Morocco	0.1	12.2	14.6	52.6
Namibia	..	35.3	16.4	43.6
Papua New Guinea	..	8.5	9.2	36.7

Source: UNCTAD, based on UNCTAD, FDI/TNC database and data provided by the United Nations Statistical Office.

^a Or latest three-year period available between 1999 and 2006.

of involvement can have a very important impact on agriculture in developing countries, in particular by helping to ease financial and other investment constraints on local farmers, who might otherwise lack access to financial services. Indeed, despite the expansion of financial services for agriculture, they are still inaccessible to a majority of smallholders worldwide (World Bank, 2007).²

Banks and other financial institutions have not filled the gap, because they tend to focus on urban areas, where there is a higher concentration of potential clients (businesses and households), and where clients are relatively more affluent, operating costs are lower and contract enforcement is easier than in rural areas. Where finance in rural areas has been available (often through informal service arrangements such as money lenders, pawnshops or families), it has normally been directed at larger farms, so that most small producers have been excluded from the credit system.³ In this context, the emergence of vertically coordinated supply chains (chapter III) – domestic and/or international – and contract farming, often run by TNCs in segments of the value chain upstream or downstream from production, has in many cases facilitated financial intermediation for farmers, including smallholders, who have been able to link up with these chains.

Contracts, especially with large, reputable TNCs, can ease financial constraints for participating local farmers in developing countries in a number of ways:

- Contract farming usually facilitates farmers' access to credit to finance production inputs and/or investment. In most cases it is contractors who advance such credit (Eaton and Shepherd, 2001). Agribusiness firms have an advantage over banks as lenders in such circumstances, because of their ability to monitor and enforce credit contracts (Key and Runsten, 1999).⁴ Their contracts with smallholders usually include forward payments or provision of inputs to help overcome the problem of financial constraints faced by these farmers (Simmons, 2003).
- Some bank managers consider contracts with large agro-industry firms as a substitute for collateral, and on this basis, provide credit to smallholders, which otherwise would not have been possible (Reardon and Swinnen, 2004). In other cases, where banks or government agencies do not advance credit without guarantees, the sponsors of contracts make the necessary arrangements for credit, with the contract serving as collateral (Eaton and Shepherd, 2001). This is particularly

Box IV.2. The contribution of FDI to agriculture in Viet Nam

For many years, Viet Nam has offered a variety of incentives to promote FDI in agriculture. During the period 1988–2008, the country registered 719 FDI projects in agriculture, forestry and fishing worth \$4.2 billion of total registered capital (box figure IV.2.1). These projects accounted for 7% of the total number of registered FDI projects and for 3% of the total registered FDI capital. But the implementation of licensed projects is much lower, and as a result, FDI stock in agriculture was \$1.7 billion in 2007 (annex table A.III.1). If the stock is compared with value added in agriculture or the estimated private investment in Viet Nam's agriculture during the period 1988–2007, then the contribution of foreign investment becomes very significant: 18% and 28% of the total respectively. Most of this FDI originates from Asian developing economies, with Taiwan Province of China being the largest source, accounting for a quarter of the country's FDI stock in agriculture.

Apart from bringing much needed capital to Viet Nam's agriculture and contributing to the expansion of production capacity, FDI projects have increased productivity through the transfer of advanced technology and the competitiveness of agro-forestry

produce. The Government is continuing in its efforts to improve the investment climate in agriculture in order to sustain FDI inflows, the significance of which fell in recent years. It hopes to raise the level of implementation of registered FDI projects and promote not only resource exploitation, but also FDI in high-value-added activities. The Ministry of Agriculture has initiated a programme for 2008–2015 aimed at addressing bottlenecks to TNC participation.^a

Box figure IV.2.1. FDI in agriculture in Viet Nam, registered capital and share in total FDI, 1988–2008



Source: Foreign Investment Agency Viet Nam.

Source: UNCTAD, based on Truong (2009).

^a Viet Nam, Foreign Press Center, "Foreign investment in agriculture remains limited", 18 December 2008 (www.presscenter.org.vn).

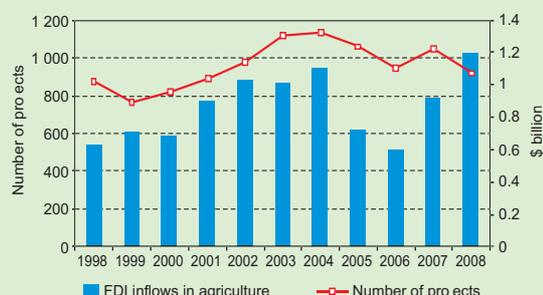
Box IV.3. The significance of FDI in China's agriculture

China has received significant inflows of FDI in agriculture since 1998: they ranged from \$600 million to over \$1.2 billion annually between 1998 and 2008 (box figure IV.3.1). During the entire period, China registered 10,622 FDI projects in agriculture (or 3% of the total number of FDI projects) and nearly \$10 billion of cumulative FDI inflows (or 1.5% of total accumulated inflows).

Significant FDI to agriculture in the country supplements domestic capital for investment, brings advanced technologies and equipment, introduces new products and advanced management, promotes development of the food processing industry, and accelerates reform in rural areas and in agriculture in general (Ge, 2009).

Source: UNCTAD.

Box figure IV.3.1. FDI in agriculture in China, inflows and number of projects, 1998–2008



Source: Ministry of Commerce of China.

important when farmers have to make substantial investments (e.g. in heavy machinery).

- Participation in contract farming strengthens the credit and investment capabilities of farmers by increasing their income. Contract farmers have significantly higher incomes than other farmers: from 10% to as much as 100% higher in Guatemala, Indonesia and Kenya (World Bank, 2007). In two cases of contract farming examined in India, one concerning milk and another vegetables, revenues of farmers were two to four times higher than those of non-contract farmers (Birtal, Joshi and Gulati, 2005). Indeed, most empirical studies suggest that contract farming schemes have raised the income of participating farmers (e.g. Little and Watts, 1994; Porter and Phillips-Howard, 1997; Minot, 2007).

On the other hand, participating farmers can come under considerable financial pressure when dealing with large agribusiness firms. It is common practice by companies such as supermarkets to delay payments to suppliers; for example, in Latin America, horticultural producers face payment delays of 15 to 90 days (Reardon and Berdegue, 2002).

While the provision or facilitation of access to finance for local farmers through contract farming is common, data concerning the amounts involved are difficult to ascertain. Sometimes, for an individual farmer these amounts are relatively small, but they can make a big difference (Setboonsarng, 2008), as illustrated by Olam Nigeria's support to rice farmers (box IV.4). Other examples indicate that the amounts can be significant. For example, Bunge, a United States agribusiness TNC, provided the equivalent of nearly \$1 billion worth of inputs to Brazilian soya farmers in 2004 (Greenpeace, 2006). Overall, United States TNCs are responsible for 60% of the total financing

of soya production in Brazil (Milieudéfensie and Friends of the Earth, 2006).⁵

2. Technology and innovation

Technological progress is crucial for agricultural development. Throughout the twentieth century, improvements in agricultural productivity were closely linked to policies towards and investments in agricultural R&D (Alston, Pardey and Smith, 1999). Agricultural development through innovation is vital for reducing poverty in the developing world, but agricultural R&D remains concentrated in developed countries and is grossly underfunded in most developing countries (IAASTD, 2008). Due partly to weaknesses in their agricultural innovation systems, developing countries as a whole invested only 0.56% of their agricultural value added in R&D in 2000, compared with 5.16% invested by developed countries (Pardey et al., 2007).

Public research programmes have in the past produced important results, including scientific and technological breakthroughs.⁶ They contributed to the "Green Revolution", the first wave of agricultural technology development in the developing world, in which an explicit strategy for technology development and diffusion targeting poor farmers in low-income countries made improved technologies freely available as a public good (Pingali and Raney, 2005). However, total public spending on R&D has slowed down significantly in developing regions in the past decade or so (chapter III). This has widened the knowledge divide between developing and developed countries, and, within the developing world, between a handful of "star performers" (e.g. Brazil, China, India and Malaysia) and most of the others (World Bank, 2007; chapter III). In the meantime, the locus

of global agricultural R&D has shifted from the public sector to TNCs, driven by some interrelated technological and institutional forces.⁷ Coupled with the transition in plant improvement research, from (conventional) breeding to molecular approaches, TNCs have been leading a “Gene Revolution”, a second wave of agricultural technology development, in which improved agricultural technologies flow to developing countries primarily through market transactions (Pingali and Traxler, 2002).

Given their increased importance in agricultural innovation, TNCs can play a role in narrowing the above-mentioned knowledge gaps, both by transferring new technologies to developing countries (section B.2.a) and by engaging in local R&D activities (section B.2.b). However, the concrete technological contributions of TNCs have been limited, varying greatly by product and country. They are significant in the production of certain commercial crops in some developing countries, but remain marginal in most low-income countries for many important agricultural products, especially food staples. In addition, TNC involvement in agricultural production in developing countries has given rise to concerns that the technologies used or transferred by foreign companies may not be the most suited to these countries, and that it may have made local farmers overly dependent on specific technologies provided by TNCs.

a. TNC participation and technology transfer

Developing countries can improve agricultural productivity by acquiring advanced technologies from developed countries, but a number of factors related to the creation and dissemination of agricultural technology have significantly limited the benefits they have reaped from technology transfer.

- First, R&D by TNCs tends to focus on commercial crops with relatively large markets. No serious investments have been made in developing genetically modified (GM) seeds of importance to the poorest arid countries, and only 1% of TNCs’ R&D budgets has been spent on crops that might be useful for the developing world (Pingali and Traxler, 2002; United Nations, 2004). The benefits remain limited for countries in sub-Saharan Africa, in particular, where crops grown “are more diverse, with many so-called orphan crops where there is little global public or private R&D” (World Bank, 2007: 168).
- Second, technologies created by developed-country firms may not be suitable or beneficial to developing countries, as their utilization is often constrained by geographical and climatic conditions. Therefore, the transfer of agricultural technology is more constrained than that of industrial technology (Hayami and Ruttan, 1985;

Box IV.4. Easing financial and other constraints on rice farming and processing in Nigeria

For many years, Olam Nigeria, a foreign affiliate of a Singapore-based agriculture-related TNC (box III.10), has been an importer of rice. Although Nigeria has suitable conditions for rice cultivation, local production does not satisfy the demand. A major reason is low productivity because farmers cannot afford expensive inputs (e.g. high quality seeds and fertilizers) for meeting standards of quality. Moreover, smallholder farmers are unable to get credit from the banks, which consider them “unbankable”. Difficulty of access to markets due to lack of transport, poor and insecure roads and the lack of reputable buyers, is another problem. Consequently, the country imports nearly 60% of rice to meet local demand, making Nigeria the largest importer of rice in Africa and the second largest in the world.

Taking advantage of high import tariffs on milled rice, in 2005 Olam leased a mill from the Government and began processing locally produced rice. By 2007, the company had invested \$5 million in upgrading the mill and had doubled its capacity. To solve the problem of an insufficient supply of high quality rice, in 2006 Olam started an outgrowers programme for rice cultivation in Nigeria, in partnership with, and

the encouragement of, the United States Agency for International Development (USAID).

Initially, Olam provided credit to farmers to buy seeds and fertilizers. It also encouraged a Nigerian commercial bank, First Bank, to establish a commercial credit programme for smallholder farmers amounting to \$5 million. This was made possible because of Olam’s backing and the Central Bank of Nigeria serving as a guarantor. During the first two years, 8,000 farmers participated in the programme, and participation is expected to grow to 20,000 farmers by the end of 2009. Equipped with credit, smallholder farmers have been able to buy inputs from Olam, including certified herbicides, crop protection chemicals, fertilizers and sprayers. The buy-back provisions allow Olam to buy the rice at above-market price at the farm gate, transporting it for free to the mill. USAID has provided, among others, a model farm that is used for training and capacity-building for obtaining higher yields and better quality, and cooperatives have been formed to bundle rice and negotiate prices. Farmers, having gained their first-ever access to credit and a reliable buyer, have seen their incomes rise.

Source: UNCTAD, based on various online sources from USAID.

Sachs, 2001). Without adaptive research, it is usually difficult to transfer advanced technologies produced in developed countries that are mostly in temperate zones, to developing countries, many of which are in tropical zones (Johnson and Evenson, 2000; Gutierrez, 2002).⁸

- Third, barriers to international trade and investment in agricultural industries, as well as institutional asymmetries between developed and developing countries (e.g. in terms of agricultural systems and market institutions),⁹ make the channels of technology transfer frequently dysfunctional or inefficient. For instance, regulatory obstacles in many developing countries hamper the transfer of agricultural technologies (Gisselquist and Grether, 2000). Moreover, an increasing proportion of new agricultural technologies are protected by intellectual property rights (IPRs) in developed countries, which limits developing countries' access to them and poses a major challenge for their use to benefit the poor (chapter V).

Due to these factors, expectations regarding the technological contribution of TNCs to agricultural development cannot be high. Nevertheless, as the following analysis highlights, there are areas where TNCs can make a contribution. Evidence from case studies shows that, apart from the traditional modes of international technology transfer related to international trade,¹⁰ the direct and indirect participation of TNCs in production provides additional, and perhaps more effective, ways of transferring technologies. The involvement of different types of TNCs, including seed companies and other input providers, plantation companies and food processors, can bring a variety of useful technologies that may not otherwise be locally available. These technologies include, for instance, new farming methods, knowledge for enhancing production, soil and water management know-how, and various technologies intrinsic to inputs such as seeds, agrochemicals and machinery.

TNC participation in agricultural production through FDI. Utilizing their ownership advantages

in technology (chapter III), TNCs participating in agricultural production through FDI introduce a range of hard and soft technologies that contribute to increased output and enhanced productivity. In the cut flower industry in many African and Latin American countries, foreign-owned farms have contributed to higher efficiency and productivity by adopting new technologies at various stages of the cut flower value chain (Wee and Arnold, 2009).¹¹ In Asia, foreign-invested projects in some agricultural crops have brought in more effective, sophisticated or advanced varieties, techniques and equipment, helping to improve productivity in countries such as China (box IV.5). In Viet Nam, significant technology transfer has occurred in foreign-invested projects in sugar production, vegetable and fruit planting and processing, and reforestation, including the introduction of various high-yield plant and animal varieties. In Africa, high-yielding varieties of cereals have been introduced by TNCs, leading to higher productivity. For example, China State Farm and Agribusiness Corporation (CSFAC) collaborated with the China Hybrid Rice Engineering Research Centre in introducing high-yielding hybrid rice to African countries such as Guinea.¹²

However, FDI in the industry has not always resulted in technology-related productivity gains, partly due to the fact that technological innovation in agriculture often occurs in discontinuous steps with perhaps long intervals of little or no change in between. For example, in the global banana industry in which TNCs play an important role in distribution as well as production (chapter III), no significant innovations took place during the 1980s, leading researchers to believe – erroneously – that there was little hope of productivity increases and cost reductions (FAO, 1996).¹³ Moreover, technology transfer to TNC-owned farms does not readily diffuse to local producers, and nor is this usually in TNCs' interest.

TNC participation in agricultural production through contract farming. Under contract farming arrangements, agricultural TNCs normally provide

Box IV.5. Foreign investment and technological progress in agriculture in China

Foreign investment in agricultural production projects in China has introduced more than 100,000 copies of animal and plant germplasm resources, and a large number of advanced and practical technologies. Examples of significant technologies include: plastic film mulching technology, dry rice planting technology, agricultural remote sensing technology, straw ammoniation technology, and fresh fruit and vegetable processing technology. The plastic mulching technology has been utilized in nearly 100 crops.

Source: UNCTAD, based on China, Ministry of Agriculture (2004) and information provided by the Ministry of Commerce of China.

In rice production, dry rice planting technology has been extended to more than 10 provinces, covering an area of 13 million hectares. New equipment has also been introduced. For instance, a joint venture established between Satake (a Japanese manufacturer of machinery for rice and other food products), Mitsui (a Japanese trading company) and a local company has engaged in rice contract farming in Jilin since 1998, using advanced rice mill technology.

local farmers with technical assistance, seeds, fertilizers, as well as other inputs in which technology and know-how are embedded. In addition, they have a strong interest in providing effective extension services in order to obtain high-quality, low-cost products. Therefore, TNCs can support local farmers in contract farming schemes to overcome technological barriers in order to orient their production towards higher value-added, more knowledge-intensive agricultural products, and accordingly increase their revenues and income. However, technology transfer through contract farming takes place more frequently in the production of high-value-added crops and varieties which attract greater TNC involvement, than in the production of traditional food crops.

Through contract farming, foreign affiliates in the food processing and trading industries have helped transfer new plant varieties, equipment and practices to their local suppliers, primarily farmers. For instance, field research conducted by UNCTAD in 2001 revealed that leading foreign affiliates in India's food industry had contributed significantly in this regard.¹⁴ For example, Pepsi supplied its contract farmers with various agricultural implements and hybrid seeds/plantlets, free of cost, as well as process know-how. Cadbury India has a procurement and extension services team that provides training to potential and existing suppliers on new techniques in planting, harvesting, quality control and post-transplantation care of crops (*WIR01*). In Nigeria, Olam (Singapore) provides farmers with all inputs, including certified herbicides, crop protection chemicals, fertilizers and sprayers, and the foreign affiliate runs a model farm for capacity-building seed multiplication (box IV.4).

Through their involvement in contract farming and transfer of technology to host countries, TNCs in food processing and trading can induce productivity upgrading and yield increases. Sometimes these effects can be significant. For example in India's state of Punjab, prior to TNC entry in 1989, the tomato yield was 16 tons/hectare; by 1999, the yield of suppliers to foreign processing affiliates had increased to 52 tons/hectare, partly as a result of this relationship (*WIR01*). Similarly, a study of a foreign-involved contract farming operation in the north of India demonstrated that yields of tomato farmers under contract were 64% higher than those of farmers who were not (Eaton and Shepherd, 2001; Bruinsma, 2003).

Involvement of foreign seed companies as well as other input providers. TNCs can also play an important role in bringing to local farmers useful technologies that are embedded in products such as seeds, agrochemicals (fertilizers and pesticides) and machinery.¹⁵ The seed industry in the developing world was started by TNCs from developed countries, and then led to the emergence of local firms (Morris,

1998). In particular, the economic viability of hybrids has resulted in a rapid development of the seed industry in developing countries, and the industry has expanded even in low-income countries. In Uganda, for example, 14 major seed companies have local affiliates, among them Monsanto, which deals in hybrid maize that has helped increase yields significantly (Nsonzi, 2009). All the seeds Monsanto supplies in Uganda can be replanted. However, in some other cases, seeds provided by TNCs cannot be replanted, and farmers cannot set aside seeds for planting in the next season, which means they have to buy them from suppliers. This has led to concerns about the dependence of local farmers on specific inputs provided by TNCs.¹⁶

Although TNCs' investments in genomics and genetic engineering could be useful for addressing the problems faced by poor farmers in developing countries, their potential has not been realized. This is partly because of the necessary ongoing debate about the long-term impacts of GM crops on the environment and human health (section C.1). Developed countries (mainly the United States and Canada) accounted for a major share of the estimated 125 million hectares of GM crops grown globally in 2008 (James, 2008). Only 6 developing countries, namely Argentina, Brazil, China, India, Paraguay and South Africa, have planted more than 1 million hectare of GM crops; and only 3 African countries have ever planted such crops.

b. TNC participation and the agricultural innovation system in host countries

As noted above, adaptive R&D is often needed in order for TNCs to transfer advanced technologies created in developed countries to their operations in developing countries. In addition, sometimes foreign affiliates conduct location-specific research on crops, soil and water, and for developing more sustainable and resilient agricultural systems. Until recently, however, these kinds of activities were limited to a few developing countries and selected crops.

An *agricultural innovation system* is characterized by its very diverse composition, including players such as public research institutes, private enterprises (domestic or foreign), farmers and various government agencies and regulatory bodies. When they engage in R&D activities locally, TNCs become players in the system and influence its effectiveness and performance in a number of ways:

- First, their spending helps increase agricultural R&D in developing countries, as for example in India (box IV.6). In Latin America, some international seed and agrochemical producers,

such as BASF, Dupont, Monsanto, Novartis, Pioneer and Syngenta, actively conduct agricultural R&D, as do TNCs such as Chiquita, Del Monte and Dole (Stads and Beintema, 2009). In China, Syngenta has established four seed research and demonstration facilities and a technical centre for crop protection, and its sixth global R&D centre was set up in Beijing in 2008.¹⁷

- Second, TNC involvement in agricultural R&D increases the significance of the private sector in the sectoral innovation system. A common weakness of the innovation system in developing countries, particularly in agriculture, is the absence of a sufficient number of innovative enterprises (*WIR05*).¹⁸ In Latin America, for instance, the public sector does most of the R&D in agriculture; most domestic private companies outsource their research to government agencies or universities, or they import technologies from abroad (Stads and Beintema, 2009). However, in a number of Latin American countries, such as Argentina and Brazil, and Asian countries, including China, India, Malaysia and Thailand, foreign investors have made an important contribution to private research in agriculture, though the total amount is still small (Pray and Fuglie, 2001).
- Third, TNC participation creates opportunities for learning and channels for knowledge spillovers, and it links local entities to global innovation systems. For instance, as many public research institutes in developing countries face institutional constraints that inhibit their effectiveness and thus their ability to attract funds, they can benefit from knowledge spillovers from TNCs and activate their underutilized innovative potential by conducting

adaptive, commercially-oriented R&D. Several types of international public-private partnerships (PPPs) can be developed between public research institutes and TNCs (box IV.7), and government policies in developing countries can play an important role in fostering such partnerships (chapter V).

At the same time, agricultural R&D undertaken by TNCs locally may trigger concerns in host developing countries. The potential costs of TNC involvement in the agricultural innovation system for a host developing country depend mainly on the type of R&D and TNCs' motives, as well as on the strength of the domestic innovation system. Major issues of concern relate to the potential downsizing of domestic R&D, the narrow scope of R&D activities (focusing too much on short-term commercial interests), unfair sharing of intellectual properties resulting from local R&D and related revenues, and possible technology leakage. A related concern is that the knowledge created by TNCs in cooperation with local institutions may be used by the TNCs in other markets, thereby enabling them to cream off the returns. Another concern is that foreign research affiliates might become "gene pirates" if they transfer domestic-specific germplasm resources abroad and utilize them commercially for international markets. Policymakers in host developing countries therefore need to consider the protection of their particular gene resources as well as the IPRs of TNCs (chapter V).

For low-income countries, small-scale farmers' limited access to new technologies has always been a problem for technological progress in agriculture. Traditional extension services often have limited outreach, while local producers have restricted access

Box IV.6. TNCs and the agricultural innovation system in India

India has one of the largest and most complex and institutionally diverse agricultural innovation systems in the world. The system is characterized by a proactive government policy, coupled with support from a number of bilateral and multilateral donors. It has achieved many successes, most notably the Green Revolution in the 1960s and 1970s (Evenson, Pray and Rosegrant, 1999). To achieve a more complex and expanding research agenda, the Indian Government has involved TNCs in the system since the early 1990s. In 1991, the Government allowed seed imports and majority foreign ownership of seed companies, which resulted in a number of foreign seed companies entering the market and undertaking R&D locally (Pal and Byerlee, 2006).

In a dynamic system of innovation, various players operate in partnerships, networks and consortia, and various forms of public-private partnerships

(PPPs) may emerge (Hall, 2009). The various forms of partnership between domestic and foreign entities in India's agricultural innovation system have created opportunities for learning and channels of knowledge spillovers from TNCs to local entities, including public research institutes, domestic enterprises and farmers. For example, in the area of biotechnology, all Indian companies with significant R&D programmes have established joint ventures with global companies for access to their proprietary tools and technologies (Pal and Byerlee, 2006). In the food processing industry, the four largest foreign affiliates (Pepsi Foods Ltd., GlaxoSmithKline Beecham Ltd., Nestlé India Ltd. and Cadbury India Ltd.) are engaged in product development with local research institutes or universities to develop hybrid varieties of crops and vegetables and new agricultural implements to alter cropping patterns and raise productivity (*WIR01*).

Source: UNCTAD.

Box IV.7. International public-private partnership between public research institutes and TNCs: the case of Embrapa in Brazil

Established in 1973, Embrapa is the leading public agricultural research institute in Brazil. It has established several types of domestic and international partnerships with TNCs:

- *Partnerships with TNCs for the development of new technologies.* In this kind of partnership, Embrapa and its partner develop R&D projects together, and the resulting technology is then made available for broader local use. For example, BASF and Embrapa signed a technical collaboration agreement to create cultivars resistant to herbicides. These cultivars will soon be available in the market.
- *Partnerships for incorporating technologies from other corporations into Embrapa products.* This type of agreement enables Embrapa to identify and license technologies from other organizations, and incorporate them into its own products. It

helps the R&D process and facilitates technology transfer. Some TNCs and technologies involved are, for example, BASF (herbicide resistance) and Monsanto (resistance to glyphosate-based herbicide).

- *Partnerships where Embrapa provides licences of its technologies to TNCs.* In this type of partnership, Embrapa's technologies are licensed to be validated and commercialized abroad. In this kind of contract the licensee pays royalties or a similar fee.

Since 1998, Embrapa has created several virtual laboratories abroad: in France, the Netherlands, the United Kingdom and the United States. Further, with the aim of providing humanitarian aid to low-income developing countries through technology transfer, Embrapa carries out several cooperation projects in all South American and 13 African countries.

Source: UNCTAD, based on inputs from Antonio Flavio Dias Avila, Embrapa (Brazil).

to improved seedlings and processing technologies (World Bank, 2007). In a diversified agricultural innovation system, both agricultural extension services and private businesses – domestic or foreign – become innovation brokers to help farmers identify market opportunities in production and related downstream activities, and link them to sources of knowledge and inputs to grasp those opportunities (Hall, 2009). By linking local farmers and other entities to the global knowledge network of TNCs, in cases where the former can be effectively involved, foreign affiliates become actors in a new approach to technology delivery. This can be an important supplement to the traditional, specialized technology delivery through

agricultural extension services. It is best illustrated by the role of Syngenta in the development of Shouguang as a major vegetable production and export base in China (box IV.8).

Domestic entities that already have a threshold level of technological capabilities are more likely to benefit from technology transfer and knowledge spillovers, when they occur: for farmers, through contract farming, and for public research institutes, through cooperative research. Institutions and policies can influence the extent of technology transfer and the efficiency of the agricultural innovation system, with or without the involvement of TNCs in local production and innovation. At the international level, renewed

Box IV.8. Bringing high-value seeds and new technology to farmers: the role of Syngenta in the Shouguang Model

Shouguang in Shandong Province is a major vegetable production, trading and export base in China. It has been identified as one of 18 models of successful local economic development that have emerged in China during the past three decades.

International seed companies have played a role in the development of the Shouguang Model. After an initial investment by Syngenta Seeds in Shouguang in 1998, most of the world's largest seed companies have established their presence there, targeting both the local and national markets. Shouguang Syngenta Seeds Company, a joint venture between Syngenta Seeds and the local government, engages in testing, demonstrating and transmitting the latest results of Syngenta's vegetable breeding research from its global R&D network to Chinese growers. Some of the main vegetable products have included tomatoes, peppers

and watermelons. To meet the different climatic conditions, planting habits, product demands and marketing characteristics of different regions in China, the joint venture started R&D on vegetable seeds in Shouguang in 2001.

Syngenta has signed a memorandum with the National Agricultural Technical Extension and Service Centre of the Ministry of Agriculture of China to provide farmers with training in farming and culturing techniques. It has launched an initiative in Shandong Province aimed at reducing the layers of distribution channels and providing direct extension services to farmers. Vegetable growers have received, in addition to high-value-added commercial seeds, instructions on planting and farming, which help them improve the quality and quantity of production and access to international markets, resulting in increased income.

Source: UNCTAD, based on a field study conducted in April 2009.

collective actions in agricultural R&D and increased investment in the associated institutions are crucial (Alston and Pardey, 2006). Policymakers also need to determine how best to involve TNCs in advancing and disseminating useful technologies (chapter V). To fight the food crisis, a daunting challenge is how to create incentives for PPPs that will allow the public sector to use and adapt technologies developed by TNCs to overcome problems faced by poor farmers, especially those growing non-commercial crops.

3. Employment and skills

Agriculture provided jobs for 1.3 billion smallholders and landless workers worldwide in 2007, but in rural areas severe underemployment is still a problem (World Bank, 2007). Generating more and better jobs is therefore an integral aim of sustainable agricultural development, and is crucial for rural development and poverty alleviation (ILO, 1988 and 2008).

The variety of land ownership patterns and modes of cultivation in agriculture give rise to many types of labour relations and forms of labour participation.¹⁹ The involvement of TNCs in the agribusiness value chain affects the size and quality of many of these employment types and forms (section B.3.a). It also influences the level of human resources and skills in the agricultural industries of host developing countries (section B.3.b). As noted earlier, the participation of TNCs enhances the shift to modern commercial farming, which places an emphasis on capital formation and technological progress aimed at ever higher levels of output and productivity. As TNCs are most likely to engage in capital-intensive operations and to employ sophisticated labour-saving mechanical equipment (section B.2), coupled with their low level of participation in agricultural production in many developing countries, these firms make only a limited quantitative contribution to employment in agriculture as a whole. Indeed, to the extent that smallholders may be driven out of business during the process of commercialization and modernization in agriculture, employment in the industry may even decline. At the same time, evidence from case studies shows that in some circumstances TNC participation can create significant employment at the local level, and that the qualitative impact of their participation in terms of enhancing skills and human resources can be significant.

a. Employment creation

The quantitative impacts of TNC participation on agricultural employment can be both direct and indirect. Direct impacts refer to employment creation (or reduction) by foreign-invested plantations, or by foreign affiliates through contract farming. Indirect

impacts on employment by local entities resulting from TNC participation can occur through, for example, competition from foreign players, business linkages, and demonstration and spillover effects.

The *direct* impact of an agricultural production project with TNC involvement on the size of employment varies by product, the mode of TNC involvement and the context of the host-country economy and industry. TNC participation through FDI in new production facilities can directly create job opportunities in host developing countries. In some labour-intensive industries like floriculture and tea production, employment generation by foreign affiliates has been significant in countries such as Colombia, Ecuador, Ethiopia, Kenya and Mexico. For example, in Kenya, the cut flower industry, in which TNCs are major players, provides direct employment to about 55,000 people.²⁰ In the tea industry, Unilever operates in 18 African countries, providing employment to about 20,000 people (OECD, 2008c). Job creation is also increasingly related to South-South investment in agriculture. For instance, Sime Darby (Malaysia), one of the largest plantation companies in the world (chapter III), is undertaking a project for the rehabilitation and expansion of the Guthrie Rubber Plantations in Liberia, which will provide 20,000 jobs.²¹

However, while agricultural employment might rise due to FDI, often because of increased exports induced by improved access to international markets,²² this may not be sustainable. For example, the shift of TNC activities in banana cultivation from higher cost countries to lower cost ones may threaten employment in the former if they cannot enhance labour productivity and retain their competitiveness (Arias et al., 2003). Moreover, the direct participation of TNCs from developed countries in the production of certain agricultural products may substitute for investment and operations by domestic farmers in a host developing country (section B.1). This displacement tends to reduce the size of overall employment, as TNCs usually utilize more capital-intensive production methods. There is also likely to be a negative impact on employment when large foreign-invested plantations crowd out small local farmers.

Employment opportunities may also be generated by TNCs through contract farming arrangements with local farmers. Studies have found large variations in this respect. On the one hand, in labour-intensive cash crops, there is a significant increase in daily farm employment in crops newly contracted by TNCs. For example, in Kachorwa District in eastern Uganda, a contract farming scheme for growing organic coffee set up by a foreign affiliate encompasses about 4,000 organic farmers, and more than 60% of all households in the area (Bolwig,

Gibbon and Jones, 2009). In the same industry and country, another foreign affiliate²³ also involves more than 4,000 farmers in its contract farming scheme (Nsonzi, 2009). On a larger scale, an international joint venture project in Leshan, China, involved 400,000 farmers in planting fast-growing trees for its production of medium density fibreboard.²⁴ On the other hand, in cases where a highly mechanized and centralized system is transferred to large local farmers, the situation is quite different and may result in a fall in employment (Glover, 1984; Glover and Kusterer, 1990).

The participation of agricultural TNCs also influences employment *indirectly*, both on- and off-farm. Their involvement along the agribusiness value chain may help create jobs by forming backward and forward linkages with local entities. It can foster off-farm enterprise development and create non-farm employment opportunities.²⁵ A study on farm and non-farm linkages at the household level in Senegal showed that greater off-farm employment opportunities for rural households – resulting from increased horticulture exports and associated agro-industrialization – had benefited the smallholder farms (Maertens, 2008). In addition, earnings from employment in the growing horticulture export industry in Senegal are partly invested in family farms, resulting in larger farm sizes, higher farm expenditures and higher farm incomes.

b. Skills enhancement

The qualitative aspects of agricultural employment have become an increasingly important concern for developing countries, as reflected in the advocacy by the International Labour Organization of a comprehensive strategy for promoting employment and decent work in rural areas (ILO, 2008).²⁶ Like FDI in other industries, the primary impact of TNC involvement in agriculture on employment is as likely to be on its skill mix and quality (in terms of remuneration and working conditions) as on the number of jobs created (Dunning, 1993; *WIR94*).²⁷ In agricultural production, TNC involvement, particularly in large-scale plantations, often creates skill-intensive, better-paid employment. In Chile, the percentage of waged workers in areas focusing on TNC-driven, export-oriented horticulture has risen steadily since the early 1990s, in contrast to stagnation in other production areas with less TNC involvement (wheat, dairy and beef) (Valdés and Foster, 2006). In Kenya, floriculture companies, most of which are foreign-invested producers, have developed a code of conduct, backed by regular audits, with requirements for workers' health and safety, general worker welfare and various labour-related issues.²⁸

With regard to its impact on the skills base of host developing countries, TNC participation can

help improve domestic manpower through different channels. For example:

- Foreign affiliates need to provide some form of on-the-job training to ensure that the farming methods they use are deployed efficiently. However, decisions on whether to invest in more advanced forms of training depend on the extent to which these firms are exposed to competition and the expected economic returns. These in turn are influenced by the skills provided by the education system and the prospects of retaining trained workers (*WIR99*). The contributions of TNCs to skills upgrading and human resource development are related to the relative newness of specific skills and appropriate technologies in the context of agriculture in a host country.
- Local farmers can learn various skills through contract farming arrangements with TNCs, including record-keeping, efficient use of farm resources, improved methods of applying chemicals and fertilizers, knowledge of quality standards and information on export markets (Eaton and Shepherd, 2001). They can be related to relatively advanced or niche areas, such as organic planting requirements (box IV.9). Farmers can apply some of their acquired skills to the production of other cash and subsistence crops. However, this is not always possible, as some of the skills and techniques learned in contract farming schemes are highly crop-specific and are not transferable to other products (Glover, 1984; Glover and Kusterer, 1990).

However, TNC involvement can also have negative consequences stemming from the possibilities for exploiting their power over labour, which can result in less favourable working conditions. Indeed, the economic, social and political power imbalance between employers and workers tends to be more prevalent in rural areas than in urban areas; rural labour markets tend not to function well partly because labour organizations are usually weaker there (ILO, 2008). TNCs' power over their suppliers in the trading relationship (section B.6) and their constant search for cheap inputs may also create problems for workers and producers. In the global banana industry, for example, the downward spiral in purchase prices has been passed on to workers in the plantations and to small producers, further depressing wages and working conditions in producing countries worldwide,²⁹ according to the Second International Banana Conference (Arias et al., 2003).

Child labour is a major concern in agriculture throughout the developing world (ILO, 2007). According to the Food and Agriculture Organization of the United Nations (FAO), agriculture accounts for 70% of child labour worldwide, a significant proportion of which is in plantations, such as coffee,

cocoa and banana plantations. In cocoa plantations, for example, hundreds of thousands of children are engaged in hazardous tasks on cocoa farms in a number of African countries, including Cameroon, Côte d'Ivoire, Ghana and Nigeria (International Institute of Tropical Agriculture, 2002). There is regular trafficking of child workers from neighbouring, more impoverished countries, such as Burkina Faso, Mali and Togo, who are sold into forced labour. TNCs in the global cocoa/chocolate supply chain have committed themselves to addressing this problem through their participation in the Cocoa Industry Protocol, the International Cocoa Initiative and the Cocoa Certification and Verification System (see box V.10 in chapter V).

4. Standards and supply chain management

As mentioned earlier, agribusiness TNCs may accelerate and intensify the commercialization of agriculture in host developing countries (see box IV.1). One of the ways they can do this is through the diffusion of international standards with respect to quality and safety of agricultural products (in addition to general standards such as ISO 9000). A major channel for such diffusion is through contract farming. Agribusiness TNCs in the downstream part of the value chain can be grouped into three categories: retailers, traders and food processors (chapter III). This section draws largely on studies relating to transnational retailers or supermarket chains to illustrate the diffusion of standards because they have been more intensively researched than other categories of agribusiness firms. But this does not mean that the impacts of traders and food processors are any less important.³⁰

Transnational retail chains have an impact on developing-country farmers not only through their procurement for developed-country markets, but also, increasingly, because of their dominance of the food retailing industry in developing countries.

Although agricultural exports from developing countries receive much attention in the literature, the domestic market is generally much more important in terms of size since the share of exports in total food production is very small in most countries. Globally, over 90% of agricultural output is consumed within the country where the production takes place, and the share is even larger in developing regions, except for Latin America. Subsistence farming remains important in some countries, but as a result of rapid industrialization and urbanization, an increasing proportion of the population obtains food through market transactions in which food retailers are assuming a greater role as intermediaries between farmers and consumers. In food retailing, the share of supermarkets is rising fast, although the picture varies widely across regions.³¹ Importantly, in the fast growing supermarket segment of the market, it is transnational retail chains that have been expanding fastest through FDI to become prominent, if not dominant, players in the most dynamic segment of food retailing in many developing countries. As such, they are in a position to exert a significant influence on agriculture through both global and domestic value chains; the power they exercise can have both negative and positive outcomes.

a. Diffusion of standards

For major agribusiness TNCs, ensuring the quality and safety of the foods they produce is an important part of their business strategies, especially since the reputation of their brand is an integral element of their competitiveness. They therefore require their suppliers to comply with stringent quality and safety standards, which are often more demanding than Codex Alimentarius, the internationally recognized food safety standard developed by FAO and the World Health Organization (WHO).

As consumers become relatively affluent, they are willing to pay a premium price for food products that have quality and safety certification. This is

Box IV.9. Teaching local farmers to grow organic coffee in Uganda

In the Kawacom Sipi Organic Arabica scheme in Uganda run by Kawacom, an affiliate of Ecom Agroindustrial Corporation (Switzerland), most farmers involved have EU or United States organic certification. Project farmers are required to adopt certain production and on-farm processing practices/methods that prohibit the use of synthetic inputs and encourage the use of other organic practices.

Kawacom employs various means to help growers comply with its organic and quality standards, including group training, individual advice and input

provision. A group certification system is used based on an elaborate internal control system, the central component of which is an annual or semi-annual farm inspection performed by locally recruited company field officers. These officers have been trained in organic farming methods, and they run demonstration farms and conduct occasional training. They also give technical advice to farmers during the farm inspections and monitor their performance in terms of their compliance to the organic standards and other project requirements.

Source: UNCTAD, based on Bolwig, Gibbon and Jones (2009).

certainly the case in developed-country markets, but urban consumers in developing countries are also showing the same tendency. In a competitive market, such consumer preferences influence the procurement practices of retail chains. What marks out transnational supermarkets in this regard are their scale and expertise in managing supply chains, which allows them to impose the requirements of markets – notably their consumers – on suppliers more effectively. The main tools transnational supermarkets deploy in managing their supply chains are product standards. Since public standards for food quality and safety are relatively low, or not enforced in practice, in many developing countries there has been a proliferation of private standards by agribusiness TNCs and, subsequently, systems of third-party certification (box IV.10).³² Indeed, in most cases, the standards that agribusiness TNCs apply in developing countries today are no less stringent than those in use in developed-country markets as a result of the centralization of distribution systems and exports of farm produce.

Standards allow firms to specify, harmonize and manage the product quality and delivery conditions that they require from suppliers. Standards are also used to set criteria for rewarding suppliers who invest in quality and safety management systems. Traditionally, agribusiness firms used standards for coordinating supply chains, which might be spread over many regions or even countries. More

recently, however, these firms also use standards as a marketing tool for differentiating goods in response to consumer demand for quality. As a result, in some cases, standards extend to labour and environmental aspects of farming as well (sections B.3.b and C).

Centralization is a key element of agribusiness TNCs' procurement systems. In an effort to reduce the cost of coordinating the supply chain, transnational supermarket chains tend to centralize procurement by establishing distribution centres, instead of letting each store manage its own procurement. The geographical scope of such centralization is not confined within a country; the area served by a central distribution centre may progressively be extended from a country, to a region and even to the global market. Such centralization, in effect, helps to implement the strict standards among all the countries a centralized distribution centre serves (Henson and Reardon, 2005; Berdegué et al., 2005).

Furthermore, it has been observed that the selection of sources by agribusiness TNCs results in a *de facto* extension and implementation of developed-country standards to developing countries. For example, Freshmark, a specialized procurement agent owned by the transnational supermarket chain Shoprite (South Africa), selects its suppliers from areas where the majority of growers also supply export markets and hence are required to comply with the GLOBALGAP (see box IV.10). Thus, much of the

Box IV.10. Coalitions of agribusiness TNCs for setting common standards

A recent development in private voluntary standards for agribusiness industries is the emergence of coalitions by leading agribusiness firms for setting standards (Fulponi, 2006). Some international food standards, such as the British Retail Consortium (BRC) Global Standards, the International Featured Standard, and Safe Quality Food (SQF) 2000, are designed for the processing stage of agribusiness value chains. Others are concerned with the pre-farm-gate stage, covering the entire farming process – from the use of inputs to the produce leaving the farm. The two most widely used pre-farm-gate standards are SQF 1000 and GLOBALGAP.

- *SQF 1000*. The SQF Program is a global food safety and quality certification programme and management system. Launched in 1994 in Australia, since 2004 it has been administered by the SQF Institute (SQFI), a division of the Food Marketing Institute (FMI) based in the United States. It has 1,500 member companies in the food retail and wholesale industries around the world. The programme comprises two codes: SQF 1000 for primary production and SQF 2000 for food manufacturing and distribution.

- *GLOBALGAP* (formerly EUREPGAP) is a private sector body that sets voluntary standards for the certification of agricultural products. Its membership includes retail and food service providers, producers/suppliers and associate members from the input and service side of agriculture. Some European chains apply GLOBALGAP to supplies of some fresh produce and meat products from developing-country markets (Henson and Reardon, 2005).

Efforts to harmonize standards are still ongoing, led by the Global Food Safety Initiative (GFSI), which was launched in 2000. The GFSI is coordinated by CIES – The Food Business Forum, a global food business network comprising 400 retailers and manufacturers across 150 countries.

In addition, there are a number of commodity-specific pre-farm-gate standards, including: the Common Code for the Coffee Community (4C), initiatives from the Sustainable Agriculture Initiative Platform (covering wheat, palm oil and dairy products), Cotton Made in Africa, and the Better Cotton standard. The nature of these standards is slightly different from food safety standards in the sense that they are explicitly aimed at helping small-scale farmers or promoting sustainable farming.

Source: UNCTAD.

produce sold by Shoprite's retail network throughout the African continent is effectively governed by the same safety and quality standard as in Europe (Weatherspoon and Reardon, 2003).

b. Use of contract farming and specialized procurement agents

For agribusiness TNCs, it can be difficult to enforce standards in traditional wholesale markets as it is hard to trace the origin of the produce sold in these markets and, under such circumstances, supermarkets can exert little leverage on producers with regard to farming methods. Furthermore, it is difficult to ensure a constant volume of supply that meets a particular standard through such markets. To resolve these problems, companies often resort to contract farming for sourcing agricultural produce; or, alternatively, they outsource the procurement function to specialized agents, which in turn establish contractual relationships with farmers.

A consequence of agribusiness TNCs' implementation of private standards has been the decline of traditional wholesale markets in developing countries where they operate. Since the TNCs have few possibilities to control and verify farms' production processes when they buy through wholesale markets, they often interact directly with host-country farmers through contract farming. Alternatively, they outsource the procurement and distribution functions to specialized procurement agents dedicated to the supermarket industry.³³

In order to ensure that production processes and farm produce conform to their requirements and that produce is delivered on time in sufficient quantities, agribusiness TNCs or their specialized procurement agents form a contractual relationship with their suppliers, sometimes referred to as a system of preferred suppliers.³⁴ Under this arrangement, the agribusiness firm "lists" suppliers and commits to purchasing certain produce from them. The benefits that "listing" brings to farmers (suppliers) can be considerable. It provides a guaranteed market, and, if stipulated in the contract, at a predetermined price. Contracts with transnational supermarket chains, which dominate the most dynamic segments of the food retail industry, are likely to offer potential for further growth. In addition, the range of produce required by supermarkets tends to involve more intensive use of labour, thus enabling family-run farms a fuller use of household labour.

Although there can be enormous potential benefits to contracted farmers, they also face considerable hurdles in meeting their obligations as suppliers. Controlling the quality and attributes of

farm produce, for instance, requires management of production through the use of fertilizers, pesticides and other systems that protect the crops from variability in natural conditions (e.g. irrigation systems and greenhouse). Thus suppliers to agribusiness TNCs need to have the capability to manage a modern business operation effectively. In addition, assuring quality and safety of foods is based on the principle of traceability, which requires farmers to maintain detailed bookkeeping records. Farmers may also need to adopt the technologies required for packaging and bar-coding. Finally, unlike selling directly through more traditional markets, delivering to supermarkets may not result in immediate payments, since some chains operate a long-term payment system. Thus the ability to manage financial flows, including obtaining credit, becomes an essential part of running a farm. It is evident that managing such a capital- and knowledge-intensive operation requires a high degree of technical and managerial expertise on the part of the farmers.

Even those farms that succeed in establishing themselves as suppliers to agribusiness firms face a number of challenges. For instance, as mentioned above, farms need to make considerable investments to modernize operations and adapt farming patterns and practices to meet the requirements of agribusiness TNCs. Moreover, although farms might enter into a contractual relationship with the companies voluntarily, over time it becomes difficult for them to exit the relationship, given the considerable fixed investments they will have made. Thus these farms may become dependent on agribusiness firms, which weakens their bargaining power (Watts, 1994). The problem is especially acute in countries where agribusiness industries are concentrated in a few large firms (section B.6).

There are also possible broader negative consequences. For instance, the procurement practices of agribusiness TNCs, based on enforcing standards and establishing a system of preferred suppliers, are likely to induce structural changes in agriculture in favour of larger, more capital- and knowledge-intensive farming operations, to the detriment of small-scale farmers. Further, farmers who succeed as suppliers are often those who are willing to concentrate on the production of a smaller variety of crops to facilitate screening and monitoring, hence improving farmers' links to markets and income prospects, but at the cost of crop variety. In addition, standards may specify a number of conditions for seeds, which could limit farmers' choice of seed suppliers. Given the increasing dominance of a few TNCs in the seeds market, there are concerns that such a requirement further weakens the bargaining position of farmers vis-à-vis seed suppliers (section B.6).

c. Agribusiness TNCs' supply chains and the decline of small farmers

Not all farmers are in a position to benefit from the increased presence of transnational supermarket chains or food processors in their countries' markets (box IV.11). Small-scale farmers in remote areas are particularly ill-equipped to cope with the changing nature of the value chain. For produce that commands premium prices, such as fruits and vegetables, supermarkets expect crops to be harvested and delivered fresh, perhaps on a daily basis, which implies that the farms need to be situated in areas where transport and logistics systems are reasonably well developed. Similarly, for commodities characterized by a low value per unit of volume, such as wheat and soya, adequate infrastructure that facilitates transportation of large quantities of goods is essential.

For farmers who fail to meet the requirements of agribusiness firms, market conditions could become increasingly difficult. Experience in Latin America, where supermarket retailing is more developed than in other developing regions, suggests that supermarkets and specialized procurement agents are increasingly dominating the food marketing industry in urban areas, marginalizing small traders, spot food markets and neighbourhood stores. As a result, alternative outlets for those small farmers who fail to meet the requirements of supermarket chains could diminish (Dolan, Humphrey and Harris-Pascal, 1999; Reardon and Berdegue, 2002).³⁵

Evidence from dairy industries in Argentina and Brazil shows that smaller producers who did not meet the threshold scale of operation required for supplying retailers, mainly TNCs, have exited the industry or operate in the informal sector. In that

sector they serve local markets where there are no formal standards and control systems and taxes are not paid, thus allowing them to charge a lower price (Farina et al., 2005). Others have found employment as labourers in larger operations. Partly in response to such trends, and in order to sustain the viability of small-scale farming, donors, non-governmental organizations (NGOs) and public sector institutions have been taking a closer look at the role of producer organizations. One course of action has been to assist the formation of cooperatives and other forms of producer organizations (chapter V).

5. Foreign-market access and exports

Various trade barriers and subsidies in developed countries limit the scale and scope of agricultural exports from developing countries (chapters III and V). In addition, the proliferation and increased stringency of quality and safety standards (section B.4) has become a source of concern among some developing countries, as these standards are perceived by them as a barrier to their agricultural exports (Unnevehr, 2000; Garcia-Martinez and Poole, 2004). Against this background, what role can TNCs play in helping developing countries access foreign markets and enhance agricultural exports?

In agriculture today, TNCs have only limited involvement in the production of agricultural commodities exported from developing countries, focusing instead on downstream operations (chapter III). While several developing countries have acquired and/or developed the capabilities and technologies needed for successfully exporting their agricultural products – traditional or newer, high-value ones – many others have not. In such circumstances the role

Box IV.11. Do agribusiness TNCs procure from small-scale farmers?

In general, agribusiness TNCs avoid dealing with small farmers, as this is often very costly. But the profitability of a supply network depends on the market conditions. The price at which the agribusiness firm can sell its output in relation to the cost of procurement is the overriding factor. In addition, the availability of large-scale farmers and competition from rival firms for the sourcing of farm produce are important considerations.

The experience of dairy farmers in Latin America has received much attention in the literature, as indicative of the plight of small-scale farmers in modern supply chains. In Brazil for example, it is alleged that the procurement practices of Nestlé, along with other large dairy processors, were responsible for driving as many as 60,000 small-scale dairy farmers out of business in the period 1997–2000. Nestlé alone is reported to have shed 20,000 farmers from its

Source: UNCTAD.

supplier list during this period (Farina, 2002). Other studies on small-scale farmers suggest that the scale of operation is not necessarily the determining factor, but it still seems essential for small-scale farms to be well capitalized in order to succeed (Reardon et al., 2005).

It is not surprising, therefore, that the development community has aroused concern. Globally, however, evidence on this issue has been mixed, suggesting that TNCs' procurement strategies vary widely depending on the market conditions. In economies where large-scale farmers are rare, agribusiness TNCs have no choice but to procure from a large number of small-scale farmers. For instance, in contrast to the experience in Latin America, Nestlé in Pakistan sources half a million tonnes of milk a year from more than 135,000 small-scale dairy farmers through milk delivery points in 2,000 villages.

of TNCs—international trading companies, processing companies and supermarkets—in helping to increase the competitiveness of agricultural exports of many developing countries should not be underestimated.

Many developing countries possess comparative advantages (based on factor endowments and costs) in agricultural production. However, these advantages are a necessary but not sufficient condition to initiate, sustain and increase exports.³⁶ Many other conditions are needed, such as producers' responsiveness to export opportunities, knowledge of changing consumer preferences, and established brands in the case of differentiated products. The potential contribution of TNCs to agricultural exports consists of providing the missing ingredients so as to allow countries to exploit their comparative advantages. TNC involvement can help them exploit static comparative advantages (in traditional standardized commodities and products), and also in a number of cases the development of dynamic advantages (in higher value added products). At the same time the risk of becoming over-dependent on these companies for exports is a crucial consideration.

TNCs can have large internal (intra-firm) markets, accessible only to their affiliates or associated firms. They also control or have access to large markets of unrelated parties, and can therefore influence the granting of trade privileges in their home (or third country) markets. TNCs dominate international markets for some agricultural products and a large part of international trade in those products is intra-firm trade, which makes access by independent producers difficult, if at all possible. Furthermore, some TNCs have established brand names and distribution channels with supply facilities spread over several national and international locations. This makes it difficult for developing-country firms to gain physical access to international marketing and distribution channels to consumers. The strong TNC domination of market access to developed-country markets is particularly evident in classical cash crops such as coffee, where international trade and the value chain in general are dominated by a handful of international trading houses and roasters (box IV.12 illustrates an interesting exception to this general tendency).

Box IV.12. Bypassing established coffee value chains: not easy but possible

For the bulk of globally traded coffee, international trading houses and processing TNCs ("roasters", such as Eduscho, Lavazza, Jacobs Suchard, Tschibo and Nestlé) buy green coffee beans in coffee-growing countries and the role of developing-country participants in the value chain usually ends there. One of the main reasons is that coffee sold to final consumers is generally a branded product. Developing a coffee brand (or any brand) and successfully nurturing and marketing it in intensely competitive markets is very costly and risky. It also requires a continuous, large supply of consistently high-grade coffee. Attempts by developing-country enterprises to develop own brands, and thus circumvent the value chain by eliminating intermediaries, more often than not have failed. But there have been some successes, often in some form of association with TNCs.

One way of shortening the coffee value chain is to use fewer intermediaries (notably international trading companies) and develop own brands. This is not easy, but there are very few global coffee brands that are owned by coffee producers. A recent example of a "shortened value chain", whereby developing-country producers sell coffee directly to developed-country markets, is the company, Juan Valdez Café from Colombia. Run by the National Federation of Coffee Growers of Colombia, a non-profit organization, the company has successfully

capitalized on the good reputation of Colombian coffee, particularly in the United States.^a

Another way to sidestep existing value chains is to develop niche products such as organic coffee, if necessary in partnership with TNCs and/or with the support of development agencies. An example is the cooperative of the Indigenous Peoples of the Sierra Madre of Motozintla (ISMAM), which represents over 1,500 indigenous smallholder families who grow organic coffee at high altitudes in Southern Mexico. ISMAM formed a partnership with German coffee roaster Niehoff and a French importer Schorn SA in late 2002, each partner holding a stake of one third in the venture.^b

An often neglected aspect is that some TNCs specialize in providing a wider range of services to (potential) exporters based on management contracts. For example, ED&F Man, a Swiss-based TNC with affiliates operating in 16 of the top 20 coffee-producing host countries, provides farm management services in Kenya through its affiliate, Coffee Management Services. The services include financing, farm inputs, accountancy services, feasibility studies (e.g. environmental and social assessment studies), marketing, certification compliance and farmer training.^c In addition, it uses the latest research and technology to assist farmers in accessing international coffee markets.

Source: UNCTAD, based on Krüger and Negash (2009).

^a See: www.juanvaldezcafe.com, www.juanvaldezcafe.us/Locations.asp, and Roldán-Pérez et al. (2009).

^b See: www.farmingsolutions.org.

^c See: www.coffeemanagement.co.ke.

a. Trading TNCs and exports of traditional agricultural commodities

Historically, in agricultural commodities such as coffee, cocoa, tea, sugar and bananas, TNCs from developed countries were involved in exporting from developing countries. In many cases they owned plantations and farms for producing and exporting these products. In other cases, specialist traders bought produce from agricultural TNCs and sold it in international markets. Even today, their significant role as intermediaries in trade in traditional agricultural commodities (UNCTC, 1983) has not changed much. Although TNCs have become less important players in agricultural production in developing countries in recent decades, they remain entrenched in trade (chapter III).

For example, coffee trading TNCs purchase the commodity from host countries' farmers through spot market transactions, but also through contractual arrangements, such as contract farming which entails a degree of participation in agricultural production. Contracts seek to guarantee the supply of and demand for coffee – usually raw or semi-processed. They typically stipulate the quantity, price and quality of coffee and distribute risks between the contracting parties. These contracts help farmers receive from TNCs goods and services which are necessary for efficient export production. In turn, the TNCs receive coffee, usually raw or semi-processed, and process it further. The TNCs are responsible for marketing and managing the whole operation.

Some trading TNCs from developing countries have acquired knowledge, capabilities and experience, permitting them to successfully compete in international markets with traditional TNCs from

the North. In addition to trade intermediation, which remains an important function, they have evolved into global supply chain managers. In many host countries, developing-country trading TNCs have become major players in export-oriented and domestic agriculture. They help generate, sustain or increase exports by providing the necessary ingredients, and occasionally help those countries exploit their comparative advantages or upgrade their existing advantages (box IV.13).

b. TNCs and exports of non-traditional agricultural products

The most dynamic part of agricultural trade has been the trade in higher value, non-traditional products, such as vegetables and cut flowers. Developing countries are taking a rising share in global exports of these products. It has enabled a number of these countries to diversify away from stagnating traditional commodity exports towards higher value agricultural exports, for which the demand is rapidly growing.

Non-traditional products are easier to export as they have not been as adversely affected by trade barriers. But at the same time, their export markets are very demanding in terms of quality, volume, delivery conditions and timing, which puts pressure on developing-country producers and exporters. Most of these products are exported for sale to developed-country consumers, and market access is almost entirely controlled by companies from developed countries. Indeed, international markets for non-traditional agricultural products are essentially driven by TNCs – supermarket chains and processing companies – which control and coordinate

Box IV.13. The role of TNCs in upgrading Africa's exports of cashews

African countries account for one third of the world's raw cashew nut crop, but less than 3% is processed (and consumed) in Africa. Their inability to process cashews is due to many factors related to the farming process, lack of capabilities and government policies. Labour costs in Africa are high, compared to those in India and Viet Nam, and labour regulations do not address specific industry requirements. Selling processed cashews would require the ability to access markets and, in the case of Africa, overcome the unfavourable reputation of African kernels. Government intervention, such as setting minimum prices for farmers, charging export duties and not permitting traders to buy directly from farmers, has often been misplaced and undercuts export competitiveness. In extreme cases it has had an adverse impact on existing exports and on the very farmers it was supposed to help.

Source: UNCTAD.

Olam, a Singapore-based TNC, is a leading trader of cashews in the world. For two decades, it has exported raw cashew nuts from Africa for processing by independent agents or by its own processing affiliates in Brazil, India and Viet Nam. In 2003, Olam started a programme of local processing in a number of African countries to upgrade their exports. It built processing factories in Côte d'Ivoire, Mozambique, Nigeria and the United Republic of Tanzania. In 2008, together with a few partners, Olam started a five-year plan aimed at increasing productivity and processing capabilities in Africa. A project in Côte d'Ivoire focuses on improved farming and post-harvest practices. In the United Republic of Tanzania, with the help of the Government and funding from USAID, Olam participates in a programme aimed at increasing yields, and the productivity and incomes of small farmers. As a result, exports of processed kernels from Africa have taken off.

international agribusiness supply chains. These TNCs have therefore been instrumental in increasing and diversifying developing-country agricultural exports towards higher-end products. They have provided the necessary ingredients for boosting agricultural competitiveness, thus helping several developing countries to shift from static to dynamic comparative advantages in agricultural exports, as illustrated by the development of horticultural exports in Kenya.

Initially Kenya had few skills, technology, processes and, most importantly, knowledge of, and access to, foreign markets, where demand for fresh vegetables and cut flowers has been growing rapidly.³⁷ TNC participation in Kenya's horticulture industry has helped boost exports and secure market access. In Kenya's exports of vegetables to the United Kingdom, for example, supermarkets play an important role: they accounted for three quarters of Kenya's fruit and vegetable sales in the United Kingdom in the second half of the 1990s (Dolan and Humphrey, 2004). The necessity of creating and enforcing standards and related activities, driven by consumer needs in the United Kingdom, has led supermarkets and importers to establish instruments of coordination and control, which resulted in the upgrading and transformation of the horticulture industry in Kenya.

However, while TNCs can support developing countries' efforts to exploit their dynamic comparative advantages in agricultural production, such support varies by country and commodity. Furthermore, an over-reliance on corporate supply chains can breed dependence on TNCs. For example, a negative side of the entry of the Kenyan vegetables into international markets is that smallholder production is less viable in a vertically integrated international industry structure serviced by large-scale production units. The few Kenyan players large enough to provide vegetables at the prices, standards and time schedules required by international supermarkets are largely locked into these retailers' supply chains (at least in the short run). At the same time, small firms become detached from such chains (Dolan and Humphrey, 2004). Reliance on TNCs for access to foreign markets is therefore a double-edged sword.

6. Competition and market power

Issues of competition and market power concern all stages of the value chain. Salient issues can differ depending on the specific agricultural markets, ranging from traditional smallholder production of basic foodstuffs to production of non-traditional agricultural export commodities like cut flowers. In any case, TNC entry into agricultural production can have important consequences for competition and market power in the relevant product and factor markets.³⁸ Its impact in these respects

should be seen in the context of the general tendency of TNCs to participate in markets that have a relatively high degree of concentration. This has been attributed to the technology intensity of the markets, which can result in high capital intensity, and the demand for differentiated products (potentially the result of branding). Both can prevent new market entries and lead to market imperfections that allow TNCs to capitalize even more on their technological advantages (*WIR97*).

The relationship between concentration, competition and efficiency of agricultural commodity markets can be a complex one. Market concentration (i.e. large market shares held by a few participants) should not be considered necessarily equivalent to low competition and "the ability of a firm, or a group of firms acting jointly, to raise (or decrease) and profitably maintain prices above (or below) the level that would prevail under competition for a significant period of time" (UNCTAD, 2008d: vi). Even a situation of a few competitors and high market concentration can be consistent with a high level of efficiency, for example through economies of scale and fierce competition among the few. Nevertheless, markets highly concentrated on the buyer or seller side offer opportunities for market power, and abuses thereof.

In agricultural production, TNC entry can result in higher market concentration, but only in the case of commodities where the tendency of TNCs to use highly mechanized, capital-intensive agricultural production techniques may render smallholders uncompetitive. For many agricultural commodity markets, the sheer size of TNCs and their technologies and strategies can mean an "industrialization" of production. This is no more evident than in the extreme case of livestock: "Three quarters of the world's chicken, two thirds of the milk, half of the eggs and one third of the pigs are produced from industrial breeding lines" (Gura, 2008: 2). In fact, large-scale production is already a part of developing countries' agriculture, and is growing; but for most countries and most products this is not yet the dominant form of production, nor is it likely to be in the near future (Hazel et al., 2006).

Production technologies in some agricultural industries like sugar are particularly unfavourable for producers in terms of market power distribution, with a large number of farmers selling to one (or only a few) processors. In some industries, and in a number of countries, TNCs have established monopsonies, as in the case of sugar.³⁹ However, this relationship is not at all dependent on the processor being part of a TNC or not; and there are potential differences, as TNCs frequently copy the operation model used in the home country. This often makes them more efficient, but at the same time more responsive to the needs of their suppliers, as they are commonly under

observation from their home country for their good behaviour. The sugar market is a typical example, where producer associations and State intervention have been instrumental in securing greater benefits for producers by reducing the market power of TNCs (chapter V).

Market power as a result of TNC participation can be very strong, but its abuse is hard to prove. In many countries, production and marketing of a number of agricultural commodities were previously regulated through forms of marketing boards until the late 1980s and early 1990s. Thereafter, deregulation and liberalization in many developing countries led to the weakening of “aggregated producer power”. The power asymmetry on these markets was further skewed by an increasing concentration at the buying end (trading, processing and retailing) of many agricultural commodity value chains, frequently dominated by TNCs. The coffee and cocoa value chains are good examples, with only a few companies sharing most of the market.

The most concentrated stage of many agriculture-based value chains is international trading. Concentration at that stage is often blamed for the growing price difference between global and domestic markets. The significant role of international trading companies (all TNCs) has not changed much since the late 1970s (UNCTC, 1983); indeed, in a number of products it has even increased, leading to a higher degree of concentration and thus market power of TNCs in these markets. It is at this stage in the value chain that economies of scale and the know-how of TNCs (the traders) seem to be the crucial competitive advantages over newcomers, which guarantees their continuing dominance. High and increasing concentration, and therefore the market power of transnational trading companies, is considered a major reason behind the growing difference between world and domestic prices (that is, developing-country exporters’ f.o.b. prices) of such products as wheat, rice and sugar. This difference more than doubled between 1974 and 1994. It is generally believed that when an industry’s four largest companies’ combined market share exceeds 40%, “competitiveness [of markets] begins to decline, leading to higher spreads between what consumers pay and what producers receive for their produce” (World Bank, 2007: 136).

Examples of high concentrations are found in many agribusiness value chains. In the coffee industry, for example, international trading companies and roasters intermediating between some 25 million farmers and 500 million consumers have a share of 40% (for the largest four players in trading) and 45% respectively.⁴⁰ The share of revenues of major coffee producing countries in the retail price at destination declined from one third in the early 1990s to 10% in 2002, while the sales of coffee doubled.

Similarly, in the cocoa market, concentration ratios of trading companies, cocoa grinders and confectionary manufacturers range from 40% to 50% (World Bank, 2007).⁴¹

Similar developments have been reported for other commodities like sugar, grain, tea and flowers. Consequently, developing countries’ claims on value added fell from around 60% in the early 1970s to less than 30% in 1998–2000 (World Bank, 2007).⁴² However, the declining shares of farmers in retail prices can also be due to changes in processing and marketing. Before jumping to conclusions of abuse of market power, it is therefore necessary to determine if the respective cost structure has changed in the downstream stages of the respective value chains. To date, the few attempts to attribute downward movements in the producers’ shares of retail prices to rising TNC market power have not been successful (Gilbert, 2008).

Contract farming arrangements offer opportunities for the abuse of asymmetric power relations. This arises from the way TNCs – particularly trading firms – engage with smallholders, which gives the former more influence in determining the production method and other quality-determining factors. The unequal distribution of market power in such arrangements can produce some very undesirable outcomes. It has been argued that the bargaining power between TNCs and contract farmers is so unevenly distributed that abuses occur regularly (Singh, 2002; Kirsten and Sartorius, 2002).

Beyond individual segments of the agribusiness value chain, a few very influential alliances of TNCs have emerged which span various upstream and downstream stages of respective value chains. The three most advanced alliances of this sort are alleged to be Monsanto/Cargill, ConAgra and Novartis/ADM (Archer Daniels Midland). As agglomerates of vertical activities related to agricultural production, they encompass seeds and chemicals, processing, packaging and trading activities, and for more than one commodity (Bruinsma, 2003). This situation, if empirically and analytically confirmed, is qualitatively different from concentration within a single industry that has been relatively common in the past few decades. The global supply of proprietary seeds and agrochemicals is controlled by only a few TNCs. For instance, the top four seed TNCs control 53% of the global proprietary seed market: the leader – Monsanto – accounts for 23% of this market (ETC Group, 2008).⁴³ This strong power of big TNCs in some chains, such as that for soya (box IV.14), raises concerns about how much room is left for competition, for consumers’ choices and for independent farmers in the respective markets.

In the face of large TNC buyers, producer organizations can bundle “producer power” as a way

to mitigate power asymmetries. More direct linkages between consumers and producers can also help by “short-circuiting” the channels that some TNCs control, as in the case of fair trade. In addition, fair trade organizations have created a mechanism by which consumers can choose to pay a premium in support of farmers – a growing trend, but from a small base. For instance, fair trade coffee accounts for very little of globally traded coffee, estimated at 1–2% in 2002,⁴⁴ but growth rates from this low level are high (United Kingdom, DFID and ODI, 2004; IISD, 2008). The fair trade system helps distribute the higher revenue to the producers, and evidence suggests that this mechanism strengthens agricultural cooperatives (Milford, 2004). However, only a limited number of farmers in developing countries are part of related certification schemes.

In the light of existing evidence, the emerging picture of competition, concentration and power distribution in agricultural commodity markets in which TNCs play an important role, especially in processing and trade, seems to be unfavourable for producers in developing countries. The high level of concentration at the downstream end of agribusiness value chains vis-à-vis an often atomized group of sellers (farmers) suggests the prevalence of a highly unequal distribution of market power that should

be addressed by host-country governments and development partners to avoid the abuse of that power. Various measures are available to host countries to counter excessive market power (chapter V).

7. Implications for the host economy

The overall effect of TNC participation on agricultural production depends on the interplay between beneficial and adverse effects of their involvement in the various interrelated areas of impact discussed above. It has generally increased the income of domestic farmers, who are either directly employed by foreign-invested plantations, or involved in contract farming schemes operated by foreign affiliates. In any particular case, there can be negative outcomes in some aspects of agricultural production (e.g. job losses) and positive ones in other aspects (e.g. improved productivity). The result is context-specific, varying by type of product, the mode of TNC involvement, and host-country characteristics, especially the policy and institutional environment. Beyond its effects on various aspects of agriculture, the involvement of TNCs in agricultural production has various broader economic implications for host developing countries.

Box IV.14. The soya value chain: domination of a few TNCs

The global trade and processing of soya beans is concentrated in only a small number of TNCs, which are involved – directly or indirectly – at each stage of the soya value chain through financing, partnerships and/or ownerships. They therefore control key elements of production, processing, trading and marketing.

The first part of the soya value chain (i.e. input provision) is dominated by a handful of TNCs. Monsanto’s near monopoly position in GM soya bean seeds gives it a dominant position as a seed and agrochemical supplier to soya farmers. Thus, while GM soya beans were used on almost 60% of the total area worldwide under soya bean cultivation in 2005, Monsanto’s biotech seeds and traits accounted for almost 90% of the worldwide area planted with GM soya bean seeds.^a

Corporate farming of soya by TNCs has been very limited, although a number of cases have been reported recently. In countries like Paraguay and Uruguay, foreign individual farmers, entrepreneurs and investors have migrated from neighbouring countries (Argentina and Brazil) and have played a major role in the development of soya farming. Nevertheless, transnational trading companies have a significant

influence on the farming stage of the value chain through the provision of credit and inputs to farmers.

In the trading stage of the chain, four TNCs dominate world trade in soya beans (as well as many other commodities): ADM Co. (United States), Bunge Ltd. (United States), Cargill Inc. (United States) and Louis Dreyfus Group (France).

Traders provide resources to farmers, to ensure the supply of soya and other agricultural materials for their agribusiness operations and for stages of the value chain in which they are also important actors, such as crushing, processing and manufacturing. ADM, Bunge, Cargill and Louis Dreyfuss control 43% of crushing capacity in Brazil and almost 80% in the EU (Dros, 2004). In Paraguay, Cargill distributes seeds to farmers, runs the country’s largest soya bean processing plant and buys 20% of the soya beans produced.^b Trading TNCs have also invested heavily in crushing capacity in the major soya-importing countries. Besides the four main soya trading TNCs that control almost 80% of crushing capacity in the EU, in China, for instance, foreign companies (such as ADM, Bunge and Cargill from the United States, and Wilmar from Singapore) control about 40% of crushing capacity.^c

Source: UNCTAD.

^a See: “Monsanto’s soybean monopoly challenged in Munich: European Patent Office will decide fate of species-wide soybean patent on 3 May 2007”, News Release, ETC Group, 30 April 2007 (www.etcgroup.org).

^b See: “Soybean fever transforms Paraguay”, *BBC News*, 6 June 2005.

^c See: *The Economic Observer Online*, 13 March 2009 (www.eeo.com.cn) and “China seeks to calm anger over soy imports”, Reuters, December 11, 2008 (www.reuters.com).

Linkages. TNC activities in agriculture can have linkage effects beyond the industry, which contribute significantly to growth and development. They include interactions with suppliers (backward linkages), with customers (forward linkages) and with others that are not part of agribusiness value chains. Backward and forward linkages between foreign affiliates in agricultural production and domestic firms can lead to the emergence of new economic activities in manufacturing and services, strengthen domestic enterprises, and promote the diversification and growth of the overall host economy. There are successful examples in a number of developing countries.

In Uganda, for example, TNC involvement in coffee, floriculture and fishing has led to *backward linkages*, and therefore to the development of domestic industries that supply goods or provide support services to foreign affiliates (Nsonzi, 2009). In Brazil, domestic enterprises that have benefited from *forward linkages* as a result of TNC involvement in the production of sugarcane include manufacturing firms using milling by-products or outputs, animal feed factories, soda and confectionary firms, and biofuel and energy producers and distributors (Neves, Pinto and Conejero, 2009). In some cases, the initial stages of processing of some commodities are retained in the home country.⁴⁵ Such forward linkages can be especially valuable as a first step in agriculture-led industrialization and upgrading of value chains, with larger shares of the overall value added remaining in developing countries.

In Kenya, floriculture has benefited from an additional synergy with the tourism industry through air transport, which is a key service provider to both floriculture and tourism. The existence of a vibrant tourism industry, with air connections to Europe several times a day that had excess capacity on the northbound leg of the journey, helped support the flower industry before it reached the critical mass to be able to charter whole cargo flights (World Bank, 2005).

Infrastructure development. TNCs' investment in infrastructure facilities to support their agricultural projects can benefit farmers in connected locations and promote rural development in general. For instance, roads built as part of an agricultural project could, in addition to supporting TNCs' activities, help other farmers get their crops to the market, and also facilitate local business and social activities. In Mozambique, for example, Companiha de Sena S.A.R.L. (a sugar plantation rehabilitation project undertaken by a Mauritian investor) has contributed to local infrastructure development, including transport infrastructure, water supply, electrification of a village, and upgrading of a school and hospital in that village.⁴⁶ Implications for the host country go

well beyond economic ones, as infrastructure, such as roads, electricity or water, brings important benefits in terms of improving accessibility and quality of health, education and other social services (UNECA, 2007). Therefore, these are important considerations for governments when signing contracts or negotiating for large-scale investments in agriculture with TNCs, sovereign wealth funds, or other new investors.

Fiscal revenues. Evidence is scarce and inadequate to conclude that direct fiscal effects from FDI or other forms of TNC participation in agriculture might be sizeable. However, one specific benefit of TNC involvement in agriculture might be the formalization of parts of otherwise largely informal economies. This can be true for businesses related to TNCs (i.e. suppliers), especially because the process of standardization leads to the measurement of all aspects of production, costs and revenue, which make it possible for the government to collect taxes. It can also apply to workers employed by TNC affiliates (and probably even to contract farmers) who hold jobs in the formal sector and therefore are obliged to pay income tax. Importantly, the use of enhanced fiscal revenues should not be neglected: they enable governments to establish the foundations for wider development and modernization, be this through social and physical infrastructure, investment in enterprises or other measures.

Balance of payments. Problems with insufficient generation of foreign exchange through trade make the external macroeconomic balance a challenge for many developing countries. How and to what extent FDI and other forms of TNC participation in agriculture contribute to the generation of foreign exchange earnings, or have the opposite effect, is thus important for a number of developing countries' growth prospects. On the one hand, there is the implicit assumption that, more often than not, because of their involvement in global agribusiness value chains, TNC activities in agriculture will have a strong positive balance-of-payments effect, as much of the output tends to be exported (section B.5). This applies to both traditional and non-traditional export crops, such as coffee, tea, cocoa, bananas and cut flowers. In addition, for some crops, such as sugar, there can be significant import substitution effects that are frequently intended and observed.⁴⁷ On the other hand, expenditure on imported inputs can substantially water down the level of foreign exchange generated. TNCs in agriculture frequently use production techniques that are highly dependent on more sophisticated inputs. This could even turn the overall balance-of-payments effect negative, particularly if there is an intention to sell the produce locally.

Another issue concerning the balance of payments is that many developing countries –

including least developed countries (LDCs) – are highly dependent on one or a few agricultural commodities for the bulk of their export earnings, and thus face considerable risk in terms of demand and price volatility.⁴⁸ On the other hand, when properly managed, agriculture offers some countries options for diversification beyond their heavy dependence on extractive industries (*WIR06*),⁴⁹ and, with TNC participation, it offers additional options for diversification beyond the traditional choices of manufacturing and services. Each case needs to be carefully evaluated to find appropriate commodities with strong long-term prospects, whose prices are, ideally, not highly correlated to prices of currently extensively exported goods. For instance, TNCs in dynamic agricultural industries such as horticulture (section B.5) offer opportunities for diversification.⁵⁰

C. Broader implications

The implications of TNC involvement in agricultural production for host developing countries extend beyond agriculture and the wider economy. There are concerns about their environmental, social and political repercussions. This section examines some aspects of these broader implications and, in the case of food security, also considers the implications for developing home countries.

1. Impact on the environment

In agriculture, as in other industries, the impact of TNC activities on the environment is an important aspect of their overall effects on sustainable development in host countries. Agriculture and the natural environment are closely intertwined. Farming has contributed over the centuries to creating and maintaining a variety of semi-natural habitats (European Union, 2003). However, production activities in agriculture, like those in other industries, can also harm the environment through their damaging effects on air, water, soil and biodiversity (chapter III). Mitigating the adverse effects and strengthening the positive interactions with the environment, including climate change,⁵¹ are increasingly considered an important part of countries' efforts to promote sustainable development.

The environmental impact of TNC participation in agricultural production depends on a number of factors, including: the specific crop or activity in which the TNCs are involved, the production technologies they use, their scale of operations, their management strategies and practices, and host-country and international rules and regulations with respect to the environmental impacts of production activities in agriculture. Given that agricultural production inevitably has some

negative effects on the environment, the question is whether TNC involvement reduces or accentuates those effects. It is unlikely, especially in the light of the location-specific factors driving TNC activities in agriculture, that TNC involvement in developing countries' agricultural production reflects shifts of pollution-intensive activities from home to host countries.⁵² However, the nature and scale of many of the production activities in which they are involved make the question of their environmental impact particularly relevant.

In terms of transferring and disseminating technologies in support of sustainable agriculture development in developing countries, TNCs have played both positive and negative roles. In the cut flower industry, for example, foreign-owned farms introduced environment-friendly farming technologies such as the use of geothermal steam to fight fungal diseases and the introduction of integrated pest management systems (Wee and Arnold, 2009). In the banana industry in the late 1980s and early 1990s, the technologies used by TNCs caused some environmental problems (see discussions below). Since the late 1990s, TNCs have adopted increasingly environmentally sustainable practices in their plantations. In particular, organic planting technologies and standards introduced by them have contributed to more value creation and higher income for farmers (Liu, 2009).

Research and information on the environmental aspects of TNC involvement in agricultural production activities in host developing countries is limited. However, there are a few studies that provide some insights into the environmental impacts and implications of their evolving practices in a few specific areas of agricultural production.

Banana plantations in Latin America. As noted earlier (chapter III), TNCs have dominated the world banana trade since the early twentieth century through their vertically integrated value chains. In the late 1980s and early 1990s, their intensified use of inputs in the plantations in Latin America gave rise to a series of environmental and labour problems. In 1992, for example, the second International Tribunal on Water in Amsterdam condemned the Standard Fruit Company (now Dole) (United States) for seriously polluting Costa Rica's Atlantic region through its banana operations in the Valle de la Estrella (Arias et al., 2003). In the 1990s, Del Monte, Dole and Chiquita were sued by ex-workers for injuries resulting from their exposure to a nematicide (Nemagon) during the period 1965–1990. The TNCs in the banana industry also came under increasing criticism from NGOs concerned with human rights and environmental issues. That, as well as pressure from shareholders, as the concept and practice of corporate social responsibility became more common (chapter

V), forced TNCs in banana production in Latin America to improve their social and environmental performance (Arias et al., 2003). Market factors, such as oversupply, fierce competition, the pressure of retailers and changing consumer preferences, also motivated TNCs to differentiate products to retain their market share by offering “environmentally friendly” and other types of “ethical” bananas as a means of attracting more consumers.

Environmental standards and certification have come to play an important role in inducing TNCs to turn to more environmentally friendly production methods and practices in their banana plantations in response to growing criticism and environmental concerns. Initially they established their own standards and increasingly are conforming to standards established by outsiders. However, the TNCs embraced environmental certification somewhat reluctantly, because their culture of secrecy made it difficult for them to collaborate with civil society organizations.⁵³ Subsequently, they increasingly came to recognize that certification not only improved their corporate image, but also permitted cost reductions through lower use of inputs, recycling and other factors. Collaboration with NGOs and independent certification programmes has helped reduce criticism of TNCs, but not entirely; their certification initiatives have not yet convinced many critics. They still need to demonstrate real progress towards environmental (and social) sustainability of their banana production operations (Arias et al., 2003).⁵⁴ Moreover, with TNCs starting to produce in a more sustainable manner, the attention of environmentalists has turned to their independent suppliers.

Floriculture in Kenya. TNCs play an important role in export-oriented horticulture in a number of developing countries,⁵⁵ including the growing of flowers and vegetables. In Africa, Kenya is a major host for TNCs in floriculture (section B.5.b).⁵⁶ Nearly 50% of the country’s flower production is estimated to be concentrated around Lake Naivasha, making it the hub of the country’s flower industry. A shallow basin lake situated 80 kilometres north-west of Nairobi in the Kenyan Rift Valley (Becht, Odada and Higgins, 2005), Lake Naivasha is an important freshwater source that supports a rich ecosystem, and is a base for a variety of economic activities that have sprung up over time.

The continuing growth of flower farms around the lake since the early 1980s, and the associated increase in population and unplanned settlements, has caused concern about the capacity of the lake to sustain the increased demand on its resources. It has given rise to disputes between conservationists and commercial growers on a variety of issues, such as the volume of water extraction and the effects of deforestation. These concerns and disputes led to an

initiative to study the lake’s water balance and the water-related environmental impacts of activities in the surrounding area. This initiative was spearheaded by the Lake Naivasha Riparian Association (LNRA), an organization of landowners and others interested in managing the lake and its sustainable development (Becht, Odada and Higgins, 2005).

In addition, the Lake Naivasha Growers’ Group (LNGG), established by the large flower farms, also began to realize that overexploitation of the finite natural resources would damage the entire flower industry. The fact that developing a reputation for environmentally friendly production is an asset in their main European export markets also encouraged the LNGG to become a more active partner in lake management. As a result, it has been working with LNRA on issues such as land tenure, abstraction rates, agrochemical controls and water availability.

The Oserian Development Company (Netherlands) is an example of a TNC in Kenyan floriculture that has adopted a number of improved, environmentally friendly technologies and practices. For example, the company introduced hydroponics to cut back on water usage, and it generates three quarters of the energy it uses from geothermal springs.⁵⁷ Max Havelaar (which awards the Fairtrade label), Oserian’s retailers (e.g. supermarket chains) and a local team (created by Oserian and other local growers) are allowed to inspect the company at any time (Coglianese and Nash, 2001).

Due to pressure from environmental and human rights groups as well as consumer demands, the flower farms in Kenya have been opening up to the public and there is a horizontal flow of information among them (Bolo, 2008). Regular environmental and social audits are conducted to ensure that the farms not only conform to good agricultural practices (GAPs), but also maintain environmental standards and favourable working conditions for their workforce. Compliance is enforced through codes of practice and certification by industry associations such as Kenya Flower Council, Fresh Produce Exporters’ Association of Kenya, Horticultural Ethical Business Initiative, LNGG, LNRA and the Kenya Bureau of Standards. Notwithstanding the positive steps and practices mentioned above, the sustainability of the extensive TNC-led cut flower industry on Kenya’s Lake Naivasha under present conditions has been questioned (Becht, Odada and Higgins, 2005; Loukes, 2008). Some of the concerns arise from the lack of institutionalization of the management plan for the lake and shortage of funds and experts in scientific management.

Soya Beans in Latin America. While the cases of banana plantations and floriculture discussed above throw light on evolving trends in environmental management and the impacts of TNCs operating

directly in agricultural production, the impact of TNCs in downstream and upstream activities along the agribusiness value chain in host countries may also have significant environmental consequences. By influencing the scale of production and the variety and quality of agricultural products, TNCs that supply seeds and other inputs and purchase output for processing and/or distribution can affect land use and other input use and production patterns, and thereby various aspects of the environment. For instance, in the cultivation of soya beans – a major source of animal feed – transnational trading companies and seed suppliers have had a significant influence on the size and nature of farming. Their involvement has led to a major expansion of production and to a shift to large-scale farming in South America. This has raised concerns about the impact in terms of deforestation of the Amazon biome (the Amazon rainforest and its related ecosystems), especially in Brazil, the second largest producer of soya in the world.

The land devoted to soya cultivation currently constitutes only 0.3% of the Amazon biome, and is therefore perhaps a negligible factor in its direct deforestation. However, this could change if the profitability of soya farming continues to increase. Moreover, it can be an important indirect driver of deforestation, mainly by displacing cattle ranching which has been pushed to expand into the Amazon (Verweij et al., 2009). The expansion of soya production has also involved the use of a GM variety of soya (“Roundup Ready” soya), which may have some positive impacts on the environment, because it is resistant to and thus enables the use of glyphosate (known commercially as “Roundup”), a herbicide that enables a no-tilling system of farming thus reducing soil erosion by controlling the serious weed growth that such a system generates.⁵⁸ However, there are concerns that the application of this herbicide may also have environmental and health consequences, and that the GM variety could be potentially damaging to the environment due to the uncertain impacts of the release of genetically modified organisms into nature. More generally, the agrochemicals (pesticides and herbicides) involved in large-scale soy cultivation have raised concerns about their impact on biodiversity and health.⁵⁹ In response to pressure from environmental groups, leading soya processors and exporters operating in Brazil, including ADM, Bunge, Cargill and Monsanto, signed an agreement in July 2006 committing themselves to refrain from purchasing soya from lands that have been deforested in the Amazon biome.⁶⁰ The TNCs mentioned above are also members of the Round Table on Responsible Soy Association that is developing a set of standards for the production and sourcing of socially and environmentally responsible soya as well as a verification mechanism.⁶¹

Overall, there is little statistical evidence from studies on a range of industries to show that foreign firms consistently perform better than domestic ones in terms of their environmental impact in developing countries, especially when firms’ size is taken into account (UNCTAD, 2002b). However, firms in agriculture as well as other industries – both domestic and foreign – appear to be incrementally improving their environmental performance in many parts of the world, primarily in response to effective national regulation and/or community pressure (Zarsky, 1999), but also, as illustrated by the experience with respect to TNCs involved in the specific agricultural crops described above, because of a growing awareness of the benefits of such improvements to the firms themselves.

2. Social effects and political implications

Issues and concerns about the social and political implications of TNC participation in agriculture have a long history (George, 1976; Vallianatos, 2001). First, there are concerns about the involvement of TNCs in the political process of the host country. Second, TNC-induced transformation of agriculture may have an impact on income distribution (e.g. by gender and farm size) and poverty in rural areas in a number of ways. Finally, a range of socio-political externalities can arise, such as the disruption of traditional economic systems, and impacts on health and safety as well as on land rights.

TNCs’ impact on the political process. Concerns about the political involvement of TNCs engaged in agriculture are not confined to instances of blatant interference, such as support for sympathetic regimes or agrarian elites in parts of Latin America or Asia (Burbach, 2008; Franco and Borras, 2005). Lobbying by TNCs may also have impacts that are detrimental to the broader interests of the host country. For instance, the United Nations Special Rapporteur on the Right to Food notes: “As financially powerful lobbying groups, corporations can also exert great control over laws, policies and standards applied in their industries, which can result in looser regulation and negative impacts on health, safety, price and quality of food” (United Nations, 2003). These concerns are particularly relevant in countries where the governance structure is weak. Such lobbying may also take place at the international level. The Special Rapporteur notes that “the FAO/World Health Organization Codex Alimentarius Commission, which sets international standards for food safety recognized by WTO, is criticized by civil society organizations for failing to include the participation of small producers and consumers, and being heavily influenced by the

lobbying and participation of large agribusiness, food and chemical corporations” (United Nations, 2004).

Impact on income distribution and poverty. Commercialization of agriculture can drive small-scale farmers out of the supply chains (section B.4), even while consumers benefit in general, as do farmers who succeed in adapting to the modern supply chain management techniques of agribusiness TNCs. Thus, even though the economy as a whole might gain from TNC involvement, it might exacerbate rural poverty (Berg et al., 2006; Haggblade, Hazell and Reardon, 2009). Clearly, FDI in any industry could have such distributional impacts, but what is of particular concern about FDI in agriculture is that the majority of poor people live in the rural area and could be the worst affected, thus widening income gaps even further. Furthermore, in many developing countries, rural inhabitants exercise less political influence on their national government than urban dwellers, thus attracting less public action to address their problems. Yet it is possible to reduce or even reverse these negative impacts by investing in capabilities (e.g. the skills needed to participate in global, regional and domestic value chains) and facilities in rural areas (Berg et al., 2006; Hoeffler, 2008).⁶²

The distributional impact has a significant gender aspect as well. For instance, traditional retail markets have provided income-generating opportunities for peasant farmers, especially women. The loss of these markets (as discussed in section B.4) would deprive them of their source of income. Women can also lose out more than men through the processes associated with commercialization, often driven by TNCs. For instance, in many countries and cultures there are restrictions on women’s mobility or the jobs they can undertake, or they are denied educational and other rights; in others, women bear the main responsibility for household subsistence (World Bank, FAO and IFAD, 2009b). At the same time, under the right conditions, women can benefit from the involvement of TNCs in agriculture. For instance, in Ghana, the development of an export-orientated value chain in exotic mangoes has given women opportunities to expand their activities into wider distribution channels (Berg et al., 2006).

Furthermore, increased investment in some agricultural industries through TNC participation may create relatively more employment opportunities for women. Commonly, this is in export-oriented products, such as cut flowers and vegetables (Wee and Arnold, 2009; Hurst, Termine and Karl, 2005), though the impact on women – and other workers – is often mixed. In Kenya, women in flower cutting jobs were (and in some cases still are) illegally treated as casual or temporary workers, which reduced their rights and bargaining power, and thereby their incomes and other benefits (UNCTAD, 2008e). Context matters,

but overall, in order to empower women in agriculture – especially where commercialization is rapid and the involvement of TNCs intensive – it is important to strengthen their control over and ownership of assets, ranging from human capital to property rights (Quisumbing and Meinzen-Dick, 2009).⁶³

Socio-political externalities. Socio-political externalities, or unintended consequences, can be both positive and negative. There can be extensive repercussions for the existing social and political order arising from TNC involvement in agriculture and rural communities. This aspect is important, because economic institutions can function only as part of an often elaborate social, political and cultural context. As such, disruption of an existing system due to the transformation of agriculture may have unpredictable consequences, even if it is progressive and benefits the poor in the long run. For example, many rural communities rely on a local system of credit that operates through traditional markets. The loss of those markets therefore disrupts the system of credit, causing financial problems for the communities. A study on a major TNCs’ direct procurement of produce from farmers in Indonesia showed that while traditional credit systems can be exploitative, they nevertheless provide farmers with capital needed for non-farm expenses (Clay, 2005).

Positive externalities can also arise, for instance where the rural community can take advantage of capabilities, facilities or institutions provided or created by TNCs to realize their own objectives.⁶⁴ Rural roads are a good example: communities connected to markets are also able to use the infrastructure for other purposes or objectives, and, importantly, to achieve them faster (Hettige, 2007).⁶⁵ Other examples of socio-political externalities are effects on the health of rural communities, which can be negative or positive. The detrimental effects of agricultural pesticides – often required to be used in the context of TNC involvement, among others – on the health of workers and communities is an important and politically sensitive issue of long standing (Carvalho, 2006). In contrast, some recent research shows that the health of farmers growing organic produce – also induced in many cases by TNCs – is better than that of farmers that use conventional methods (Setboonsarng and Lavado, 2008).

*Land acquisitions and land rights.*⁶⁶ A number of large-scale land deals in developing countries in recent years, both to grow crops for food (e.g. by developing home countries as part of their food security strategies) and for other purposes (e.g. feedstock for biofuels) (chapter III), have prompted protests/vociferous debate over so-called “land grabs” (Hallam, 2009; Smaller and Mann, 2009; von Braun and Meinzen-Dick, 2009). At first sight, such a response is surprising: after all, land is frequently

acquired by foreign investors in developed as well as developing countries. Some companies use the land to establish factories; others need it to create infrastructure facilities such as ports and their hinterland operations; in yet other cases, mining operations are impossible without a certain amount of land for locating extraction activities and housing ancillary activities; and, of course, many agriculture-based companies operate huge plantations and farms. In this sense, the acquisition of land to produce agricultural commodities – food or non-food – for export or local sale, or for inputs within an agribusiness value chain, is not in itself remarkable. Moreover, despite the number of putative deals, there are only a small portion of them that are actually implemented, and they are primarily in the form of leases rather than outright ownership of land (chapter III).

There are, however, two major underlying issues which give credence to the concerns voiced. First, although it may be too early to say what the overall impact of these recent large-scale investments might be, the little evidence amassed thus far – for instance by looking at deals and their aftermath in a few countries in Africa (Cotula et al., 2009) – indicates that host governments have usually not negotiated favourable contracts (due to the weak institutional capacities), the process of negotiation and implementation is normally not transparent (stakeholders' views are seldom solicited or considered) and post-deal compliance structures are inadequate. Under such conditions, it is fair to conclude that the sensitive balance between the positive and negative impacts of TNC participation may well be skewed in favour of the latter. Furthermore, it is important to note that most large-scale land deals take place in LDCs or other poor countries such as the Democratic Republic of the Congo, Ethiopia, Liberia, Mali, Mozambique, Sudan and the United Republic of Tanzania (figure III.14) – countries which are themselves facing severe food insecurity (FAO, 2008c). It is not clear whether large-scale land deals help or hinder food security in such countries (section C.3), a concern which needs to be addressed by appropriate policy measures (chapter V).

Secondly, aside from large-scale land acquisitions, TNC participation in agricultural production – even in wealthier developing economies – has implications for land rights enjoyed by host-country communities. In countries where TNCs are in the vanguard of commercial agriculture, their involvement accelerates the process of reform pertaining to property rights, including those with respect to land. The granting of enforceable rights increases the chances of investment by TNCs and other firms (domestic and foreign), and may unlock the productive potential of land, but it comes at a cost, namely the loss of rights of individuals,

groups and communities if they are not properly compensated (CAPRI, 2006). TNCs are both drivers for land reform and beneficiaries, which creates the temptation for introducing reforms that benefit TNCs, other domestic and private companies and State allies, often with anti-poor consequences (Borras, Carranza and Franco, 2007). Thus, even though land reforms may be essential for the longer term development of a country, it is important that they be introduced in a fair, reasonable and transparent manner (chapter V).

Overall, the social and political impacts of TNCs' involvement in agriculture on host countries, and especially on agricultural and non-farm rural communities can be considerable. There are too many different factors combined to permit definitive or general conclusions. However, the above discussion does indicate that, given the significant impacts, governments need to consider at the outset how best the transformation of agriculture and rural communities can be brought about. This would include ensuring effective linkages of TNCs with communities and examining carefully the resources used and changes created or induced by TNCs to make sure that they are in line with national development goals and trajectories (Haggblade, Hazell and Reardon, 2009).

3. Implications for food security in host and home developing countries

Food security is not simply a matter of ensuring the sufficiency of food crops for a particular population or country. Food security is compromised if, for example, households do not have the income to buy food, or if the infrastructure to transport it to the necessary locations is not available, or if it is not safe to eat. This broader concept of food security is commonly accepted (Pinstrup-Andersen, 2009), and is captured in the FAO's definition, which requires the following conditions to be met: availability of food, access to food, stability of supply, and safe and healthy utilization (FAO, 2008c; figure IV.2). These dimensions are relevant for all developing countries, whether they are host to TNCs in agricultural production or home to such TNCs.

a. Implications for host countries

The implications of TNC participation in agricultural production for host developing countries derive from its various impacts on agriculture and the wider economy discussed in section B and earlier in this section. Given that TNC involvement is not motivated by host-country food security concerns, the impact on food security can be highly variable, not least in terms of the four dimensions mentioned above. Nevertheless, since TNC involvement in

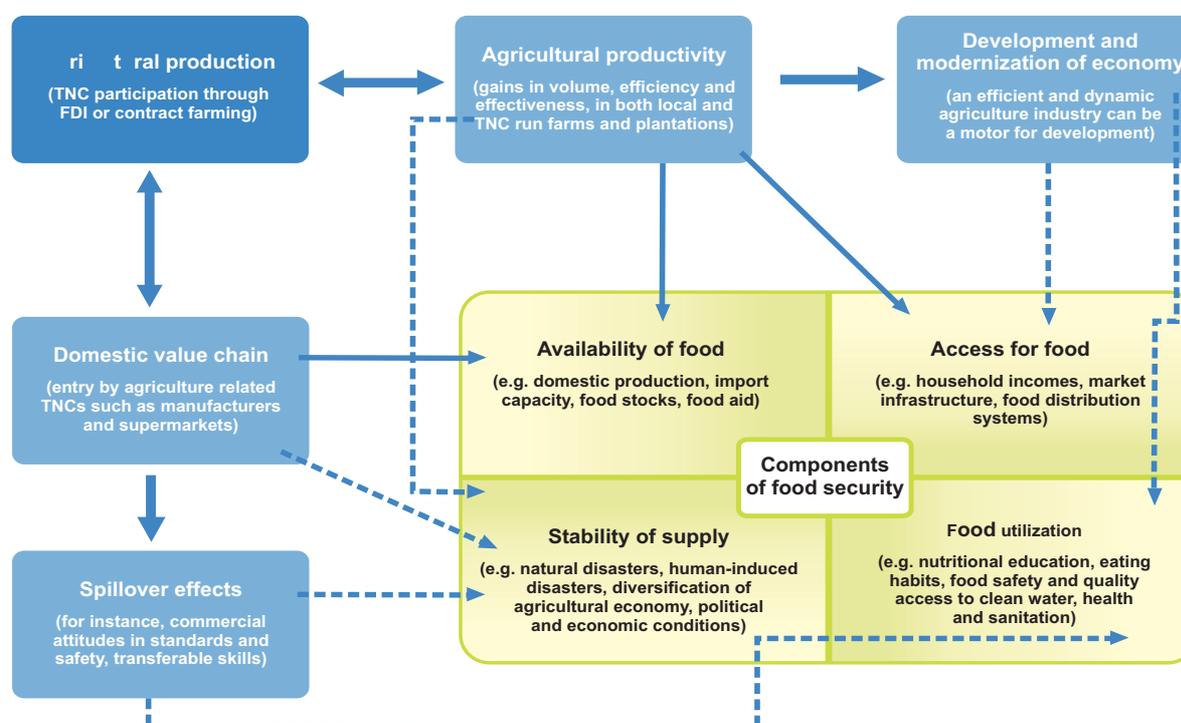
agriculture inevitably affects aspects of food security (figure IV.2) – both positively and negatively – it is important for governments to be aware of the key types of impacts that occur so that they can design their policies appropriately, including establishing conditions under which food security could be enhanced.

Availability of food. The foremost dimension of food security is the domestic availability of food crops, and in this respect TNC involvement in agricultural production is likely to increase the overall volume of production of certain crops. However, much of this production may be for exports (section B.5); moreover, a large share tends to be in high-value-added cash crops which are normally not the staple foods of the host countries concerned (chapter III). In addition, there is the danger that TNC involvement may adversely affect smallholders or other farmers, either through direct competition in product markets (sections B.6) or through alternative uses for land, water and other resources (e.g. by companies involved in biofuel production) (FAO, 2008c) or, indeed, food crops for export, thereby reducing the volume of food supply available for domestic consumption. Dynamically, TNC involvement can have a positive impact on the production of food crops. In particular, learning effects and productivity gains to local farmers (especially through contract farming) resulting from the transfer of agricultural

technology, modern management techniques and knowledge of supply chain management can improve the capacity of local agricultural producers. Under the right conditions, host-country farmers can apply the knowledge they gain to food crops other than the ones they produce under contract to TNCs. Moreover, demonstration effects can bring new producers into agricultural production.

Access to food. As with food availability, the impact on access is mixed. It is possible for a vicious circle to be established, whereby improved productivity can lead to falling employment, lower household incomes for some farmers and a negative effect on the non-farm rural economy (section B).⁶⁷ However, much depends on the overall volume of increase in food and non-food crops and the linkages created, which may maintain income levels. Arguably, the overall issue is one of transition, and how governments manage the process of channelling the productivity gains (be this through TNC involvement or other sources of investment) in order to modernize their agriculture (chapter V). If a more productive agricultural industry can be used to boost the development process – as in Brazil, China and India (Neves, Pinto and Conejero, 2009; Nsonzi, 2009) – then rising urban and rural incomes will improve access to food. Inasmuch as TNCs largely export the crops they produce or contract out, they require infrastructure – whether established by the TNCs

Figure IV.2. TNC participation in agricultural production and impact on food security



Source: UNCTAD.

Note: The line arrows indicate selected immediate and longer term consequences of TNCs participation in a developing country's agricultural industry on food security, through various routes of impact. The dashed arrows indicate that the impacts are indirect and difficult to quantify. In principle the impacts can be net negative or positive, depending to a great extent on conditions and policy.

themselves or by the host government – connecting producing regions to ports. This helps improve access to food for urban areas, and to rural areas as well if there is a shortage which can be resolved through imports or intra-country shipments.

Stability of supply. Apart from the above-mentioned increased agricultural capacity in host countries resulting from productivity increases, TNC involvement in farming and plantations is unlikely to have a direct impact on the stability of food supply. However, depending on the economy, a key beneficial spillover effect on supply stability is the diversification of agriculture, arising from new crops being introduced by TNCs or from the use of knowledge gained by farmers in new fields. However, a contrary effect is illustrated by the danger of monoculture production leading to greater risk from disease and natural disasters (section C.1). Depending on government policies, the entry by agriculture-related TNCs (chapter III), such as manufacturers and supermarkets, into the domestic value chain may lead to enhanced stability of supply. These companies have the ability and motivation to ensure stability of food supply for their customers. For example, in times of shortage, they have both the distribution channels to import food and the financial means to pay for it.⁶⁸

Food utilization. Agribusiness TNCs can introduce higher quality and safety standards and associated practices (such as those related to traceability) to host developing countries (section B.4; Wong, 2009). Their involvement in agricultural production and the domestic value chain has a number of spillovers to local farmers and other companies, such as those related to quality control, food standards and consumption patterns. Thus, for instance, knowledge of food safety and quality standards applied to TNCs' customers, many in developed countries, but increasingly in developing economies as well (Gereffi and Lee, 2009), can spill over into food utilization in poorer countries. However, by the same token, the food consumption patterns of developed-country populations – emulated in developing countries and sometimes induced by TNC entry into the local food chain (as with “fast food”) – can be very unhealthy, in contrast to traditional eating habits (FAO, 2004c; Pimbert, 2009).

b. Implications for home countries

As mentioned in chapter III, a number of developing countries, notably the GCC countries and the Republic of Korea, have recently established or reinforced their national food security strategies through investment in agricultural production abroad, principally targeting staples such as rice and wheat for consumption in their own domestic markets. In

terms of the four main components of food security, their key objective is to ensure stability of supply (especially in view of market volatility and export bans by the principal trade partners). In some cases, a number of countries are shifting production of crops overseas because of scarcity of land and – most importantly – water resources in their own countries (chapter III).

It is too early to determine what the effects of such recent FDI in agriculture will be on developing home countries' food security. However, similar past investments in overseas agricultural production undertaken for food security reasons were mostly unsuccessful, as in the case for the Republic of Korea in the 1960s, 1970s and 1990s, and some GCC countries in the 1970s. One reason was that agriculture is among the most sensitive and thus most regulated industries in host countries; while on the side of the home country, inappropriate policies, inexperience, lack of understanding by investors of local culture and customs, low productivity and profitability of investments contributed to the failures, as in the case of the Republic of Korea. Another problem has to do with the fact that investment return periods for overseas agricultural investment are comparatively long, while the required initial investments can be huge because of the need to develop new arable lands and agricultural infrastructure such as irrigation and transportation facilities (Sung, 2008; Republic of Korea, MIAFF, 2008). The story is similar for overseas agricultural investments by GCC countries. Apart from political instability in the host countries (e.g. civil war in Sudan, a significant recipient of GCC agricultural FDI), financial, technical and institutional problems caused most of these investments to fail. Many of the investors, whether private or State/State-backed, were relatively small and inexperienced, as they are even today. Compared to the magnitude of the food gap in GCC countries, their overseas investments in agricultural production in the 1970s and 1980s remained small: they were seldom little more than pilot projects. Indeed, the heavily subsidized agricultural developments in the GCC countries themselves, most notably Saudi Arabia, led to an explosion of production in crops which far exceeded their overseas production (Woertz, 2009; Nur, 2009).

Although the past experience of developing home countries in overseas agricultural investments for food security does not bode well for the latest wave of such investments, it is worth mentioning that there are significant differences between the investment environment of the past and the present. This may result in a more successful outcome for home-country food security from those investments than from previous ones. First, many home countries see the latest changes in the global agricultural industry

as a sea change from the past, with high prices, shortages and volatility in food crops persisting into the future (e.g. because of competition for the same resources from the biofuels industry). Thus success in these investments is imperative. Secondly, host countries today are generally more open to such investments, thereby reducing risks and increasing the possible benefits arising from agglomeration and scope: more investments in agriculture, including by other TNCs for different reasons, creates the basis for a more effective infrastructure, including linkages with upstream industries. Thirdly, home countries are recognizing that the heavily subsidized domestic agriculture of the past is no longer viable, and are more willing to explore these and other business models to ensure food security (chapter V; Hallam, 2009).

D. Conclusions

A precisely quantified evaluation of the impact of TNC involvement in agriculture on important development aspects, such as its contribution to investment, technology transfer and foreign market access, is hindered by the limited availability of relevant data collected by national authorities and international organizations. The actual impact and implications vary greatly by country and type of agricultural produce (especially between cash crops and staple foods). Nevertheless, a number of salient observations on the implications of TNC involvement in agriculture for developing countries do emerge.

FDI can help fill the investment gap in agriculture in developing countries, which is crucial for increasing production capacity and output (section B.1.a). To date, however, TNCs in general have not been major sources of investment or finance for agricultural development in the developing world, though in a number of countries their contribution is significant in both absolute and relative terms. Perhaps, more importantly, TNCs' contractual relationships with local farmers can have an important beneficial effect on agricultural development by easing their financial constraints (section B.1.b). Through contract farming, foreign affiliates can provide credit to farmers, which is a possible solution to the persistent problem of lack of financing in rural areas.

The limited role of TNCs in agricultural investment does not mean that their impacts on agriculture are insignificant. On the contrary, for instance, TNC participation in agricultural production provides effective channels of technology transfer and dissemination (section B.2). Evidence from case studies suggests that the involvement of different types of TNCs, including seed companies and other input providers, plantation companies and food processors, brings a variety of useful technologies to developing

countries that may not otherwise be locally available. Further, when TNCs undertake R&D locally, they become players in the local agricultural innovation system and influence its structure and performance. However, the scope of concrete technological contribution of TNCs has generally been limited. In particular, it remains marginal in most low-income countries and for many important agricultural products, especially food staples.

Various trade barriers and subsidies in developed countries limit the scale and scope of agricultural exports from developing countries. Furthermore, their comparative advantages based on factor endowments are not a sufficient condition for them to increase agricultural exports. By providing the "missing ingredients", such as established brand names, distribution channels and marketing skills, TNCs can help developing countries exploit their comparative advantages, access foreign markets, build export competitiveness and expand agricultural exports (section B.5).

The transfer of advanced technology, the enhancement of farmers' skills (section B.3) and the introduction of standards and modern supply chain management (section B.4) help improve labour productivity, while better irrigation and land management, improved seed varieties and soil fertility increase land productivity. In addition to greater efficiency in the production of existing crops, especially traditional export-oriented commodities, TNCs can contribute to the introduction of new, high-value-added commercial crops that might otherwise not be possible, at least in the short run. All these factors are conducive to fostering competitiveness in agriculture and to promoting sustainable and pro-poor agricultural development. Indeed, TNC involvement in agriculture has contributed to enhanced productivity and output in a number of developing countries, and in some instances boosted employment and incomes.

However, the evidence also highlights the need for host developing countries to be particularly aware of the negative consequences that can arise from TNC participation along the agribusiness value chain. For instance, direct TNC involvement may crowd out domestic investment (section B.1), displace small farmers (section B.4) and create market power, leading to an adverse bargaining position for domestic producers and, thereby, to an unfair distribution of economic benefits (section B.6). These may cause a deviation from the host country's objective of developing its agriculture and increasing farmers' incomes. Not all farmers benefit from TNC involvement. Some may not be able to work in a plantation or participate in contract farming schemes, and therefore could become marginalized. Others may become economically worse off due to the competitive pressure from foreign affiliates engaged

in farming the same crops. Such issues raise various social and political concerns in developing countries, particularly when TNCs own or control large tracts of agricultural land (section C.2). In terms of the environmental impact, case studies show that TNCs have the potential to bring environmentally sound technologies, but their impacts through extensive farming have also raised doubts, including on their effects on biodiversity and water usage (section C.1).

The actual impacts of TNC participation vary greatly across countries and types of agricultural goods, and are influenced by a range of factors, especially the mode of TNC involvement and the host-country institutional environment. The beneficial effects have been observed more in high-value-added commercial products than in traditional cash crops, and much less in basic foods. Generally, it is still unclear to what extent TNC involvement has allowed developing countries to increase its production of staple food and improve food security. Available evidence points to TNCs being mostly involved in the production of cash crops, and rarely staple food crop. (It is still too early to assess the likely effect of the recent rise of South-South FDI in this area.) However, it should be recognised that food security is not just about food supply: TNCs also have effects on food access, stability of supply and food utilization and, in the longer run, their impacts in these aspects of food security are likely to prove more important (section C.3).

With regard to the mode of TNC involvement, evidence from many developing countries shows that through contract farming host countries can receive most of the benefits related to TNC participation, while avoiding a number of negative consequences. Contractual links between foreign affiliates and local farmers can help the latter overcome technological barriers and move into higher value-added products, link up with global markets, and, consequently increase their income. The terms of a contract are extremely important in determining the value retained in host countries and the economic benefits received by local farmers, and they generally reflect the relative bargaining power of farmers vis-à-vis foreign affiliates. How farmers are organized and what policies and institutional arrangements concerning contract farming are in place largely influence the net outcome. In general, a sound policy and institutional framework is crucial for maximizing the benefits while minimizing the costs associated with TNC involvement (chapter V).

Overall, TNC involvement in developing countries has promoted the commercialization and modernization of agriculture. They are by no means the only – and seldom the main – agents driving this process, but they play an important role in a significant number of countries. They have done so not only by

investing directly in agricultural production, but also through non-equity forms of involvement, mostly contract farming. They have contributed, in many cases, to significant transfers of skills, know-how and methods of production, facilitated access to credit and various inputs, and given access to markets to a very large number of small farmers previously involved mostly in subsistence farming. Nevertheless, governments need to be sensitive to the above-mentioned negative impacts of TNC involvement in their agriculture, with the aim of avoiding or minimizing them.

Notes

- 1 The ratio of agricultural FDI stock to agricultural GDP in developing countries is also small – only 1% in 2005, compared to 26% in manufacturing GDP and 33% in services GDP.
- 2 For example in India, 87% of the surveyed households had no access to formal credit and 71% had no access to a savings account in a formal financial institution (World Bank, 2007).
- 3 Difficulties in financing small farmers are due to their lack of ownership of assets which could serve as collateral for credit. Where assets are owned, there is a reluctance to use them as collateral, as they are vital for livelihoods. The development of microfinance, which provides access to credit without formal collateral, overcomes this problem, but this form of finance is still in its infancy and has not yet reached most agricultural activities.
- 4 Since credit can be abused by farmers through selling crops to outsiders or using material inputs for purposes outside the contractual obligations, many contracts include provisions relating to the use of the credit provided.
- 5 However, the current economic crisis appears to be reducing the availability of finance. For example, Bunge cut advance cash payment to Brazilian farmers by 70% in 2008 (“In Brazil, credit to farmers dries up”, *The Wall Street Journal*, 29 November 2008).
- 6 For example, public breeding programmes in developing countries have released more than 8,000 improved crop varieties over the past four decades (Evenson and Gollin, 2003). In China, based on public research, high-yielding, hybrid rice was commercialized in 1976 and has contributed significantly to productivity growth since then. In Brazil, Embrapa, the leading public agricultural research institute, has generated more than 9,000 technological improvements since its establishment in 1973.
- 7 The global system for supplying improved agricultural technologies to farmers has been transformed by three interrelated forces: (i) the rapid pace of discovery and growth in importance of molecular biology and genetic engineering; (ii) the strengthening of intellectual property legislation in plant innovations; and (iii) more open trade in agricultural inputs and outputs in nearly all countries. These developments have created a powerful new set of incentives for private R&D investment and altered the structure of the global agricultural innovation system, particularly with respect to crop improvement (Pingali and Traxler, 2002).
- 8 The importance of inventive adaptation for technology progress and productivity gains was first emphasized by Griliches (1957).
- 9 See, for example, Pingali and Raney (2005).
- 10 There are several major modes of international technology transfer in the agricultural sector, apart from FDI and non-equity forms of TNC participation. International

- trade in agricultural products is one such mode: it opens channels of communication and introduces incentives to innovation by enlarging market size. It also induces patterns of specialization that influence productivity growth (Coe and Helpman, 1995). In addition, many new technologies can reach local farmers through various marketed inputs, including seeds, fertilizers, pesticides and machinery. Technologies can also be imported by licensing and other forms of technology trade.
- 11 See UNCTAD (2005) for examples.
- 12 CSFAC and the Guinea Ministry of Agriculture co-founded the Sino-Guinea Agricultural Cooperation and Development Company and Koba Farm. In 2003, Chinese experts successfully conducted high-yield breeding and cultivation experiments in Guinea (see “Fruitful agricultural cooperation”, at: www.china.org.cn).
- 13 Previously, during the 1970s, there had been considerable technological innovation, with the substitution of Gros Michel by Cavendish varieties, the boxing of bananas and overhead cableways for fruit transport, all of which reduced production costs, increased production and lowered world prices (Arias et al., 2003).
- 14 The research involved interviews with four leading foreign affiliates of TNCs in the food processing industry in India: Pepsi Foods Ltd., GlaxoSmithKline Beecham Ltd., Nestlé India Ltd. and Cadbury India Ltd. (*WIR01*).
- 15 Ranging from tractors and combine harvesters to airborne spraying techniques.
- 16 See, for example, Dutfeld (2003).
- 17 The research centre will employ up to 200 scientific and technical personnel, once its laboratory facilities are established and functioning in 2011. The establishment of the R&D centre makes Syngenta the first foreign agribusiness to set up a global R&D institute in China (*Source*: field study conducted by UNCTAD).
- 18 A major difference between developed and developing countries with regard to the structure of their agricultural innovation systems is that in developing countries the public sector plays a much more dominant role. Whereas in developed countries, private investment accounts for over half of R&D in agriculture, in developing countries as a whole the share is only 6%. In most low-income countries, the bulk of it is done in universities and government research institutes, sometimes with few, if any, linkages with producers. Where R&D is undertaken by TNCs in host developing countries, it compensates to some extent for the absence of innovative enterprises, which is a common weakness in their agricultural systems.
- 19 Those who work in agriculture include wage earners (such as permanently employed workers, seasonal or casual workers and migrant workers), self-employed, unpaid family members and others (e.g. cooperative workers) (ILO, 2008).
- 20 See: www.fairtrade.org.uk.
- 21 See: the *Informer Newspaper Liberia*, “Malaysian investors take over Guthrie as Ellen signs \$800 mn deal”, 1 May 2009.
- 22 In the case of coffee, for most producing countries (with the notable exceptions of Brazil and Ethiopia), virtually all demand comes from abroad through international trading houses and roasting companies.
- 23 Kyagalanyi Coffee Limited is an affiliate of ED&F Man Holdings based in the United Kingdom.
- 24 This refers to PTP Group, a joint venture between Asia Timber Products (Singapore) and the local government. (The information on employment is provided by the Ministry of Commerce of China.)
- 25 A substantial body of literature shows the importance of non-farm enterprises as engines of rural development, and their role in income growth and poverty reduction (see, for example, World Bank, 2006).
- 26 Decent work is about opportunities for women and men to obtain productive employment in conditions of freedom, equity, security and human dignity (ILO, 2008).
- 27 Depending on their size, technological advantage and country of origin, foreign affiliates have been observed to offer higher remuneration and better conditions of work than domestic firms, in both developed countries (OECD, 2001) and developing countries (*WIR94*).
- 28 The Kenya Flower Council, whose members include more than 50 floriculture companies, has developed a code of practice, backed by regular audits, with requirements concerning workers’ health and safety, general worker welfare and various other labour-related issues.
- 29 For example, structural overproduction, greater competition and declining prices have been responsible for permanent workers being replaced by migrant and/or contract workers, the increasing employment of under-age workers, and a deteriorating quality of life for workers and small farmers in producing countries.
- 30 A number of factors suggest that the impacts of transnational food processors can be significant. First, a large proportion of the food sold in supermarkets is in the form of processed products supplied by food processors. In general, farmers have a more direct link with food processors than supermarket chains or specialized procurement agents acting on their behalf. Secondly, entry costs for small-scale farmers supplying processors tend to be lower. Since food processors generally have less exacting quality standards, they can accept supplies from more marginal producers who tend to be excluded from the value chains of fresh produce for export or for supermarkets. Finally, the scale of production contracted or bought by processors is often much larger than for supermarkets. Therefore, food processors play an important role as intermediaries with direct contact with local farmers, and, as such, influence both the quantity and quality of agricultural production by the farmers involved.
- 31 In Latin America, which is the most advanced region in this regard, their share already exceeds 50% in many countries. Asia and Africa lag behind, but a number of the more developed countries and urban centres in these regions are catching up fast (Reardon, Henson and Berdegue, 2007).
- 32 For a detailed discussion on private grades and standards, including how their role has evolved over time, see Reardon et al., 2001.
- 33 Freshmark (South Africa) and Hortifruti (Costa Rica) are among the better known transnational procurement agents.
- 34 In some developing countries where written contracts are rare, these kinds of contracts are often informal, but nevertheless effective.
- 35 More recent evidence suggests that smaller retailers are showing more resilience in the face of competition from transnational supermarket chains. In Brazil, for example, the share of transnational supermarket chains has levelled off after years of expansion. This is attributed to two main factors. First, smaller shops have begun to collaborate in their procurement to gain stronger bargaining power in dealing with suppliers. It also helps that they now have access to the technology used in modern retailing. Second, food producers have recognized the importance of smaller retailers, and provide them with some preferential treatment so as to avoid too much concentration in the hands of a few supermarkets. These factors, coupled with their “natural” advantage that they are typically established at convenient locations, appear to have given a new lease of life to smaller shops.
- 36 As noted in one study, “a comparative advantage in producing a good does not necessarily imply a comparative advantage in marketing it.” One of the reasons is that marketing and trading functions are knowledge- and skill-intensive – more skill-intensive than, for example,

- producing simple, labour-intensive manufactured goods (UNCTC, 1989: 120). It should be noted that a number of developing countries established State-owned companies in the past to deal with the marketing of agricultural commodities, among others. These companies often came to be criticized for their lack of efficiency and poor management, resulting in lower prices paid to farmers and a fiscal burden on State budgets. In the late 1980s and 1990s, many of these agencies were abolished or restructured (World Bank, 2007). A number of countries have tried to develop alternative marketing channels for their agricultural exports, but only some have succeeded.
- 37 Moreover foreign markets are also very demanding. This is due not only to intensifying competition among supermarkets and changing consumer tastes, but also to emerging food safety regulations (e.g. strict sanitary and phytosanitary standards) as well as growing attention paid by consumers in developed countries to fair trade issues, including working conditions of suppliers. In general, the so-called “credence goods” in the food industry have been gaining in importance. “The quality and safety characteristics that constitute credence attributes include the following: (1) food safety; (2) healthier, more nutritional goods (low-fat, low-salt, etc); (3) authenticity; (4) production processes that promote a safe environment and sustainable agriculture; and (5) ‘fair trade’ attributes (for example, working conditions)” (Reardon et al., 2001: 424).
- 38 Information on market concentration in global agricultural commodity chains is limited. As noted by Murphy (2006: 7): “There is a widely acknowledged need for increased transparency in national and international markets about the scale and diversity of the largest food companies.”
- 39 Deardorff and Rajaraman (2009) suggest that “although the evidence points to oligopsony rather than pure monopsony, it is likely that market segmentation leads to the producers in any single country confronting one rather than more than one buyer.” An example of monopsony is the Kabuye sugar factory in Rwanda, which is the only sugar producer in the country (UNCTAD interview with the Kabuye Sugar Works Sarl, Rwanda, in early 2009).
- 40 Such an “hourglass” situation is responsible for occurrences of market power in agriculture in general (Murphy, 2006: 12).
- 41 In Côte d’Ivoire, for example, the liberalization of world markets in cocoa in the past few decades has not only resulted in a stronger concentration in downstream parts of the value chain, where a few TNCs form an oligopsony and are engaged in fierce competition, but also in a concentration of buying, resulting in market power over farmers in particular. This situation has been aggravated by the dismantling of State regulatory bodies and marketing boards, which had atomized the supply side. This is despite the fact that Côte d’Ivoire accounts for 40% of world cocoa supplies and should thus be in a position to amass some “selling power” (Dorin, 2008; UNCTAD, 2008d).
- 42 See, for instance, South Centre (2008: 5): “For commodity exporters, the market concentration has negatively affected their ability to maintain existing markets and penetrate new ones. It is also one of the major reasons for the little share of producers’ earnings in final value of commodities. This is clear from the large gap between farm-gate prices that commodity producers receive and retail prices that consumers pay.”
- 43 See also UNCTAD (2006a) for an analysis of concentration in the agricultural input industry and of food clusters.
- 44 This small share is partly due to the fact that most certified fair trade coffee is sold on the open market and not by fair trade dealers, and therefore does not fetch the fair trade premium.
- 45 Coffee, for example, undergoes initial stages of processing before the green beans are exported for further processing in consuming countries. In the case of soluble (instant) coffee, all production stages can be done domestically as it has a much longer shelf life (Krüger and Negash, 2009). Another example is tobacco, with the dried tobacco bought from tobacco farmers and then processed and stored in a local plant until it is ready to head off to a cigarette production facility overseas (World Bank, 2003).
- 46 See MIGA website at: http://www.miga.org/sectors/index_sv.cfm.
- 47 In some African countries, several sugar projects were launched with the explicit aim of reducing the sugar import bill (e.g. Kibos Sugar and Allied Industries Limited, Kenya, the Companiha de Sena S.A.R.L., Mozambique or the Kenana Sugar Company, Sudan). The latter two projects were also undertaken to increase exports of sugar from the respective countries (see, for example: http://www.miga.org/sectors/index_sv.cfm; Nur, 2009). Biofuels are another generally promising industry involving TNCs. Ethiopia, for instance, is trying to tackle a rising petroleum import bill and improve its energy security by encouraging investments in bio-diesel and bio-ethanol production. Foreign investors from Germany and the United Kingdom have signed up to grow and process Jatropha and castor beans for this purpose (Fessehaie, 2009).
- 48 With respect to agricultural commodities the following examples highlight this dependence. In Burkina Faso, the share of cotton in exports was 72% in 2004, and in Benin it was 58% in 2005, while tobacco accounted for 49% of Malawi’s exports in 2007 and soya for 45% of Paraguay’s exports.
- 49 Dependence on oil and minerals can be extreme: In Nigeria the share of petroleum in its exports was more than 98% in 2006, in Sudan it was 88% and in Gabon 86%. Mali depended on gold for 75% of its exports in 2007, Zambia on copper for 71% and Niger on uranium for 63% (UNCTAD, based on Comtrade data).
- 50 Another example of diversification and generation of export earnings is the fishing industry in Eritrea that is being built with the help of investors from Italy and the Netherlands (Library of Congress, Federal Research Division, 2005).
- 51 Some 14% of total GHG emissions have been attributed to agriculture (excluding change in land use), compared with 60% to energy, 18% to deforestation and 4% to industrial processes (World Bank, 2007).
- 52 Even in manufacturing, in which TNC participation in pollution-intensive activities in host developing countries is relatively high, there is no clear evidence to support the hypothesis that TNCs in general shift the location of their pollution-intensive activities to take advantage of lax environmental standards in host developing countries (WIR99).
- 53 The large banana TNCs based in the United States, which have been controlling plantations in several Latin American countries since the early 1900s, had a reputation for their broad reach and influence (extending, in some cases, to influencing governments, giving rise to the term “banana republic”). This was likely accompanied by a tendency to be closed and defensive in addressing concerns about standards and practices, as acknowledged by the President and CEO of Chiquita in 2000 (Arias et al., 2003).
- 54 One persistent issue relates to the health impacts of pesticides used in banana plantations. In November 2007, a Los Angeles jury awarded punitive damages to some Nicaraguan workers who suffered adverse effects from exposure to a pesticide containing DBCP used in Dole’s plantations (“Los Angeles Jury punishes Dole Foods Company, Inc”, *Pesticide News Archive*, November 16, 2007 (www.bananalink.org.uk). More recently, two lawsuits filed against the company in Los Angeles on

behalf of Nicaraguan banana workers with respect to the use of the same pesticide were thrown out by the judge because of fraud (Katherine Glover, "Fraud helps Dole in Nicaragua banana pesticide case", 13 May 2009, <http://industry.bnet.com>).

⁵⁵ For example, Ethiopia, Kenya and Uganda in Africa, Colombia and Ecuador in Latin America, and India and Viet Nam in Asia.

⁵⁶ About 80% of the total income of the horticulture industry in the country is attributed to the 10 leading companies, all foreign owned,⁵⁶ and about two thirds of flower farms in Kenya are managed by foreign firms (Lans, 2005). See: "Kenya: country's wealth in foreign hands", *African Path*, 30 May 2007.

⁵⁷ "How Kenya is caught on the thorns of Britain's love affair with the rose", *The Guardian*, 13 February 2006.

⁵⁸ Both the herbicide glyphosate, and the glyphosate-resistant GM variety of soya are sold by Monsanto (United States), under the names "Roundup" and Roundup Ready", respectively.

⁵⁹ See, for instance Howard and Dangl, "The multinational beanfield war: soy cultivation spells doom for Paraguayan campesinos" (<http://inthesetimes.com>).

⁶⁰ In June 2008, the agreement was extended for another year.

⁶¹ See the Round Table on Responsible Soy Association website, at: www.responsiblesoy.org.

⁶² As stated by Berg et al. (2006: viii), "...for value chain promotion to be pro-poor, it needs to be firmly embedded in direct measures to make resource-poor producers 'linkable' to markets. Without developing necessary physical and institutional infrastructure and

human capacities at the micro level, value chain support activities at the meso and macro levels are likely not only to by-pass the poor, but to widen the gap between poor and non-poor."

⁶³ This can be done by women and the community itself, as in the flower cutting industry in Kenya (UNCTAD, 2008e); by the State, as in the case of government programmes in Indonesia and the Philippines (World Bank, FAO and IFAD, 2009b); or by TNCs, such as through the partnership between the United Nations Development Programme (UNDP), Nestlé Pakistan and Engro Food (Nestlé, 2008). In the last case, through a partnership between UNDP, Nestlé Pakistan and Engro Food, 4000 women were trained in Pakistan to act as farm consultants, dispensing technical advice about milk production to 85,000 farmers (Nestlé, 2008).

⁶⁴ Or indeed domestic companies, because whether this effect is TNC-specific depends on context (e.g. there may be no local companies capable of undertaking the relevant activities).

⁶⁵ For example, for visiting family and friends, attending school, accessing medical facilities, or going to work.

⁶⁶ Closely linked to this issue are water rights, which are not treated separately here (see, for instance, UNESCO, 2009)

⁶⁷ This situation can be worsened, for example by price rises resulting from demand for alternative uses for food crops, as in some cases of recent diversion to biofuel use, although such a situation is unlikely to persist (FAO, 2008c; von Grebmer et al., 2008).

⁶⁸ At least in the short run. TNCs will normally have access to the hard currency needed to pay for imports.

CHAPTER V

POLICY CHALLENGES AND OPTIONS

A. The main policy challenges

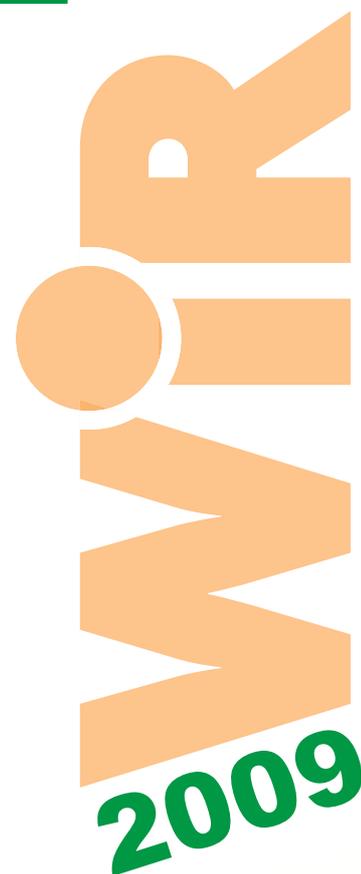
Expansion and revitalization of agricultural production is crucial for developing countries, both to meet the rising food needs of their burgeoning populations, and as a basis for economic diversification and development. In order to realize these objectives, there is a strong and urgent need to invest more in this industry. Increasing investment from private domestic and foreign sources is critical, particularly as public sector funds for agricultural investment are limited in many countries, and the share of agriculture in official development assistance (ODA) devoted to the industry has fallen.

The investment potential of local farmers is very limited in many developing countries, due to their lack of financial, managerial, technological and other resources. One alternative approach, therefore, is to harness the capabilities of TNCs. The recent renewed interest of FDI in agricultural production (chapter III) provides policymakers in developing countries with an opportunity to boost agricultural production and productivity and enhance overall economic development. As shown in chapter III, although overall FDI in agricultural production has been very low, the attractiveness of developing countries as hosts is likely to increase as global agricultural production continues to shift from developed to developing countries. Indeed, by 2017, the latter are expected to dominate the production and consumption of most agricultural commodities (OECD and FAO, 2008). Also, given that a growing number of developing countries are short of arable land, to meet the challenge of securing domestic food supply they are promoting outward investment in

agricultural production (chapter III). Home countries embarking upon this path have to ask themselves under what conditions such strategies can be successful and whether there are alternatives to FDI. Host countries, on the other hand, need to consider the possible implications of such investment for their own food security, land distribution and economic development.

As analysed in chapter IV, TNC participation in agricultural production has both positive and negative impacts on the industry, and on the economy as a whole. Although TNC involvement in agriculture has contributed to enhanced productivity and increased output in a number of developing countries, and helped create employment and raise incomes, existing evidence also highlights that developing-country governments need to be aware of negative consequences that can arise from TNC participation along the agribusiness value chain. For instance, FDI may crowd out domestic investment, displace or marginalize small farmers, and concentrate market power, and thus lead to an adverse bargaining position for domestic producers, resulting in an unfair distribution of economic benefits. Governments also need to be concerned about the environmental consequences of TNCs' involvement in agriculture.

While such double-edged effects of TNC involvement are not uncommon, they are more controversial in agriculture than in most other industries. Fears have been expressed that, instead of producing food for people, TNCs produce profits for "large interests" (Vallianatos, 2001: 49–50). Policymakers cannot ignore such concerns: they need to consider what role, if any, TNCs could play in domestic agricultural production to ensure that it supports the host countries' development objectives. Successful examples (chapter IV) show that



it is possible for host countries to generate synergies by combining the resources of TNCs (such as investment, technology and distribution networks) with domestic resources (such as abundant labour and available land) for long-term agricultural development. It is also possible to learn from unsuccessful outcomes, where domestic and foreign players compete for a limited supply of domestic resources, particularly land and water, and where the market power of TNCs deters efficiency gains and leads to welfare losses. In particular, host-country governments should help local farmers to become active players in the agribusiness value chain, while also providing social protection to smallholders, especially those who are marginalized in the accelerated process of commercialization and modernization.

International investment policies can be a significant supplementary tool for developing countries seeking to promote TNC participation in agricultural production. However, how to preserve host countries' regulatory discretion, while undertaking international obligations vis-à-vis foreign investors in agriculture remains a major challenge.

This chapter analyses the above-mentioned challenges for policymakers, and discusses policy options and implications.

Section B examines host-country policy options with regard to openness to FDI in agricultural production. It then explores policy approaches aimed at maximizing the benefits of TNC participation, such as leveraging FDI for agricultural development and the establishment of linkages between local farmers and TNCs. This section also looks at environmental and social concerns pertaining to TNC involvement in the industry, including corporate social responsibility, and discusses some other relevant policy areas. Section C assesses relevant home-country policies, particularly recent home-country strategies aimed at encouraging outward FDI for domestic food security. Section D widens the analysis to international cooperation, with a focus on the role of international investment agreements (IIAs). Section E draws conclusions and offers policy recommendations.

B. Host-country policy options for TNC participation in agricultural production

When designing strategies in respect of TNC participation in agricultural production, host countries need to distinguish between different forms of such involvement, especially FDI and non-equity forms of participation (i.e. contractual arrangements between TNCs and local farmers and other links through food value chains). Each type of TNC involvement

has particular impacts on the host country (chapter IV), and may therefore require different host-country policy responses. Economies of scale, heavy investment requirements and technical difficulties in dividing the production process between different agents (e.g. production of biofuels) are arguments in favour of FDI, whereas high labour intensity favours non-equity TNC involvement through linkages with local farmers (Kirsten and Sartorius, 2002).

Host-country policies range from complete or partial prohibition of TNC involvement in the production of individual commodities to active promotion of FDI. They are often a mixture of encouraging and regulatory elements, where TNC participation is promoted for the production of individual commodities or for specific purposes. Some host countries apply *laissez-faire* policies, with no specific rules for TNC involvement in agricultural production. They deal with individual concerns, such as land use, or environmental or social impacts in their overall regulatory framework.

These findings are confirmed by a survey of governments conducted by UNCTAD,¹ which revealed that most of the respondent countries allow FDI in agricultural production. This is consistent with a survey of investment promotion agencies (IPAs) also undertaken by UNCTAD (see below), where the majority of the respondents (59%) indicated that they promote FDI in agricultural production.

1. Openness to FDI in agricultural production

The degree of openness of a country to FDI in agricultural production is determined by a number of factors. Amongst the most relevant are the entry conditions for FDI, regulations concerning land and water use, and investment protection and promotion measures. Each of these factors is discussed below.

a. Entry conditions

Policymakers first need to determine to what extent they wish to open their countries to FDI in agricultural production. Many developing countries do not have special entry regulations for such FDI; instead they apply their general rules on foreign investment.² These regulations vary between countries.

Specific entry restrictions on FDI in agricultural production are typically based on *socio-political, cultural economic or security-related considerations*, according to which agricultural production is reserved for local farmers. The main policy instruments for determining the entry conditions for FDI in this industry are outright prohibition or limits on foreign ownership, or approval requirements (box V.1).

b. Land and water use

As discussed in chapter IV, FDI in agricultural production can have politically sensitive implications for land and water use. This is reflected in land ownership restrictions imposed by numerous developing countries for political, economic, security-related, social or cultural reasons. Instead, many countries prefer long-term land lease contracts to foreign ownership.³ How access to agricultural land is regulated varies between countries and regions. In general, many countries in Latin America and the Caribbean are open to foreign ownership of agricultural land, while many transition economies allow agricultural land use by foreigners only in the form of lease contracts. Africa and Asia show a more diverse picture, with numerous countries only allowing land lease and others permitting both foreign ownership and lease. The regulatory system is often complex.⁴

From the point of view of foreign investors, the lack of clear titles and cumbersome administrative procedures for the allocation of land use rights are among the major barriers to investment in agricultural production. Procedures are often difficult, expensive and lengthy, sometimes stretching over several years (USAID, 2008). Land deals between the government and a foreign investor may involve several contracts and legal instruments, and a wide range of public and private stakeholders at the local, regional and national levels. Additional hurdles can be the absence of clear records of land titles and the existence of multiple legal provisions relating to land ownership or use at various levels. Moreover, reforms are extremely difficult because of differing concepts of land rights, including the legitimacy of land ownership and the existence of

customary, common and traditional rights, especially where it is hard to define the actual holder, be it the tribe or the chief. There may also be interlocking claims arising from, for example, different sources of historical legitimacy or displacements as a result of conflicts (Biacuana, 2009; Kanji et al., 2005; Manji, 2005; Rugadya, Nsamba-Gayiiya and Kamusiime, 2006; Ubink, 2004).

The issues of clarifying land rights and facilitating procedures were analysed in some recent Investment Policy Reviews conducted by UNCTAD. These reviews point out that policymakers have a wide choice to address the problems. They vary from defining secure and transferable land titles, adopting appropriate land surveying, planning and zoning, eliminating superfluous administrative and procedural steps, and building and maintaining electronic records of land transactions (UNCTAD, 2009h, 2009i, 2009j). Improvements in these areas would benefit TNCs and domestic individuals and companies alike.

Equally important is the issue of water rights. In many developing countries, legislation on water rights is either missing or not effectively implemented, or it is based on vague customary or local laws, thus discouraging investment in agricultural production. The situation is further complicated by the fact that agricultural production in many countries depends on irrigation, and delivery of water may be based on complex service contracts between the investors and the irrigation agency. Host-country governments therefore need to introduce and manage sophisticated regulatory mechanisms for the granting, administration and duration of water rights. To reduce the risk of disputes, investment contracts should be sufficiently specific with regard to the obligations

Box V.1. Specific entry regulations for FDI in agricultural production

Agriculture-related entry conditions in a number of countries are presented below.

China's policies on foreign ownership and control vary for different agricultural products and agriculture-related activities. This is reflected in the *Catalogue for the Industrial Guidance of Foreign Direct Investment*, which was amended in 2007. According to the catalogue, foreign participation in some areas is encouraged (e.g. by preferential tax treatment), while in a few areas it is restricted or prohibited. For example, breeding and seed development companies have to be majority-owned by Chinese companies; and foreign investment in the development of genetically modified (GM) seeds and the plantation of domestic-specific "precious varieties", such as some traditional Chinese herbal medicines, is prohibited.

India prohibits FDI in agricultural production in general, with the exception of floriculture, horticulture, development of seeds, animal husbandry, pisciculture, and cultivation of vegetables and mushrooms under controlled conditions as well as services related to agro and allied sectors. For these exceptions, an automatic approval route applies. In the tea sector, prior approval is needed and 100% foreign ownership is permitted subject to the condition that 26% of the equity be divested in favour of a domestic partner (private or public) within a period of five years.^a Also, any changes in future land use are subject to prior approval.

Tunisia permits foreign equity in the agricultural industry of up to 66%.^b

In the *Republic of Korea*, foreign entities may not cultivate rice and barley.^c

Source: UNCTAD.

^a OECD (2009:47 fn 71).

^b See http://www.tunisie.com/APIA/foreign_investment.htm.

^c Public notice by the Ministry of Knowledge and Economy, No. 2009-81.

of the contracting parties and the consequences of a breach of those obligations.

c. Investment promotion and protection

Investment promotion schemes are important policy devices for developing countries that are seeking to attract FDI in agricultural production. Promotional measures include, for instance, various forms of fiscal, financial and technical support (box V.2).

As part of background research for this report, UNCTAD and the World Association of Investment Promotion Agencies (WAIPA) jointly undertook a survey on the role of investment promotion agencies in attracting FDI in agricultural production and promoting investment in overseas agriculture.⁵ This section presents the main findings.

The majority of respondents (59%) reported promoting FDI in agricultural production, although amongst developed countries the proportion of IPAs active in this area was considerably lower (28%) than that from developing regions (73%) and transition economies (60%).⁶ In particular agencies from Africa (87%) and Asia (75%) reported promoting foreign investment in agriculture, while just over half of those from Latin America and the Caribbean do so. Moreover, between 50% and 60% of respondents

from developing and transition economies stated that they accorded greater importance to attracting foreign investment in agriculture today than three years ago, and they expected the industry would gain even further priority in their work until 2011.⁷ Their main motivation for this is to enable their countries to derive more benefits from the competitive advantages of their agricultural industries, and because of the importance of agriculture for exports and gross domestic product (GDP).⁸ In particular, IPAs expect TNCs to make new technologies, finance and inputs available to the industry and to help provide market access.

IPAs showed varying degrees of interest in different agricultural activities, but a particularly large percentage of them indicated a strong desire to attract FDI in the production of cash crops (table V.1). More than half of the respondents reported actively promoting FDI in one or more cash crops, especially fruits and vegetables. Also many agencies were targeting FDI in animal products, such as meat and poultry and dairy, and to a lesser extent in staple crops and biofuel commodities.

Although there appeared to be no significant regional variation in terms of priorities, there were some clear differences in the level of attention given to specific activities. This can partly be explained by the fact that production of specific crops is often limited by geographical conditions. Overall, these findings

Box V.2. Examples of policies for promoting investment in agriculture production

Various developing countries have introduced incentives for encouraging investment in agriculture. The following are some examples:

Argentina offers, for example, tax relief for projects associated with biodiesel fuels – an area in which Argentina has a competitive advantage, given its low production costs in agriculture (Law No. 26,093 published in the Official Gazette, 15 May 2006).

China has adopted a selective support policy on foreign investment in agriculture (Ge, 2009). FDI for the production of some agricultural products and TNC involvement in related activities are encouraged (see also box V.12). According to the *Catalogue for the Industrial Guidance of Foreign Direct Investment*, for instance, foreign investment in the production of products such as rubber, sisal and coffee is encouraged (e.g. through tax incentives).

Nigeria offers, inter alia, (i) unrestricted capital allowance for agribusinesses, and up to 50% for agro-related plants and equipment, (ii) guarantees of up to 75% of all loans granted by commercial banks for agricultural production and processing under the

Agricultural Credit Guarantee Scheme Fund (ACGSF), and (iii) 60% repayment of interest provided by the Interest Drawback Program Fund paid by those who borrow from banks under the ACGS for the purpose of cassava production and processing, provided such borrowers repay their loans on schedule. Also, processing of agricultural produce has been declared a pioneer industry which entitles the companies involved to 100% tax exemption for a period of five years.^a

Papua New Guinea, under the rural development incentive, encourages agricultural production of any kind by inter alia granting a 10-year exemption from corporate income taxes for businesses engaged in agricultural production that are established in specified rural development areas. Also, accelerated depreciation rates are offered for new plants (other than residential property with a cost exceeding kina 100,000 – approximately \$37,250) with a life span exceeding five years that are used in Papua New Guinea's agricultural production.^b

Viet Nam had set a target of mobilizing approximately \$8.2 billion from 2006 to 2010 for investments in agricultural development.^c

Source: UNCTAD.

^a Nigerian Investment Promotion Commission (NIPC), Investment Incentives, available at: <http://nipc.gov.ng/investment.html>.

^b Papua New Guinea Investment Promotion Agency, www.ipa.gov.pg.

^c Website of the Ministry of Agriculture and Rural Development.

Table V.1. Percentage of IPAs that promote FDI in specific agricultural commodities, by region, 2009
(Percentage of respondents)

Commodity	Total	Developed countries	Developing countries				SEE and CIS
			Total	Africa	Asia and Oceania	Latin America and the Caribbean	
Staple crops	32	11	42	60	25	38	20
Cereals	27	11	35	53	17	31	20
Roots and tubers	19	11	22	27	17	23	20
Cash crops	56	28	67	80	67	54	60
Fruits	46	22	55	60	50	54	60
Coffee	17	-	27	40	8	3	-
Tea	14	6	17	40	-	8	20
Cacao	14	-	22	7	17	46	-
Fibre crops	14	6	17	40	-	8	20
Horticulture	52	28	62	73	58	54	60
Vegetables	44	22	52	53	58	46	60
Floriculture	24	17	30	47	8	31	-
Animal products	44	22	52	60	50	4	60
Meat and poultry	40	22	45	53	50	31	60
Dairy	35	22	37	53	17	38	60
Biofuel crops	22	11	27	40	25	15	20
Other	38	17	47	67	33	38	40
Soybeans	13	6	17	20	8	23	-
Oil crops	22	6	30	40	25	23	20
Other	22	11	25	40	17	15	40
Number of responses	63	18	40	15	12	13	5

Source: UNCTAD-WAIPA Survey of IPAs, February–April 2009.

confirm the broad patterns of openness to TNC involvement (see section B.1.a). Cereals are more frequently targeted in Africa and in Latin America and the Caribbean than in Asia, where, for instance, rice farming is strongly protected. Other noteworthy differences between regions include the relatively high priority given by IPAs in Latin America and the Caribbean to cacao, and the relatively low priority to meat and poultry and biofuel crops as compared to other developing regions. A possible explanation is that there is already a strong domestic presence in these industries. Finally, a large proportion of agencies in Africa seek to attract foreign investment in biofuel crops.

Notwithstanding the fact that barriers to FDI may vary, both between specific countries or regions and between different crops, the participating IPAs highlighted a number of major obstacles.⁹ The main impediment to attracting foreign investors into agriculture is the lack of good quality infrastructure services, as reported the most by IPAs from Africa (40%) and to a lesser extent by those from Latin America and the Caribbean (31%) and Asia (25%). Another major obstacle reported by agencies from developing countries is the lack of quality inputs (25%). Furthermore, one third of the agencies from Asia indicated that export restrictions on agricultural products and the lack of local partners were the main barriers to FDI. Political uncertainty and administrative obstacles were reported by more agencies from both Asia and Latin America and the Caribbean.

Only a minority of respondents (22%) reported targeting TNCs from specific home countries or regions. This was the most common among IPAs from Africa (47%), and the least among those from Asia (17%). In the majority of cases, no country or region was targeted in particular, although some agencies focused on only one or two specific countries, while others showed interest in a wide variety of countries and regions.

Investor targeting, investor aftercare and policy advocacy to address specific problems that foreign investors face in the agricultural industry remain critical tasks for IPAs. For instance, a number of IPAs have established a land bank directory with the objective of identifying potential land for investment, including in agriculture. Under this approach, land is sourced in order to make it readily available for strategic investors and developers. One example in this regard is Ghana.¹⁰

With respect to investor targeting, IPAs could employ strategies to develop clusters (for instance, in cut flowers, viticulture, dairy industry and apiculture). For many agricultural products a critical mass of producers and agricultural support services (pest and disease control, agricultural machinery, storage and transport, research and breeding, and marketing services) is necessary for becoming internationally competitive. Both potential producers and service providers should be targeted, including those with similar products in similar climatic zones. It is important to ensure that direct or indirect incentives do not discriminate against small farmers and small- and medium-sized enterprises. Investor aftercare is particularly important because of the rural locations where many of these companies often operate. IPAs should consider appointing specialized officers who operate as an extension service to deal with the day-to-day and longer term problems that investors face. These problems vary by country, but land and water issues are often mentioned as sticking points, as well as lack of rural infrastructure.

Besides investment promotion, the provision of adequate *investment protection* is an FDI determinant that host countries seeking to attract FDI in agricultural production need to take into account. This includes, in particular, protection of foreign investors against discrimination, expropriation and transfer restrictions, and putting in place efficient dispute settlement mechanisms (see also section D.2).¹¹

2. Maximizing development benefits from TNC participation

Host countries face the challenge of how to maximize the benefits from TNC involvement in agricultural production. This includes benefits from FDI and from contractual arrangements between TNCs and local farmers.

a. Leveraging FDI for long-term agricultural development

In order to leverage FDI involvement, developing countries should, above all, seek to match incoming foreign investment with existing domestic resources, such as availability of labour and land. In particular, in light of the recent interest in outward FDI to secure domestic food supply, there is potential for host countries to benefit from such investment to meet their own staple food requirements, provided that the resulting production is shared between home and host countries. FDI should create positive synergies to make sagging, traditional agriculture more competitive and economically viable, and to promote long-term agricultural development. Besides the legislative framework in host countries, investment contracts between the host government and foreign investors can be important instruments for enabling a country to maximize the contribution of FDI to sustainable agricultural and rural development, in particular in respect of investments involving major land deals. These contracts should be structured in a way to maximize benefits for host countries and local farmers. Among the critical issues that should be considered in investment contracts are: (i) entry regulations (see also Hallam, 2009; and section B.3), (ii) the creation of on- and off-farm employment opportunities, (iii) transfer of technology and R&D requirements (see section B.4.d, and chapter IV), (iv) the welfare of local farmers and communities, (v) production sharing, (vi) distribution of revenues, (vii) local procurement of inputs, (viii) requirements of target markets, (ix) development of agriculture-related infrastructure, and (x) environmental protection. Host countries should also be aware of the possible conflict between how they seek to attract foreign investors in investment contracts (e.g. a commitment to never impose export controls or to reduce tariffs on imported inputs) and internationally agreed trade rules.

Another possibility that has been suggested is to develop a method for governments and development agencies to implement sustainable and integrated FDI projects related to agricultural production. The objective would be to assess whether the conditions for making an investment are fulfilled and ensuring that the project furthers development goals. Questions to be addressed in this context include: (i) what products are feasible for production in a certain region from a

technical point of view, (ii) whether there is a market for the products, (iii) whether the project could be financially attractive for an investor, (iv) how to settle relationships with smallholders, and (v) how to motivate sustainability of the project (Neves and Thomé e Castro, 2009).

An incentive system can also play a role. Within the framework of an overall agricultural development strategy, host-country governments should identify priorities and consider incentives for TNC involvement in preferred areas. Such areas might include the production of high-value-added varieties, participation in organic and fair-trade schemes, the establishment of international joint ventures, the transfer of technology related to those agricultural commodities in which the host country is particularly interested, and the promotion of local R&D activities (see also chapter IV).

With regard to the increasing number of FDI projects that are targeting large areas of land for staple food production (chapter III), host countries should consider output-sharing arrangements with the foreign investor. The social and environmental impacts of these projects should be assessed carefully, and particular attention paid to the long-term implications for domestic agricultural development and food security. Negotiations should be transparent with regard to the land involved and the purpose of production, and they should include the participation of local landholders (von Braun and Meinzen-Dick, 2009). In this context, the United Nations Special Rapporteur on the Right to Food has developed a set of core principles and measures to address the human rights challenge of large-scale land acquisitions and leases (de Schutter, 2009). The FAO, IIED and IFAD have made recommendations for agricultural investments and international land deals in Africa (box V.3). Also, in the preparation of the G-8 Summit in L'Aquila in July 2009, it had been proposed to develop joint principles for international agricultural investment involving land deals.¹² Furthermore, as noted in chapter III, some governments allow foreign investments in export-oriented agricultural production, provided these create additional benefits for the host country, such as infrastructure development (including the building of schools and hospitals), technology transfer, training, and/or the sale of goods or raw materials at preferential prices.

b. Promoting contractual arrangements between TNCs and local farmers

(i) Regulations on contract farming

In general, host-country policies impose few restrictions on TNC involvement in contract farming. Most host countries regard it as an opportunity to

improve life for local farmers rather than a threat. Despite the ever growing number of contract farming agreements worldwide, special legal regulations on contract farming, be it with domestic or foreign firms, exist only in a few developing countries, and examples that could be found for this report are mainly from Asia.

For example, India, Thailand and Viet Nam have introduced special regulations on contract farming over the past decade.¹³ The provisions address, inter alia, the establishment of a special register or a notification procedure for contract farming agreements, special regulations on land lease by enterprises and land property rights of farmers, compensation in case of contract breach (e.g. quality defects of the produce) and rules relating to *force majeure*. Another key aspect relates to special dispute settlement mechanisms; in some cases decisions are final, binding and enforceable.

Where specific regulations are lacking, general contract laws may fill the gap. Contractual approaches often vary amongst different contractors (chapter III). A number of countries have made political commitments to foster contract farming or monitor its impact.¹⁴

(ii) Promotion of contractual arrangements

Improving the productivity of local farmers is fundamental for enhancing agricultural development in developing countries. Therefore, a key element of developing countries' strategies should be the promotion of linkages through contractual arrangements between TNCs and local farmers that enable the latter to enhance and upgrade their capacities, in particular through transfer of technology

and other knowledge (chapter IV). One particular approach in this respect is the promotion of outgrower schemes or integrated producer schemes (chapter III; box V.5), where the TNC acts as the lead firm that organizes and overlooks agricultural production by a multitude of local smallholders or cooperatives. In general, TNCs have been mainly involved in contractual arrangements for the production of cash crops. Therefore, promoting contract farming in staple food production, with a view to alleviating the food crisis, remains a challenge for policymakers.

Governments should examine the whole value chain with a view to identifying bottlenecks to effective cooperation between TNCs and local farmers. Governments and their specialized agencies need to have the capacity for such analyses, including the ability to design appropriate training and competence strengthening measures. Among the most relevant issues that need to be tackled by host countries are: (i) smallholders' inability to supply products of a consistent quality and in a timely manner; (ii) lack of modern technology and standards; (iii) lack of capital; (iv) remoteness of production; (v) limited role of farmer organizations; and (vi) lack of adequate legal instruments for dispute settlement (HLTF, 2008).

(1) Improving the capacity of smallholders to supply products of a consistent quality and in a timely manner

One policy option is the provision of government-backed *education and training programmes* for local farmers in order to make them better prepared for cooperating with TNCs. Even basic education is often lacking in rural populations. At a more advanced level, teaching about biophysical properties and growing conditions, including the proper use of

Box V.3. Agricultural investment and international land deals in Africa: policy recommendations for host countries

The FAO, IIED and IFAD have jointly developed a set of general recommendations for agricultural investment and international land deals in Africa. These recommendations address different stakeholders, namely investors, host governments, civil society (organizations of the rural poor and their support groups) and international development agencies.

The recommendations addressed to host governments include the following:

- Governments need to clarify what kinds of investment they want to attract;
- Attention to increased agricultural productivity needs to be balanced with assessment of how gains are achieved and how benefits are shared;

- State-of-the-art assessments of the social and environmental impacts of proposed investments are needed;
- Governments should ask hard questions about the capacity of investors to manage large-scale agricultural investments effectively;
- Land contracts must be structured so as to maximize the investment's contribution to sustainable development;
- Mechanisms should be developed to discourage purely speculative land acquisitions;
- Investment decision-making must be transparent;
- Efforts must be stepped up in many countries to secure local land rights.

Source: Cotula et al., 2009.

cultivation methods, can be helpful. Since farmers are increasingly affected by market demands or drawn into discourses on sustainability, freshness, food safety and quality, government-sponsored programmes could also prepare them for these expected requirements (McKenna, Roche and Le Heron, 1999: 39). Innovation and knowledge need to be improved on a continuing basis without charging farmers high consultancy fees, given the disadvantaged socio-economic conditions of smallholders (Msuya, 2007: 7). In Brazil, for instance, the Government sponsors a television programme aimed at informing and educating farmers. There is also a significant role for non-governmental organizations (NGOs), including farmers' cooperatives, and international organizations, as the example of the "Songhai model" in Africa demonstrates (see box V.4).

Local farmers would also benefit from more information about the pros and cons of different types of contract farming. To establish oversight and ensure fair and informed bargaining, governments could consider the development of model contracts to protect the interest of farmers in their negotiations with TNCs. Model contracts could also be a useful policy tool for avoiding disputes between the contracting parties.

Often, a thorough analysis of the value chain will reveal the significant role played by intermediaries or "middlemen" in agribusiness in liaising between large buyers and small-scale farmers. Two policy

options are available relating to these intermediaries: (i) cutting them out and thus establishing a direct flow of technology and knowledge transfer between farmers and buyers/firms; or (ii) permitting stronger integration of the intermediaries by training them to become a medium or channel through which technology and knowledge are transferred, and enabling them to advise producers on how to maintain certain standards of production, service and delivery.

(2) Enhancing access to appropriate technology and standards

Contract farming arrangements with TNCs offer potential opportunities for transfer of technology. Host-country governments can play a major role in ensuring that such transfer maximizes development benefits for smallholders, for instance by guiding the extension services of TNCs (see box V.5). However, as explained in chapter IV, transfer of technology by TNCs often focuses on the production of high-value-added crops rather than staple food crops. Some of the technology and know-how that TNCs transfer in respect of cash crop production may indirectly be used for staple food production. Host-country governments that seek to increase the production of staple food crops through contract farming arrangements with TNCs therefore face the challenge of finding ways to promote technology transfer in this context. One approach could be the establishment of a joint venture between a TNC and a State entity, which would procure staple food from local farmers and provide

Box V.4. The Songhai model in Africa

The Songhai Centre, an international NGO based in Benin, is globally recognized as a world leader in promoting innovative and ecologically sustainable agricultural enterprises. It has established an integrated value chain system organized in commercially viable clusters of agro-enterprises, and developed a practically oriented training programme for graduates and youth in rural and peri-urban areas.

A joint programme of the FAO, IFAD, the ILO, UNDP, UNIDO and the Songhai Centre builds on the successful operation of the Songhai model to respond to requests from several African countries to implement agricultural entrepreneurship development programmes. The Songhai model adopts a holistic approach to agribusiness and entrepreneurship development, which involves training, provision of support services, and linkages to credit and markets through networking of graduates that have received the training.

Programme operations will initially focus on 11 countries in West, Eastern and Southern Africa: Benin, Burkina Faso, Côte d'Ivoire, Gabon, Ghana, Guinea,

Source: UNDP, 2008.

Kenya, Liberia, Sierra Leone, Malawi and Togo. All these countries have reviewed the regional programme framework and have endorsed both its objective and intended outputs.

The programme will have five interrelated components aimed at:

- Facilitating and supporting the establishment of a Regional Centre of Excellence for Agribusiness and Entrepreneurship Development in Africa.
- Reinforcing the capacity of relevant national institutions to establish National Centres for Agri-Enterprise Development in participating countries.
- Developing agricultural entrepreneurial skills and capabilities of youth, women and men, particularly those from rural areas.
- Creating platforms to facilitate effective linkages between agribusinesses and providers of credit, market and business support services.
- Improving the institutional business environment for small- and medium-scale agribusiness development.

them with seeds, pesticides and other inputs (see chapter IV).

TNCs increasingly require contract farmers to comply with certain *quality standards and certification procedures*. Host-country governments may wish to promote adherence to such standards and ensure that supplies have easy access to information about the relevant requirements. They may also seek the cooperation of TNCs and donors in providing support for the implementation of agricultural quality controls. One policy strategy in this context is to create “islands of excellence” in local farmer communities.

(3) Improving the capital base of local farmers

A sufficient capital base is a prerequisite for the proper maintenance of farmland, for buying necessary equipment, fertilizers and pesticides, and for modernizing cultivation techniques (McKenna, Roche and Le Heron, 1999: 45; Vellema, 1999: 94). As explained in chapter IV, TNCs can provide local farmers with capital, or otherwise help them overcome difficulties in obtaining bank loans. Host-country policies can play an important supplementary role in this respect by providing help through tax credits or rebates, guarantees and co-financing (Vellema, 1999: 100), as illustrated by PRONAF in Brazil (see box V.6). Some developing countries, such as the Philippines, have established land banks with a special focus on serving the needs of farmers.¹⁵ ODA funds could also be made available for that purpose.

(4) Improving business opportunities for farmers in remote areas

Host-country policies aimed at better connecting farmers in remote areas with TNC operations face two major challenges. First, public investment in infrastructure needs to be improved (see section B.4.a). Second, governments should consider the establishment of information and matchmaking services – at national and local levels – to serve both domestic farmers and TNCs, and help them overcome the information gap with regard to linkage opportunities. For instance, specific information may include details about availability of farmers, prices, qualities, standards of agricultural products, market trends and inputs (e.g. seeds and equipment), as well as the names, profiles and needs of potential foreign and domestic partners.

For example, the Heze region in Shandong Province of China is actively seeking FDI in agricultural production and related processing activities in order to develop the region into a major production and export base of organic agricultural products in the country. The local government has prepared a catalogue of projects, which provides potential foreign investors with detailed information on the market potential, estimated investment needs, projected earnings and the preferred mode of entry of TNCs. The programme covers more than 50 projects for 2009, in various commodities, such as the production of cereals, vegetables, meat and traditional Chinese medicines.¹⁶

Box V.5. Integrated producer schemes in the United Republic of Tanzania

In the United Republic of Tanzania, integrated producer schemes (mainly in the form of outgrower schemes) have been beneficial to smallholders in terms of increasing their productivity and specialization (chapter IV). The scheme involves a system that links production, extension services, transportation, processing and marketing, and has often included technical assistance from foreign companies. It requires a lead firm for governance, while the Government plays a critical role as market facilitator.

In the initial stages, the Government needs to support both smallholders and TNCs by providing guarantees to investors and/or building capacities of smallholders. In order for TNC participation in agriculture to be a win-win situation, the creation and retention of value added in the host country is important.

This can be achieved through contract farming and a number of programmes, such as the promotion of rural entrepreneurs in farming activities. This requires, first and foremost, collaboration between the public sector and TNCs in technology transfer and innovation. One success story in this regard is KATANI.^a In 1998, this foreign affiliate introduced the Sisal Smallholder and Outgrower (SISO) scheme in five estates in the Tanga Region, involving 2,500 farming families. Knowing that extension services are critical for increasing productivity, the local government in Korogwe appointed KATANI to provide extension services to sisal smallholders in and around the estates, including various forms of technical assistance. In addition, KATANI is collaborating with Mlangoni Agricultural Research Institute, established under the Ministry of Agriculture, to conduct R&D on sisal production.

Source: UNCTAD, based on input from Elibariki Msuya, Kyoto University, Japan.

^a KATANI is a private company registered in the United Republic of Tanzania. It is owned by African Mpya (90%), a Tanzanian company, and Mkonge Investment and Management Company (10%), owned by private foreign investors. The foreign affiliate has three main objectives: to grow sisal for fibre production, to conduct research aimed at developing new varieties of sisal suitable for various end-users, and to develop and disseminate new technologies in the cultivation and processing of sisal.

Box V.6. Brazil's PRONAF

The Government of Brazil runs "PRONAF" (National Program for the Strengthening of Family Agriculture) to finance farming and non-farming activities (e.g. rural tourism, handicraft production, family agribusinesses) in rural areas. As the programme aims to support rural businesses and make the best use of the family workforce, some conditions are applied for eligibility to the programme. These include residence in or close to the property, no (or limited) use of paid employees and a ceiling on the size of land. The credits it provides should be used to purchase items which are directly related to the production and service activities and contribute to increasing the productivity and income of the rural producer families (e.g. purchase of new machinery, development of irrigation and rural telephony). Credits can be provided not only to individuals but also to groups.

The programme consists of seven financing facilities: Conventional PRONAF, PRONAF

Agribusiness, PRONAF Woman, PRONAF Agro-ecology, PRONAF ECO, PRONAF More Food and PRONAF Reconstruction and Revitalization. Each facility has different purposes and financing conditions. For example, Conventional PRONAF provides financial support for expanding or upgrading farming or non-farming services and production infrastructure on rural property or in rural community areas. PRONAF Agro-ecology provides financial support for investments in agro-ecological or organic production systems, while PRONAF More Food is dedicated to financial support for investments in the production of corn, beans, rice, wheat, cassava, vegetables, fruits and milk. The programme offers more beneficial financial conditions for smaller projects. Maturity differs depending on the utilization of the loans. For example, the maturity period for loans for new machinery is 10 years, while for other expenditures it is 8 years.

Source: UNCTAD, based on information from the Brazilian Development Bank (BNDES).

(5) Organizing farmers in the market

Local farmers may hesitate to enter into contractual arrangements with TNCs because of their limited bargaining power vis-à-vis those firms. One means of strengthening the negotiating capacities of farmers is to encourage them to form producer organizations and to negotiate with TNCs collectively (Prowse, 2007). These organizations can also provide a forum for farmers aimed at making TNCs more environmentally and socially responsible. Institutional arrangements for smallholders through producer organizations may also contribute to improving productivity, reducing costs through supply chain linkages, improving access to necessary and affordable inputs such as technologies and credit, and enhancing competitiveness (see box V.7). From a TNC's point of view, producer organizations may reduce transaction costs and help overcome information and communication deficiencies.

In addition, host-country policies should encourage competition among buyers of agricultural produce through appropriate competition laws that prohibit the abuse of a dominant position (see section B.4.b below and chapter IV). To reduce dependence, host-country policies should further envisage, for instance, promotion programmes for the diversification of agricultural production, improved storage facilities to avoid post-harvest losses, and subsidies for the purchase of fertilizers and machinery (Ashoff, 2005).

(6) Strengthening dispute avoidance and resolution

One potential disincentive for TNCs to enter into contractual arrangements with local farmers is the lack of effective dispute settlement procedures. The relationship between TNCs and local farmers is exposed to the risk of conflict; all the more so as specific legal regulations on contract farming scarcely exist (see above). Conflicts may arise, for instance, as a result of the unequal bargaining power of TNCs and farmers, or because each side has a different understanding of the purpose and objectives of their contractual arrangements (Zola, 2004). The delayed payment of farmers and/or their non-compliance, because they can achieve higher prices elsewhere, can also become contentious issues. Theft of assets can be another problem.

Improving domestic courts and accelerating the decision process, including enforcement procedures, can help increase legal security for both partners to an agreement. However, judicial reform efforts may take time, and the costs of legal proceedings related to contract farming arrangements may be higher than the amount in dispute. This underlines the importance of conflict pre-emption strategies. As noted above, policymakers can help prevent conflicts between TNCs and local farmers by developing model contracts. It may also be worthwhile for host countries to consider including more explicit rules on contract farming in their domestic legislation and offering the possibility of recourse to mediation.

3. Addressing environmental and social concerns

a. Sustainable agriculture and environmental policies

Growth in agricultural output in the last few decades has been based largely on intensification of production through greater inputs of fertilizers, pesticides, irrigation, new crop strains and other technologies. Even though this has come at significant environmental costs, agricultural intensification remains important for food security. The main priority for governments, therefore, is to ensure that this intensification does not lead to environmental degradation, for instance by promoting sustainable farming systems. Many industrialized countries have already started this process, and developing countries could learn from their successes and failures. However, policy responses in developing countries are often constrained by inadequate finance for necessary research, a lack of institutions and support services and the need to avoid measures that raise food prices (FAO, 2003c).

TNC involvement in agricultural production can have both positive and negative impacts on the sustainability of agricultural systems in developing countries (see chapter IV). Overall, environmental policies should discourage “bad” behaviour, such as excessive use of inputs, and support “good” behaviour, such as introducing new technologies and management skills that have a positive impact on the environment. When considering policy options, governments need to take into account the fact that TNCs are more often indirectly involved in agricultural production (e.g. through contract farming and through the involvement of other parts of the value-chain) than directly involved (e.g. plantations). So far, environmental policies have been mainly directed at farmers. However, policies should also bear in mind TNCs’ responsibilities when they indirectly control production.

Disciplining harmful TNC involvement is critical in cases of environmental damage through mismanagement of agricultural inputs such as fertilizers, pesticides and water. In order to control detrimental effects, it is essential to establish an adequate regulatory framework. However, conventional command-and-control regulation in developing countries has not always worked well in the past. Approaches based on economic factors, such as cost, are often more successful (World Bank, 2000). Governments need to find the right mix between the two types of regulations. Examples of policy options are the introduction of pollution taxes, water-pricing policies and the removal of input subsidies (FAO, 2003c). Many developing countries, for example, provide subsidies for agricultural inputs, often leading to their excessive use and environmental degradation. Since subsidies should rapidly lead to learning more about both input use and benefits, as well as to increased incomes, they should be phased out in due course. Moreover, subsidies often end up in the hands of the TNCs that provide the inputs (Dorward, Hazell and Poulton, 2008). Thus, removing input subsidies, or providing them under strict conditions, may reduce harmful environmental effects.¹⁷

Biosafety is another area where good government regulation is essential. Many developing countries view biotechnology as important for the future growth of agricultural output, but uncertainty concerning the risks and the lack of proper regulation are major impediments to its current use. Government regulation is also critical to curtail the potential abuse of market power of the few major biochemical TNCs that now control global research, production and distribution of genetically modified organisms (GMOs) for agricultural production. Argentina is one of the first countries to have established a biosafety system for regulatory oversight of genetically engineered agricultural crops. In Africa, the African Union developed the African Model Law on Safety in Biotechnology to help member States fulfil their international obligations under the Cartagena Protocol

Box V.7. Examples of networking and linkages by farmers’ organizations in Uganda

UNCTAD’s Business Linkages programme, implemented in Uganda but also in other countries such as Argentina, Brazil, the Dominican Republic, Mozambique, Peru, the United Republic of Tanzania, as well as Zambia, has proven to be a viable mechanism for improving business opportunities not just for urban-based SMEs, but also and most importantly, for rural communities engaged in income-generating activities. In Uganda, by transforming farmers into rural entrepreneurs, the programme has had a significant impact on poverty reduction. For example, the linkages

pilot project, funded by the Government of Sweden in 2005–2007 and implemented by the Ugandan Investment Authority and Enterprise Uganda as lead facilitator, helped to develop a local source for barley by linking manufacturing and brewing companies with local farmers. It now benefits over 3,000 farmers organized in the Kapchorwa Commercial Farmers Association (KACOFA). Its achievements include increasing farmers’ incomes and facilitating the association’s move into basic processing stages in the value chain (such as drying, cleaning and packing).

Source: UNCTAD.

on Biosafety and manage related issues.¹⁸ Efficient monitoring and enforcement systems are another essential element of good environmental governance. However, developing countries often lack adequate financial and institutional resources and technical information, which underlines the importance of more capacity-building.

Apart from disciplining harmful involvement, governments may wish to adopt policies that promote sustainable agricultural practices by TNCs. For instance, fiscal and regulatory incentives could be used to promote TNC involvement in sustainable agricultural management (e.g. conservation agriculture or organic production), or TNCs could be encouraged to undertake R&D for sustainable agriculture (see section B.4.d).

Certification schemes for agricultural production have already been developed by many NGOs and TNCs. Governments and development agencies should encourage TNCs to promote the use of organic and fair-trade standards in their relations with local farmers and to strengthen farmers' capacities to meet them, including through adequate monitoring systems. For example, the Government of China encourages TNC participation in the environmentally friendly planting of certain crops, including vegetables, fruits and teas (e.g. by granting tax incentives).¹⁹

Within the fresh fruit industry, the banana industry leads by far in the use of voluntary certification. Indeed, there are many voluntary certification schemes used in the industry. Among the most common are the Rainforest Alliance, organic agriculture and fair trade labelling schemes. Since organic and fair-trade banana production may fetch higher export prices and help developing-country producers to capture a larger share of the value, it is in the interest of host-country governments to support the adherence of domestic producers to these standards for local markets. However, governments need to consider both benefits and disadvantages (e.g. additional costs to smallholders) before promoting any certification scheme. In particular, certification standards for international markets may hamper local efforts to be more organic.

International assistance and cooperation can contribute significantly to helping countries gain access to information and best practices in sustainable agricultural production. For example, with regard to pesticide use, safety information and technical assistance is provided to developing countries through the International Plant Protection Convention. The design of many national climate change mitigation and adaptation policies may benefit from discussions that are currently taking place at the international level in preparation for the 15th Conference of the Parties to the United Nations Framework Convention on Climate Change, to be held in Copenhagen in

December 2009. These discussions relate to issues such as the establishment of international carbon markets and risk reduction policies (FAO, 2008b), but also to policies on sustainable biofuel production by TNCs and the possible use of the Clean Development Mechanism (CDM) for sustainable investment in agriculture.²⁰ Finally, the international community can provide technical assistance in developing good environmental governance. For instance, the World Bank Environment and Natural Resource Management Programme brings together a number of international initiatives that promote environmental governance in developing countries.

b. Social policies

TNC involvement in agricultural production can have both positive and negative social impacts on a host country (see chapter IV). Their involvement also raises fundamental questions concerning the right to food and related human rights aspects, including the protection of the rights of indigenous peoples (see boxes V.8 and V.9).

Security of land tenure is critical for the majority of the world's population who depend on land and land-based resources for their lives and livelihoods, both from a human rights and economic perspective.²¹ However, FDI in agricultural production may deprive local people of their land (see chapter IV).

Host-country policies concerning FDI in agricultural production should give due respect to the land tenure rights of smallholders. A better definition and protection of these rights can contribute to more sustainable management of those resources. However, in many cases it has proved difficult to change informal customary land tenure systems, which have been in existence for centuries, and transform them into a system of more formal rights. In addition, whether land titles or other registration documents improve security of land tenure of local land users depends on the existence of strong local institutions that are able to uphold and defend the rights embodied in those documents (Kanji et al., 2005). If people are dispossessed, they should have access to the courts and the right to compensation. Smallholders could also benefit from reducing incentives for land transfers, for instance by asking higher purchase prices or lease rents, or introducing higher taxes for land use. Transparency is also a critical issue in land deals with TNCs.

Allocating State-owned or underutilized land to TNCs is another critical issue. There should be appropriate safeguards to ensure that such allocations are made using objective criteria. Special preferences could be given to local farmers that depend on such lands for their livelihoods, for example because of traditional farming rights. Transferring land to more

productive uses and users such as TNCs should be encouraged only to the extent that it does not lead to further marginalization of the poorest (de Schutter, 2008).

Another important aspect of social policies has to do with labour conditions. Agriculture is among the most labour-intensive and hazardous industries, and the workforce is often poor and badly organized. However, it includes many child labourers. In numerous developing countries, agricultural workers are poorly protected by national labour laws. In addition, there are problems of illiteracy and ignorance of workers' rights, which may be further aggravated in the context of seasonal, migratory and casual labour.²² International organizations, such as the International Labour Organization (ILO) and FAO, can assist developing countries that have insufficient domestic capacities for incorporating international labour standards into their national legal frameworks. There are eight ILO Conventions and Recommendations that address labour issues relating specifically to agricultural and rural workers.²³

c. Corporate social responsibility

An increasing number of TNCs involved in agricultural production provide the public with information on principles that guide their own conduct, including their impacts on their suppliers.²⁴ Such principles are often included in individual codes of conduct or are based on multi-stakeholder initiatives. The latter can be general initiatives, such as the United Nations Global Compact (UNGC) and the Global Reporting Initiative (GRI), agriculture-specific schemes (e.g. GLOBALGAP and the Sustainable Agriculture Initiative (SAI)), or commodity-specific programmes, for instance for cocoa, palm oil, soy and sugar cane production (see box V.10).²⁵

Issues that are frequently addressed in agriculture-related initiatives or codes of conduct are knowledge transfer (e.g. through training and dissemination of best practice information), and community-building activities (e.g. promotion of health care and education). TNCs also seek cooperation with suppliers to improve labour standards (e.g. through certification schemes and

Box V.8. The role of the right to adequate food in guiding investments in agriculture

The right to food is protected as a human right in international law, at least since the adoption of the Universal Declaration on Human Rights in 1948 (G.A. Res. 217 A (III), U.N. Doc. A/810, at 71 (1948)) and, subsequently, the 1966 International Covenant on Economic, Social and Cultural Rights (ICESCR) (G.A. Res. 2200 (XXII)).

According to the Committee on Economic, Social and Cultural Rights, the body of independent experts monitoring compliance with the ICESCR, "the right to adequate food is realized when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement." It is not primarily about being fed; it is about being guaranteed the right to feed oneself.

Taking into account States' obligations for upholding the right to adequate food therefore has operational implications in at least three ways. First, it requires that efforts to support agricultural production or to establish social safety nets are targeted towards the needs of the most vulnerable, identified through food insecurity and vulnerability information and mapping systems. Second, it requires the establishment of accountability mechanisms to ensure that victims of violations of the right to food have access to independent bodies empowered to control choices made by decision-makers. Although it includes requirements linked to good governance and respect for the rule of law, it goes beyond those dimensions to encompass empowerment and accountability, as well as the participation of those directly affected by the design and implementation of the policies. Third, the right to food requires prioritization:

trade and investment policies and choices relating to modes of agricultural production, for instance, should be subordinated to the overarching objective of realizing the right to food. Both the Committee on Economic, Social and Cultural Rights and the FAO Voluntary Guidelines for the Progressive Realization of the Right to Food recommend that States adopt national strategies for the realization of the right to food, in order to ensure that policies in other areas effectively contribute to this end (FAO, 2005).

An approach to investment in agriculture which is grounded in the right to food requires that greater attention be paid in the future to developing forms of agriculture that are more sustainable socially and environmentally, and that would significantly increase yields. The United Nations Environment Programme (UNEP), the FAO and UNCTAD, as well as other agencies have published reports that demonstrate how these models of agro-ecological agricultural production should and could be scaled up. The relationships between these agro-ecological approaches and the human right to food have been established. First, these sustainable farming approaches are adapted to the complex environments where some of the most vulnerable groups live. Second, the management processes that lead to them are generally participatory processes involving the affected vulnerable groups in order to guarantee sustainable results, a strategy consistent with a rights-based approach. Third, these techniques improve the resilience of farming systems to climate change and to high oil prices – two developments which directly affect those who are already the most vulnerable today.

Source: de Schutter (2008). Comments by the United Nations Special Rapporteur on the Right to Food, prepared for UNCTAD.

Box V.9. Protecting the rights of indigenous peoples

There have been instances where investments in agriculture have infringed on the rights of indigenous peoples. For example, cases have been reported in Latin America where a number of agro-industrial corporations, often with the help of security forces, have evicted peasants and indigenous peoples from their lands by force in order to secure the production of soya.^a Concerns have been expressed that the model of export-oriented agriculture, which often leads to investments in large-scale plantations, has resulted in deforestation as well as hunger, poverty and eviction of indigenous peoples in countries such as Argentina, Brazil, Cameroon, Colombia, Guatemala, Indonesia and Paraguay.^b

In recent years, increased investments in agrofuels have exacerbated these concerns. Such investments have a direct impact on indigenous peoples, as the strong competition for land and natural resources often results in their eviction and displacement when they lack security of tenure.^c Recent examples of forced evictions of indigenous peoples for the production of agrofuels have been noted by several NGOs.

In Colombia, the NGO, Human Rights Everywhere, documented forced evictions, the appropriation of land and other human rights violations in oil palm plantations, along with the responsibilities of all the actors along the production chain.^d Another study estimated that if existing investment plans were realized, up to 60 million indigenous peoples would be forcibly evicted from lands which are customarily owned in order to make way for bio-fuel plantations (Tauli-Corpuz and Tamang, 2007).

TNCs, States and the international community can act to prevent the eviction and displacement of indigenous peoples resulting from investment in agribusiness. All TNCs involved in the production of agrofuels must avoid complicity in human rights violations against indigenous peoples.^e States need to respect, protect and fulfil the right of indigenous peoples to access land which are customarily owned and have security of tenure as a means to sustainable development.^f Finally, the Special Rapporteur on the Right to Food has recommended that the international community develop guidelines for the production of agrofuels, which include human rights standards and protections for indigenous peoples.^g

Source: UN-OHCHR and the United Nations Special Rapporteur on the Right to Food.

^a Document No. (A/62/289).

^b Document No. (A/62/289) (E/CN.4/2006/44/Add.1).

^c Document No. (A/62/289) (A/HRC/9/278) (A/HRC/9/23) (A/HRC/7/5).

^d Document No. (A/HRC/7/5).

^e Document No. (A/HRC/7/5).

^f See ICESCR Article 11.2(a); CESCR General Comment 12, ILO Convention 169, articles 13–19, UN Declaration on the Rights of Indigenous Peoples articles 8.2(b) and 10, and A/57/356.

^g Document No. (A/HRC/9/23).

campaigns against forced labour) and transfer of business knowledge (e.g. accounting, entrepreneurship and creditworthiness).

An examination of the 100 largest food and beverages TNCs shows that approximately one third of the companies specifically address their relationship with farmers in their CSR reporting.²⁶ In particular the largest TNCs – presumably those with the most public exposure – are the most inclined to underwrite international CSR initiatives, such as the UNGC and GRI. The advantage of such international multi-stakeholder cooperation is that it enables implementation of better coordinated knowledge transfers and community-building activities. In addition, more and improved reporting standards may result from these concerted efforts, including reliable auditing practices.

Although governments normally are not directly involved in CSR initiatives, they can play a major role in promoting CSR practices in agricultural production, and in improving social and environmental standards. This could also benefit the industry's competitiveness and exports (Tallontire and Greenhalgh, 2005). However, governments should also be aware of the limitations of CSR initiatives. Policymakers need to take into account issues such

as the actual costs and benefits of these initiatives for smallholders, and the availability of independent auditing systems or official grievance procedures.

4. Other relevant policies

In addition to the above issues, there are several other policy areas relating to a broader economic agenda that are significant determinants of TNC participation in agricultural production and their development impact in the host country. They therefore need to be integrated into host-country strategies aimed at attracting TNCs to agricultural production. Among the most important ones are those related to infrastructure development, competition policies, international trade and research and development (R&D).

a. Infrastructure policies

Infrastructure development is critical for the participation of TNCs in agricultural production, as confirmed by UNCTAD's surveys of IPAs and governments. Arable land may be located far from main transportation routes and major cities where the bulk of food consumers live. Since most agricultural

Box V.10. Sector-specific corporate social responsibility initiatives^a

The following are examples of corporate social responsibility (CSR) initiatives taken by producers of specific agricultural commodities. In general, these initiatives include projects that promote local production capacities and address issues such as the creation of a learning or information network (e.g. on best practises), labour rights and conditions, certification, transparency and traceability. They often also seek to create a discussion forum or partnership that includes all stakeholders (industry, governments and NGOs).

International Cocoa Initiative (ICI)

The ICI was established in July 2002 to ensure against the use of child and forced labour in the production of cocoa. It promotes the engagement of companies in projects that will promote improvements in the supply chain and in cocoa producing communities. Its board members include representatives from the major chocolate brands, processors and key cocoa-related associations as well as from civil society, including trade unions and NGOs.

Common Code for the Coffee Community Association (4C)

Within the Common Code for the Coffee Community Association (4C), producers, trade, industry and civil society from around the world cooperate to enhance sustainability in the entire coffee industry. This global community seeks to improve the social, environmental and economic conditions for the people who make their living from coffee production. The main pillars of 4C are a code of conduct, participation rules for trade and industry, support mechanisms for coffee

farmers, a verification system and the participatory governance structure.

Roundtable on Sustainable Palm Oil (RSPO)

The RSPO is an association created by organizations involved in and around the entire supply chain for palm oil. It seeks to promote the growth and use of sustainable palm oil through cooperation within the supply chain and open dialogue with its stakeholders. The seven industries of ordinary members are oil palm growers, palm oil processors and/or traders, consumer goods manufacturers, retailers, banks and investors, environmental/nature conservation NGOs and NGOs dealing with social and development issues.

Round Table on Responsible Soy Association (RTRS)

The RTRS is an international multi-stakeholder initiative that brings together those concerned with various impacts of the soy economy. It is developing a set of standards for the production and sourcing of responsible soy, and aims to promote the best available practices. The membership consists of representatives from civil society organizations, industry, finance, trade and producers.

Better Sugar Cane Initiative Limited (BSI)

The BSI's main mission is to ensure that current and new sugarcane production is produced sustainably. It focuses on social and environmental issues such as soil productivity, rational water use, effluent management, biodiversity maintenance and equitable labour. The BSI represents collaboration between sugar retailers, investors, traders, producers and NGOs.

Source: UNCTAD, based on information from websites of the ICI, 4C, RTPO, RTRS and BSI.

^a These examples of sector-specific initiatives are intended to provide a general indication. The selection is based on commodities for which TNCs are more likely to be confronted with CSR issues.

commodities perish quickly if left untreated, transportation between farms, food processing factories and urban areas needs to be fast and reliable. In developing countries, financing for infrastructure development remains well below overall needs (*WIR08*). While governments and ODA have to be the major sources of funding, private investors (including TNCs) can play a supplementary role (chapter IV).

Water policies play a particularly important role in infrastructure development for agriculture.²⁷ Improved water management, including increased efficiency in irrigation, can achieve “more crop per drop”. This means renovating outdated irrigation infrastructure to reduce leakage, using better water storage and delivery techniques, and adopting emerging technologies, such as plant varieties. For instance, since the late 1970s, China has invested 954.5 billion yuan (around \$150 billion) for the improvement of the country's irrigation system.²⁸ Host-country policies should consider whether TNCs involved in agricultural production can make

a contribution in this respect, for instance through “build-operate-transfer (BOT)” contract schemes.

b. Competition policies

Agricultural industries are usually composed of different hierarchies of producers, traders, buyers and sellers, which together make up the value chain. Within this value chain, farmers or small and medium producers are the weakest link due to their small sizes and high concentration in the upstream and downstream markets. In the upstream markets, farmers deal with input providers such as seeds and fertilizers. Farmers usually deal with a few national retailers, which buy from big multilateral input provider companies with substantial market power. Since most agricultural markets are national in scope, prices and supply conditions differ from one country to another. In addition, there is market segmentation due to the existence of different seeds for specific climate zones. Considering the large number of farmers who

deal with only a limited number of wholesalers or middlemen – who usually enjoy high profit margins – there is need for appropriate competition policies to deal with potential anti-competitive practices that may arise in these markets. Such practices could be price-fixing or the abuse of a dominant position by major input providers, which will adversely affect farmers' incomes. From a wider competition policy perspective, allowing imports of inputs may exert competitive pressures on dominant companies. From a narrower competition policy perspective, adoption and enforcement of competition laws may be effective in dealing with such practices.

Another important problem with this type of value chain is the link between farmers and buyers of their products. Usually, the buyers and/or traders are a few large TNCs having considerable national and/or global market shares. These companies tend to use their buyer power vis-à-vis farmers but whose market shares are too small to enable them to bargain effectively with large firms. Hence farmers usually face prices much lower than world market prices. However, they may find themselves in a situation where they have to sell at lower prices; if they refuse they have no alternative means to dispose of their products, hence loose income. Poor infrastructure in developing countries, particularly in the least developed countries, contributes to creating large distortions in the market by restricting market entry by new firms. These anti-competitive practices may have serious implications for the livelihoods of farmers in developing countries (chapter IV).

Price setting in agriculture, especially with respect to export products or staple food products, such as for rice in Thailand and for milk in China, is a common policy response to deal with such situations. Another policy response may be to ensure that competition law in countries that depend on agriculture includes provisions on abuse of buyer power and also exempts farmers' associations and/or cooperatives from the scope of competition law. This will allow farmers to be organized, and increase their negotiating power vis-à-vis large TNCs.

c. Trade policies

Trade policies may have a substantial impact on TNC involvement in agricultural production. These policies include tariffs and non-tariff barriers, as well as subsidies (see box V.11 and chapter IV).

Tariffs and non-tariff barriers on agricultural commodities may distort FDI flows in various ways. First, high import tariffs and non-tariff barriers applied to agricultural commodities in the host country may encourage barrier-hopping FDI. Second, high import tariffs in the home country of the investor – or any third country – may discourage export-oriented FDI (i.e. for the production of cash crops). Therefore, it is crucial for developing countries with FDI promotion

strategies that tariffs and non-tariff barriers on export commodities in their export markets are kept low. Countries benefiting from lower tariffs than their competitors may want to keep these preference margins in their export markets. Since tariffs are high for agricultural goods, preferential treatment under non-reciprocal agreements (such as the Generalized System of Preferences (GSP)) or reciprocal bilateral and regional trade agreements can further encourage export-oriented FDI in agricultural production. These considerations also apply to developing-country strategies aimed at the production of cash crops through contract farming arrangements involving TNCs. Investments in banana production in Angola and other African, Caribbean and Pacific (ACP) countries, for example, have been encouraged by the duty-free access of ACPs and LDCs to the EU.²⁹

Higher tariffs and non-tariff barriers imposed on processed products as opposed to those on raw materials (i.e. tariff escalation) discourage FDI in food processing for exports. It hampers developing countries' diversification into the export of value added, processed agricultural products such as orange juice, cigarettes or instant coffee. Indeed, agricultural exports of many developing countries are highly concentrated in raw materials such as green coffee or cocoa beans. Safeguard measures, such as the special agricultural safeguard mechanism (or, possibly as a result of the Doha Round, a new safeguard mechanism for developing countries) that allows countries to temporarily raise tariffs above bound rates, reduce predictability of market access. This may have a positive impact on barrier-hopping FDI if used by the host country, and a negative impact on export-oriented FDI if used by the home country or any third country.

Agricultural subsidies, including both domestic support measures and export subsidies, are likely to affect the locational determinant of FDI activities. Subsidies in the home country discourage outward FDI to countries offering lower or no subsidies, since they provide a direct price-cost advantage for subsidized producers. Despite existing commitments in the WTO, subsidies in agriculture are still relatively high. Furthermore, loopholes such as permissible indirect export subsidies, for example through export credits or food aid, exist. Production and export subsidies in agriculture were estimated at around \$365 billion in 2007 (OECD, 2008d).³⁰ And developed countries account for the lion's share of agricultural subsidies.

Milk and other dairy products receive the largest share of trade-distorting subsidies. Other agricultural commodities that are highly subsidized include apples, barley, corn, cotton, soybeans, sugar, tobacco, tomatoes, olive oil and wheat. Thus the list of subsidized products includes various cash crops and staple food items for which developing countries

Box V.11. Trade barriers and developing countries' exports of agricultural commodities

Although the Uruguay Round made some progress in global agriculture and trade policy reform, most developing countries are disappointed about the continuing high levels of protection and subsidies for agricultural goods, mainly in developed countries. These measures hamper developing-country exports of agricultural products, and undermine the effective use of their comparative advantages. Most of the trade-distorting domestic support in developed countries is for temperate products such as milk, but subsidies are also high for some products for which developing countries produce substitutes, such as sugar, or for their traditional products such as tobacco, cotton or oilseeds. This, along with the overall long-term downward trend in world market prices observed in the past, and the considerable

price fluctuations and demanding standards, has made it difficult for many exporters of commodities to sustain their exports.

A recent World Bank estimate suggests that developed-country agricultural policies cost developing countries about \$17 billion each year – a cost equivalent to about five times the current levels of development assistance to agriculture. The benefits for exporting developing countries from liberalization of agricultural policies in developed countries would mainly result from better market access and higher prices for commodities. With full trade liberalization, world market prices would increase on average by 5.5%, while those for cotton would rise by 21% and those for oilseeds by 15%.

Source: WTO Domestic Support notifications; World Bank, 2008: 11; and Ingco and Nash, 2004.

compete with developed countries in the world market or local markets (UNDP, 2003).

Agricultural subsidies in developed countries have contributed to years of underinvestment in this sector in developing countries (World Bank, 2007; UNCTAD, 2008i). Reducing subsidies in developed countries could encourage FDI in poor countries. These subsidies have been the subject of intense and controversial negotiations in the WTO, leading to calls for their substantial reduction or elimination (UNCTAD, 2008j). The fact that many developing countries are net food importers that would be confronted with higher food bills as a consequence of agricultural liberalization complicates the matter. Therefore, effective strategies to mitigate adjustment costs as a consequence of further agricultural liberalization, such as longer repayment periods for export credits, facilitating imports into net food-importing developing countries, and even more important, support for increasing agricultural productivity, especially in LDCs, in order to enhance their agricultural production and their competitiveness are essential.

Another concern that has been raised is that structural adjustment programmes that encouraged low import tariffs, and fiscal austerity and abandoned or weakened the role of marketing boards and commodity stabilization funds for both cash crops and food staples have contributed to low investments in agriculture in developing countries. Therefore, viable alternatives should be put in place (UNCTAD, 2008i).

d. R&D-related policies

Increases in agricultural productivity are closely linked to R&D (see chapters III and IV). Host-country policies aimed at increasing agricultural production through TNC participation therefore need to consider

what role – if any – R&D activities of these companies could play. While most TNC activities in this field are still undertaken at headquarters in the home country, there has been a trend in recent years towards shifting R&D partially to developing countries in order to adapt the development of seeds and products to local and regional conditions (e.g. climate, soil, tastes and traditions) (see also chapter III).

An initial question for policymakers is whether they wish to encourage TNCs to undertake agricultural R&D in their countries. The benefits of agricultural R&D derive from its potentially significant contribution to productivity gains and quality improvements; but there are also some risks and uncertainties involved, in particular in the case of biotechnology (see chapter IV). There is strong opposition in some countries to GMOs, because they are associated with damage to the surrounding environment (e.g. harm to biodiversity), an increase in the debt burden of local farmers, and a loss of “traditional” food, not to mention possible, though yet unproven, health threats.

Second, if the host country considers, in principle, that agricultural R&D by foreign affiliates is desirable, it needs to assess whether it is a suitable location for this. An essential condition for a country's capability to benefit from TNC-led R&D programmes is that it should already have some relevant basic R&D capacity in domestic universities, laboratories and research centres, so that they are able to work with and learn from TNC affiliates' innovation activities (Rama and Wilkinson, 2008). Host-country policies aimed at capacity-building may be necessary, and ODA funds and international development assistance agencies can play a significant catalytic role. A number of developing countries have well-established domestic research capabilities in this area, but most other developing countries lag far behind.

Public-private partnerships (PPPs) for R&D that involve TNCs can be a principal policy instrument to foster innovation, to make agricultural R&D more responsive to local needs, to reduce costs and to spread the project risks between the partners involved (chapter IV).³¹ However, PPPs may create costs as well as benefits. A major challenge is to connect the knowledge generated in TNCs, universities and national research institutes with the knowledge nurtured and held by farmers themselves, although indigenous knowledge and traditional practices may need to be specifically protected. Policymakers can facilitate these PPPs by providing incentives for innovation through low-interest grants that co-finance both R&D and the pilot testing of innovation. In fostering such PPPs, a typical option is to promote collaboration with international agricultural research institutions, such as the Consultative Group on International Agricultural Research (CGIAR).³²

Establishing seed and technology centres in the form of PPPs can ensure the required technology transfer and capacity-building to adapt seeds and related farming technologies to local needs and conditions, distribution to local farmers, as well as build long-term indigenous capacities. This is especially important with regard to bringing the “green revolution” to Africa. A sound institutional framework needs to be put in place that supports these strategies, and at the same time addresses the dependency concerns that have arisen with them. Investing in trade (and investment) facilitation is equally important.

Third, if the above conditions of general acceptance of agricultural R&D and sufficient domestic endowments are fulfilled, policies need to aim at ensuring that TNCs’ research activities take into account the host country’s development needs (box V.12). In this context, the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD, 2009) pointed out that agricultural science and technology should be redirected to ensure that it addresses the needs of smallholders in developing countries, and that it meets the challenge of sustainability, particularly in the context of climate change.³³ This includes, for instance, the issue of which crops to promote. They should be considered in the context of the economic and ecological environments of the host country, and their role in the livelihoods of the poor. Also, problems such as availability and cost of good quality seeds, soil degradation, and post-harvest losses, could be tackled with relatively simple technologies and investments, provided the diffusion of such technologies and such investments are redefined as a priority. International agricultural research projects with substantial payoffs for a large number of beneficiaries should be given priority.

The CGIAR centres have identified examples of “best bets” in agricultural research. These include

programmes to revitalize yield growth in the intensive cereal production systems in Asia, ensure productive and resilient small-scale fisheries, address threatening pests such as virulent wheat rust, tackle cattle diseases such as East Coast Fever, breed drought-resistant maize in Africa, and scale up bio-fortification of food crops (von Braun et al., 2008). Many of these projects offer considerable opportunities for PPPs in planning and execution, with shared costs, risks and benefits (Spielman, Hartwich and von Grebmer, 2007).

Host-country policies also need to consider the role of intellectual property rights (IPRs) in the promotion of agricultural research. The major forms of IPRs that concern TNCs’ activities in agriculture and related R&D are patents on life forms, pesticides, and fertilizers; plant variety rights; and marks, including certain trademarks and geographical indications. It is not evident that agricultural development in the developing world would benefit from a stronger IPR regime, since public sector involvement in agriculture, development assistance, and trade and investment flows may suggest that IPRs are not the most critical factors for promoting innovation in many developing countries (Falck-Zepeda et al., 2008; Lesser, 2003). Furthermore, there is considerable controversy about how TNCs, which are often the holders of the exclusive rights conferred by IPRs, manage their intellectual property (IP) in the field of agriculture.³⁴ This *WIR* does not take a position as to whether or not such exclusive rights ought to be granted; instead it focuses on the interests that need to be balanced by host countries in order to maximize the contribution of TNCs to a developing country’s needs in agriculture.

Host countries that seek to attract TNCs that undertake agricultural R&D need to design an appropriate legal framework for IP, including enforcement of rights. The WTO Agreement on Trade-related Aspects of Intellectual Property Rights (TRIPS Agreement) imposes on member countries an obligation to provide a *minimum standard* of protection for a range of IPRs. The actual standard of protection, however, differs significantly among WTO members. Developing countries could use their regulatory discretion under the WTO to adapt their IP legislation to their needs. For instance, they could opt to provide plant variety protection in lieu of permitting the patenting of plants. Such plant variety protection systems are “*sui generis* rights”, which can be tailored, for example, by explicitly mandating open access to protected varieties for purposes of adaptation and breeding of new varieties, and granting farmers privileges to reuse seeds, thereby allowing the diffusion of seed technologies.

M&As of biotechnology companies that aim at creating alliances and cooperation across the industry and globally have often led to the concentration of IPRs, which may affect the ability of developing countries to negotiate for access to proprietary

Box V.12. China's policy on foreign investment in R&D in agriculture

The policy of the Government of China on foreign investment in agricultural R&D is embedded in several regulations and policy documents promulgated by relevant central government agencies, especially the National Development and Reform Commission (NDRC) and the Ministry of Commerce (MOFCOM). The country's policy approach to this issue reflects both its general strategy for agricultural research, which seeks to balance developing domestic innovative capabilities with promoting knowledge spillovers from industrial countries,^a and its evolving policy on inward FDI, which increasingly emphasizes the role of quality FDI in technological progress and sustainable development.

According to the Eleventh Five-Year Plan for Utilizing Foreign Investment announced by the NDRC in 2006, the Government encourages foreign investment in the development of modern agriculture and the introduction of advanced agricultural technology and business management. It focuses on:

- Development of ecological agriculture and high-tech, high-value-added farming;
- Utilization of aquaculture and agricultural waste;
- Development of biomass energy; and
- Development and manufacture of modern farming machinery and agricultural processing equipment.

According to the *Catalogue for the Industrial Guidance of Foreign Direct Investment* amended by the NDRC and the MOFCOM in 2007, the Government encourages foreign investment, in agriculture-related R&D in the following areas:

- Development of new technologies for sugar crops, fruit trees and forage grass;
- Development of sources of organic fertilizers;
- Cultivation of fine strains of trees and new varieties of polyploidy trees and genetically engineered trees.

Source: UNCTAD.

^a See, for example, Outline for the Development of Agricultural Science and Technology, announced by the State Council in 2001, <http://www.peopledaily.com.cn/GB/shizheng/252/5570/5571/20010530/478329.html>.

technologies at a reasonable price (see box V.13).³⁵ This challenge stems largely from patents that confer broad rights over GMOs and plant varieties. To address this problem, developing countries should consider safeguards based on appropriate IP and competition policies in the field of agriculture.

Host-country policies aimed at *export-oriented* agricultural production should pay attention to the protection of trademarks and marks that indicate that certain standards are met. For instance, the Government of Ethiopia successfully registered SIDAMO coffee as a trademark in the United States,³⁶ and the International Fairtrade Certification Mark guarantees compliance with fair trade standards.³⁷ If TNCs can establish or acquire already existing trademarks in developing countries, or prove compliance with fair trade standards, they may have a better chance of selling their agricultural products in domestic and foreign markets. The same could be said for the use of geographic indications (GIs),³⁸ which have become increasingly common in developing countries, and the registration of appellations of origin.³⁹

However, IPRs may also have a negative effect on export-oriented agricultural production. For example, Argentinean producers have to pay royalty on a patent that is not granted in Argentina in order to access the United States market where Monsanto maintains a valid patent (Trommetter, 2008). Monsanto has brought a number of unsuccessful border measures and patent infringement claims against European imports of soya beans and animal feeds from Argentina (Baldock and Boulton, 2006/2007).

Thus host-country policies aimed at export-oriented agricultural production need to consider whether such export activity could be hindered by foreign IP holders.

5. Concluding remarks

Host-country governments can determine the degree of openness to FDI in agriculture and influence the operational behaviour of TNCs by setting specific entry and operational conditions. Where, how and to what extent they involve TNCs in agricultural production should be decided according to their resource needs and their overall objectives of agricultural development. In addition, policies may need to be adjusted over time to reflect changes in domestic capabilities and global markets.

A sound policy and institutional framework for TNC participation in agricultural production, as well as in other stages along the agri-food value chain, is critical for ensuring development gains. Host countries need an overall strategy for agricultural development, covering various areas such as infrastructure development, competition, international trade in agricultural products and agriculture-related R&D. This makes policy coherence important, including effective coordination of the relevant ministries and agencies.

When designing specific policies related to TNC participation in agricultural production, developing-country policymakers should consider how that involvement could best serve their long-term

Box V.13. Licensing practices, and determining competitive rates of royalty payment

Mahyco-Monsanto Biotech is a joint venture between India's leading seed company, Mahyco, and transnational agricultural biotechnology company, Monsanto. The joint venture was one of the first firms to undertake the development of GM cotton in India. India's Genetic Engineering Approval Committee approved the marketing of *Bt* cotton hybrids submitted by the joint venture.

The cotton seeds sold in the Indian state of Andhra Pradesh by this joint venture were costlier than the usual hybrid variety. In 2005, the Government of Andhra Pradesh took the case to the Monopolies and

Source: UNCTAD, based on Thomas (2007).

Restrictive Trade Practices Commission (MRTPC). It claimed that for each 450 gm packet of *Bt* cotton seeds purchased by the farmer, 67.6% of the cost constituted royalty payments – much higher than the share paid by farmers in Australia, Brazil, China and the United States – to the parent company, Monsanto. The MRTPC directed Monsanto to substantially reduce the price of the seeds it sells in India. Monsanto reduced the royalty fees of GM seeds by 30% to Rs. 900 per 450 gm in March 2006, but it also challenged the MRTPC order in the Supreme Court. However, India's Supreme Court upheld the order.

development objectives. As noted above, this can be achieved by: (i) creating a conducive environment for attracting TNCs and drawing on their resources, (ii) matching TNC assets with domestic endowments to create positive synergies, (iii) promoting linkages between foreign affiliates and domestic entities (particularly small farmers), and (iv) ensuring that a sufficient proportion of the value added is retained in the host economy, and that the economic benefits are fairly shared among the various stakeholders. At the same time, policymakers need to deal with the possibly far-reaching social and environmental consequences of foreign investment in agriculture. Strategies have to be developed to prevent small-scale farmers from being squeezed out, to secure land tenure for local farmers, to uphold the right to food, and to favour those forms of agricultural production that are environmentally sustainable.

C. Home-country policies to encourage outward FDI in agricultural production

Numerous home countries encourage outward FDI in agricultural production within the framework of their general investment promotion programmes. More recently, a number of home countries have adopted specific strategies to promote outward FDI in order to secure domestic food supply.

1. General promotion policies

The general investment promotion schemes of home countries can be grouped into three main categories: (i) information provision and technical assistance, (ii) fiscal and financial incentives, and (iii) political risk insurance (*WIR95*).

The IPA survey conducted by UNCTAD (see section B.1.c) revealed that only a small minority of participating agencies (11%) promote outward FDI in agricultural production (table V.2), and mainly those

from developed countries and Asia. Agricultural industries that are most frequently targeted for outward FDI are cereals, fruits and vegetables and animal products. The main goal of developed-country IPAs is to assist their TNCs to further globalize their production chain. IPAs from other regions promote outward FDI because of limitations in their own national production capabilities, or to benefit from opportunities to obtain agricultural land abroad.

The most common forms of support are financial assistance and provision of information to companies investing in overseas agricultural production. For instance, in China, the Special Fund for Foreign Economic and Technical Cooperation, which is administered by the Ministry of Commerce, provides financial support (sometimes in connection with its ODA) to support outward investment and agricultural projects. The Government of China also makes funds available for pre-investment expenses, such as costs of feasibility studies or surveys (Freeman, Holslag and Wei, 2008). Similarly, the Government of the Republic of Korea provides loans for companies that invest in overseas agricultural development,⁴⁰ and information about potential investment regions, including their natural environment, logistics and agricultural potential (Republic of Korea, MIAFF, 2008).⁴¹ Beyond direct government measures, public financial institutions and sovereign wealth funds (SWFs) – such as the Saudi Industrial Development Fund (SIDF) and the Abu Dhabi Fund for Development (ADFD) – can play an important promotional role (Woertz, 2009).

2. Challenges related to overseas agricultural production to secure food supply

In recent years, some food-importing countries, such as the Republic of Korea and some GCC countries, have adopted a policy of developing overseas agricultural production to secure food supply (chapter III and box V.14.; Woertz et al., 2008;

Table V.2. IPAs that actively promote outward FDI in agricultural production, by country group/region
(Percentage of respondents to UNCTAD survey)

Home region	Yes	No	No response
Total	11	82	6
Developed	17	83	-
Developing	12	87	-
Africa	13	67	20
Asia	17	83	-
Latin America and the Caribbean	-	92	8
Transition economies	-	100	-

Source: UNCTAD–WAIPA Survey of IPAs, February–April 2009.

Kim Yelie, 2008; Grain, 2008b). These policies were initiated by food price hikes (Woertz et al., 2008), and intensified following some recent restrictions on food exports by supplier countries. Such policies, if designed and implemented properly, can help curb food price inflation by increasing the global production of food. Furthermore, participation by new investors can alleviate distortions in the international food market, which is dominated by a few agriculture exporting countries and large agribusiness TNCs (chapter III). However, concerns have also been raised that overseas agricultural production may aggravate food shortages in host countries and deprive local farmers of land (chapter IV).

Home-country policies aimed at overseas agricultural production to secure food supply are not a new phenomenon. For example, a number of Arab countries started to explore overseas food supply sources as early as 1973, as a reaction to the United States' threat to boycott food delivery to the region during the oil crisis at that time. To secure food, Gulf countries planned to develop Sudan as a bread basket to meet their needs (Woertz et al., 2008). Accordingly, the Arab Authority for Agricultural Investment and Development (AAAID), established in 1976, is headquartered in Khartoum, Sudan.⁴²

Some earlier investments in overseas agricultural production for food security, such as those undertaken by the Republic of Korea from the

1960s to the 1990s, and by some Arab countries in the 1970s, faced difficulties for various reasons (see chapter IV). One particular challenge arises from the target regions. While established agricultural regions such as North America and Europe have advantages, including good infrastructure, developed rules of law and safe FDI environments, the downside for foreign investors is that they have dominant agricultural traders controlling storage and transportation facilities in their region. In contrast, less developed regions may suffer from poorer infrastructure, an unreliable supply of materials, lack of quality inputs, political instability and institutional shortcomings. Although powerful agricultural traders have a weaker presence, several of these target regions are currently net food importers (Woertz et al., 2008), and exporting food may have serious socio-political consequences.

In addition, there is a risk of the host country imposing an export ban during a food crisis. Under GATT/WTO rules, export restrictions can be applied temporarily to prevent critical food shortages, subject to certain conditions (see GATT Article XI and WTO Agreement on Agriculture, Article 12). As at July 2008, more than 40 countries had imposed export controls on commodities (HLTF, 2008).

3. Policy implications

Home countries should assess carefully the possible pros and cons of a policy strategy on outward FDI in agricultural production aimed at securing domestic food supply *versus* a trade-oriented approach. For countries where climate, soil and water conditions prevent the cultivation of sufficient agricultural commodities, outward FDI in agricultural production may be an appealing alternative. However, home countries need to consider whether this is more advantageous than importing agricultural products from third-party producers. There can be significant benefits in gaining control over production, as well as cost savings. On the other hand, there is a risk that a food crisis in the host country could cause it to restrict exports of agricultural commodities, which

Box V.14. The King Abdullah Initiative for Saudi Agricultural Investment Abroad

Launched in January 2009, the King Abdullah Initiative for Saudi Agricultural Investment Abroad (KAISAIA) “aims at contribution to realizing national and international food security, building integrative partnerships with countries all over the world that have high agricultural potential to develop and manage agricultural investments in several strategic crops at sufficient quantities and stable prices in addition to ensuring their sustainability.”

Investments by this initiative are based on a number of principles and criteria. For example, the

investment should be long-term, through ownership or long-term contracts; investments should take place in countries with “promising agricultural resources” and “encouraging government and administrative regulations and incentives”; the investors should be allowed to select which agricultural crops to grow; and bilateral agreements should be signed with the concerned countries to ensure achievement of the investment objectives. (For further details see www.mofa.gov.sa).

Source: Ministry of Foreign Affairs, Kingdom of Saudi Arabia.

would defeat the purpose of the overseas investment. These considerations call for the setting up of broader strategies to secure food supply at home, for instance by diversifying outward FDI to different host countries. Outward FDI-oriented policies aimed at increasing food security in the home market should also go hand in hand with low trade barriers in the home country, at least vis-à-vis imports from the host country for the corresponding products.

Overseas agricultural investment is a risky business and it can take a long time to deliver the desired outcomes. This makes thorough pre-investment research vital.⁴³ Even after an initial in-depth study, a step-by-step approach is advisable as it is difficult to design a “perfect” plan from the start.

As discussed above, many target countries for investment in agricultural production aimed at supplying home-country markets are net food importers. Exporting food from those net importing countries can cause social disturbance. It has been suggested that a set of principles be developed for host countries and foreign investors, including rules on transparency of negotiations, respect for existing land rights, sharing of benefits, environmental sustainability, national food security and the human rights challenge (von Braun and Meinzen-Dick, 2009; de Schutter, 2009).

Home countries should also consider whether overseas food production in the form of contract farming could be a viable alternative to FDI. One specific approach could be to involve SWFs – possibly through intermediary companies – in the contract farming arrangements. These funds have considerable financial resources that could be made available for agricultural development. Several of them are headquartered in countries that are actively seeking host countries for agricultural production. Investing in agricultural production may contribute to diversifying risks and be an alternative to placing capital in financial institutions where some SWFs have realized heavy losses due to the global economic crisis.

Contract farming arrangements could create a win-win situation for all partners involved, provided that appropriate bargaining conditions exist, with all parties capable of protecting their essential concerns in the negotiation process. Contractual links can enable foreign investors to establish long-term relationships with local professional farmers in the host country to secure food supply. In addition, the contract farming option reduces the production risks associated with the FDI option, and avoids potentially strong opposition in the host country to foreigners gaining direct access to agricultural land. Local farmers could substantially benefit from contract farming through the transfer of capital, technology and know-how and a stable source of income. This income generation could contribute to gradually reducing poverty in the host country and enable farmers to move to higher value activities. If

local farmers have a vested interest in maintaining their contractual relationship, the home country and its investors could be better protected against interference by the host-country authorities. However, it is essential that contract farming arrangements are not concluded at the expense of sufficient food supply to the host country’s population.

Mixed models are also possible. There are examples of large-scale commercial units, often privatized former State farms, owned and operated by an international investor with links to smallholders in a symbiotic relationship, whereby the smallholders sell their output under contract to the large company while receiving support in the form of agreed sales, credit and technical assistance. Sugar investments in the United Republic of Tanzania are one example of such a development, and in Zambia, an objective of the government policy is the creation of a similar model based on the so-called “farm blocks” concept (Hallam, 2009).

In addition to focusing on agricultural production itself, consideration should be given to investing in trading firms and in logistical infrastructure such as ports. Such investments not only offer the opportunity to lower food procurement costs by cutting out middlemen and agency fees; they could also improve food security in a food crisis by facilitating access to international agricultural markets (Sung, 2008; Woertz et al., 2008).

D. International policies related to FDI in agricultural production

1. Major international policy initiatives

Agriculture and food security are high on the international agenda.⁴⁴ A major development was the establishment of the United Nations High-Level Task Force on the Global Food Security Crisis (HLTF) in April 2008. The HLTF elaborated a Comprehensive Framework for Action (CFA) which presents two sets of action: meeting immediate needs and building resilience. Under the latter, the CFA aims at stimulating public and private investment in agriculture by calling for the creation of a more conducive climate for investment. The Leaders’ Statement on Global Food Security adopted at the G-8 Summit in Hokkaido in July 2008 contains a commitment to reverse the overall decline of aid and investment in agriculture, and calls for a Global Partnership on Agriculture and Food Security (G-8, 2008). At the G-8 Summit in L’Aquila in July 2009, countries represented made a commitment towards the goal of mobilizing \$20 billion over the next three years for a comprehensive strategy for sustainable global food security and for

advancing by the end of 2009 the implementation of the Global Partnership for Agriculture and Food Security. On the occasion of the L'Aquila Summit, the International Fund of Agricultural Development (IFAD) stressed that the world food security issue cannot be resolved without long-term investment in agriculture.

At the regional level, recognizing that agriculture is crucial to Africa's economic and overall development, African leaders initiated, within the framework of the New Partnership for Africa's Development (NEPAD), the Comprehensive Africa Agriculture Development Programme (CAADP) to boost agricultural productivity in Africa. In Asia, at the 14th ASEAN summit in February–March 2009, ASEAN leaders adopted the ASEAN Integrated Food Security Framework (AIFS) and the Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS) 2009–2013.

The focus of the FAO strategy on involving TNCs in agriculture has been on agribusiness and the agro-industry. The FAO's support to developing countries is delivered through various forms of technical assistance to recipient governments and to farmers, with a focus on capacity-building, information dissemination, policy advice and skills development. Through its Investment Centre, the FAO focuses on promoting investment in agriculture by assisting developing countries to identify and formulate effective and sustainable agricultural policies, and by designing and implementing specific programmes and projects.

The Multilateral Investment Guarantee Agency (MIGA) and the International Finance Corporation (IFC) promote FDI in agricultural production in developing countries by providing guarantees against various kinds of political risks in the host country, or by providing financial or technical support.

The recent G-8 pledge to devote substantially more ODA to agriculture in developing countries and the various regional initiatives to improve the institutional framework for investment in agriculture are encouraging signs. However, still more could be done, especially with regard to addressing the concerns caused by the recent surge in large-scale land acquisitions by foreign investors in agricultural production. One particular challenge relates to the development of international principles for such investments (mentioned above), highlighting the need for transparency, stakeholder involvement and sustainability, and stressing concerns for domestic food security and rural development.

2. International investment agreements

International investment agreements (IIAs) promote foreign investment, which would include

investment in agricultural production, by protecting it against certain kinds of political risks in the host country. However, undertaking international commitments in a highly regulated and sensitive industry like agriculture, where government policies may be controversial and subject to change, also carries the risk of reducing the policy space of host countries.

One means for host countries to preserve regulatory discretion is the use of reservations in IIAs, in particular with regard to the entry of FDI. An UNCTAD survey of IIAs that include establishment rights revealed that reservations relating to foreign investment in agriculture are common, especially in free trade agreements (FTAs) with investment chapters. Out of a total of 150 examined bilateral investment treaties (BITs) and FTAs with pre-establishment rights (covering 88 countries), 85 IIAs (56%) included national treatment reservations relating to agriculture or the use and ownership of land.⁴⁵ A similar host-country approach consists of reserving the right to adopt or maintain any measures with regard to the approval of agricultural projects.⁴⁶

IIAs usually establish various investment protection obligations for host countries. Several of these are particularly relevant for TNC participation in agricultural production.

Most IIAs include *immovable property* (land) and *intellectual property* in their definition of investment. Intellectual property is relevant with regard to the transfer of technology and R&D activities, for instance in connection with GMOs, but also pesticides and fertilizers. Some IIAs even go so far as to cover plants as a protected investment.⁴⁷

A core provision in most IIAs is the principle of *fair and equitable treatment*. The meaning and content of this provision is somewhat ambiguous and, as shown below, has given rise to several investment disputes relating to agriculture. Arbitration practice in recent years has tended to interpret the article in a broad manner, protecting the “legitimate expectations” of foreign investors. As a highly regulated as well as politically and socially sensitive industry, agriculture is particularly exposed to government intervention, which foreign investors might consider as being contrary to their expectations. This applies to a broad range of host-country regulations. One example relates to subsidies that governments pay to producers. An elimination or reduction of such State assistance may be perceived as unexpected by the foreign investor, and therefore considered as unfair treatment. Other examples relate to export taxes or other restrictions that adversely affect investors' operations, or the introduction or modification of standards in agricultural production relating to safety, hygiene or other areas of health.

Expropriation of land from foreign farmers has been an issue repeatedly raised in connection with host-

country policies on land redistribution. In addition, the examples cited above might become relevant with regard to indirect expropriations (i.e. situations where the foreign investor's property rights remain formally untouched, but where the host-country measure has a similar effect as a formal expropriation).

Equally pertinent is the issue of protection in case of *war and civil strife*. History is replete with examples where disputes about control over land have caused wars, revolutions or civil unrest. Social unrest in a country may result in farm occupation, the expulsion of farmers from their homes, the destruction of crops and other acts of physical violence. IIAs containing a clause on war and civil strife usually oblige contracting parties to grant non-discriminatory treatment to foreign investors with respect to eventual compensation payments by the host country.

Numerous IIAs contain a provision that explicitly permits contracting parties to take any measures aimed at protecting public *health and safety*. This clause might shield host countries from investor claims, for instance in connection with the introduction of new regulatory standards for agricultural production. Likewise, many IIAs include a *national security exception*, which may become important if a contracting party rejects a foreign investor because it considers agricultural production as a security-sensitive industry.

Foreign investment in agricultural production often has a *trade link*. This is most obvious if agricultural production is destined for export purposes or if the production process necessitates the import of certain technological inputs. This makes it relevant for IIA negotiators to consider including a trade component, particularly in the context of bilateral or regional FTAs, or other agreements on closer economic cooperation. A combined investment and trade agreement can make the host country more attractive for foreign investors in agricultural production, but it also increases the host country's obligations.

Compared to other economic industries, few international investor-State disputes have arisen in agriculture and related industries. There were 19 known international arbitration cases involving foreign investment in the agricultural value chain by the end of 2008.⁴⁸ Six of these cases involved agricultural production (cultivation of plants, crops, fruit, vegetables or cattle).

The disputes have focused on a number of IIA provisions, in particular the principle of fair and equitable treatment, the standard of full protection and security, national treatment, expropriation and State responsibility. The known total amount of compensation sought by the foreign investors is approximately \$1.1 billion.

IIA negotiators should be aware of the potential consequences of an investment agreement

for agricultural policies. A number of issues deserve special attention by developing countries. For example, if a developing country decides that foreign investors are welcome for the production of certain agricultural commodities, it could reflect this in specific investment promotion provisions of the IIA. This approach requires that host countries identify those sub-sectors for which foreign investors should be specifically targeted (UNCTAD, 2008h). One example is the Economic Partnership Agreement (EPA) between the EU and the member States of the Caribbean Forum (CARIFORUM), which calls for a dialogue, exchange of information, experiences and best practices for the promotion of investment in the CARIFORUM agricultural industry, including small-scale activities.⁴⁹

Another issue relates to linkages between investment and trade policies. If developing countries seek the involvement of foreign investors in agricultural production for export purposes, trade liberalization and facilitation become significant FDI determinants. In this case, host countries should aim at the conclusion of IIAs that include trade provisions, as in a number of recent EPAs or FTAs.

IIA negotiators also should pay attention to the increasing risk that developing countries face of being drawn into an investor-State dispute. As shown above, core IIA provisions, such as fair and equitable treatment, full protection and security, and protection in case of expropriation, have become the subject of investment disputes in agriculture. Developing countries should therefore consider a clarification of these clauses in future IIA negotiations, including a possible narrowing of their scope of application.⁵⁰ Developing countries could also benefit from exception clauses in IIAs, relating to such areas as public health and national security.

The legal protection of local landowners' rights often lags considerably behind that offered to foreign investors, as noted earlier. This may have significant adverse consequences for land security, especially for small-scale local farmers who run the risk of being easily dispossessed to make way for foreign investors. Subsequent governmental actions to protect local land titles could become the subject of investor-State disputes in the future if they interfere with rights granted to foreign investors. These concerns should be adequately addressed through the device of the development dimension in the IIAs.

E. Conclusions and policy options

Developing countries face many challenges in promoting agricultural production. One strategy to cope with these challenges is to use the advantages and resources of TNCs by involving them in the

industry. However, expectations concerning the level of FDI and its possible benefits should be realistic, particularly for such products as staple food crops. In addition, the existing institutional environment in numerous developing countries limits, to varying degrees, entry by TNCs, and not all host-country governments may be sufficiently equipped to attract TNCs.

Host-country policies concerning TNC participation in agricultural production have changed over time, and vary between countries, commodities and type of TNC involvement. There is no “one-size-fits-all” solution, as policies are based on different combinations of individual factors, such as the special characteristics of agricultural commodities, the type and objective of production (staple food for domestic food supply or cash crops for export), the geographic and agro-climatic characteristics of locations, and the socio-political and cultural environment.

The main challenge for host-country governments is how to maximize the development benefits of TNC participation in agricultural production, while minimizing the costs. Responding to this challenge involves a broad and complex agenda that extends well beyond FDI policies per se, and may require trade-offs with various other policy objectives. The involvement of TNCs in agricultural production may have far-reaching social and environmental implications for a host developing country. Host-country governments need to assume the main responsibility in this regard, but the role of other stakeholders – civil society and international organizations – should not be neglected, in addition to that of the TNCs themselves. A comprehensive host-country strategy towards TNC participation in agricultural production also requires integrating policies related to such aspects as infrastructure, competition, trade and R&D.

Given the concerns that exist in numerous countries in respect of FDI in agricultural production, and TNCs’ generally limited interest in this activity, contract farming may in many cases be a promising alternative. This mode of TNC involvement can significantly contribute to raising agricultural production and productivity, and to economic development in general. Provided that contract farming schemes are based on fair and informed bargaining, and help create mutually beneficial linkages and allow domestic producers to become a part of larger food value chains, it is in the interest of host countries to support the participation of local farmers in these arrangements.

In recent years, an increasing number of food-importing countries have started pursuing a strategy of overseas agricultural production to secure food supply at home. Such strategies can contribute to creating value and generating export revenues in

the host countries, but they can also have negative consequences for food supply in the exporting country, including depriving local farmers of land. However, a win-win situation can emerge if the institutional arrangements are carefully designed, and if the legislative framework and investment contracts ensure a fair sharing of the benefits between host countries and foreign investors.

IAs can be an additional means to promote TNC participation in agricultural production, but their careful formulation is crucial with a view to striking a proper balance between the obligations to protect and promote foreign investment, on the one hand, and policy space for the right to regulate, on the other. This is particularly important in the case of agriculture, as the sector is highly regulated and sensitive, where government agricultural policies may be controversial and subject to change, and the countries’ social and environmental policies are rapidly evolving (including in line with various international standard-setting processes).

Based on the above considerations, a number of policy recommendations can be made:

- (1) Developing countries should *strategize agricultural production* and the food industry and consider what role TNCs could play in implementing their strategies. For this purpose, they may wish to:
 - Establish a multi-stakeholder mechanism, with the effective participation of smallholders, to engage in open discussions concerning the potential role of TNCs in agricultural production and its possible implications.
 - Adopt an integrated policy approach that comprises not only agricultural and investment policies, but also other crucial policy areas such as infrastructure development, competition, trade and R&D.
 - Identify environmental and social concerns associated with TNCs’ involvement in agricultural production, and address them in the overall policy framework.
 - Monitor the impact of TNC involvement in agricultural production.
 - Consider (especially in the case of developing countries with small markets) regional economic integration that could help attract TNCs in agricultural production by providing larger regional integrated markets.
- (2) Developing countries should pay particular attention to the *promotion of contractual linkages* between TNCs and local farmers so as to enhance farmers’ productive capacities and help them benefit from the global value chain. In

this context, host-country strategies should seek to:

- Review the whole value chain with a view to identifying and addressing bottlenecks in successful contractual cooperation between TNCs and local farmers.
 - Develop model contracts for contract farming, ensuring they are socially and environmentally sustainable.
- (3) Developing countries could also consider whether they can benefit from the renewed interest of numerous home countries in *FDI in staple food production*. Developing countries aiming to attract such FDI may wish to:
- Review their FDI entry regulations and land-use policies (e.g. by clarifying land-use rights and streamlining administrative procedures), while ensuring adequate and effective protection of land rights of local farmers and communities.
 - Strengthen the role of IPAs with regard to attracting FDI in agricultural production.
 - Conduct an environmental and social impact assessment of the specific investment project before admitting FDI. Decision-making should be transparent and open to public scrutiny.
 - Develop a checklist of issues for host countries to negotiate with foreign investors in order to ensure development benefits for the host country. (Key points for consideration are listed on page 172 above).
 - Identify priority areas for agricultural R&D that are important for the host country's development needs, and promote public-private partnerships. Seed and technology centres are ideal examples of such a priority. First, they would adapt relevant seed and farming technologies to make them suitable for, and available to, smallholders. Secondly, a PPP is an ideal way of transferring and diffusing the relevant knowledge between partners to build and deepen indigenous capacity.
- (4) Recommendations in respect of country strategies related to *outward FDI to secure food supply*:
- Start with an assessment of the potential advantages and risks of an FDI-driven strategy compared to a trade-based approach. Consider whether contract farming or mixed approaches could be a useful alternative to FDI.
 - Consider, in addition, investing in local infrastructure, such as trading houses, harvesting facilities, roads and ports, which

can bring benefits to both agriculture and the overall economy.

- (5) Recommendations related to the *international community*:
- Reduce import tariffs, non-tariff barriers and agricultural subsidies in developed countries to encourage FDI in poor countries.
 - Consider the development of an internationally agreed set of core principles for large-scale land acquisitions by foreign investors in agricultural production. These principles should highlight the need for transparency, respect for existing land rights, protection of indigenous peoples, the right to food and social and environmental sustainability.
 - Consider the use of ODA funds in the context of agricultural development strategies that combine public investments with maximising benefits from TNC involvement.

Notes

- ¹ In March–May 2009, UNCTAD conducted a questionnaire-based survey of all UNCTAD Member States on foreign investment policy relating to agricultural production. The following 35 countries responded: Albania, Angola, Argentina, Azerbaijan, Bosnia and Herzegovina, Colombia, Costa Rica, Ecuador, El Salvador, Ethiopia, Fiji, Finland, Georgia, Ghana, Greece, Jamaica, Jordan, Kyrgyzstan, Lebanon, Lithuania, Malawi, Mauritius, Mexico, Oman, Portugal, Rwanda, South Africa, Sri Lanka, Suriname, Saint Vincent and the Grenadines, the United Republic of Tanzania, Tonga, Turkey, Ukraine and Zambia.
- ² According to UNCTAD's survey of governments, approximately 70% of the responding countries reported not imposing any specific entry conditions on TNCs that plan to invest in agricultural production.
- ³ Long-term land lease period is usually 50–99 years, sometimes including an option for renewal.
- ⁴ This is confirmed by the results of UNCTAD's Government survey.
- ⁵ A total of 63 questionnaires were completed by members of WAIPA, representing an overall response rate of 30%. A geographical breakdown of the responses shows a fairly similar distribution to that of the WAIPA membership.
- ⁶ Of the total respondents, 22% indicated that their policies did not give priority to the agricultural sector. Among developed-country agencies, the share was much higher (44%). Only 5% of all IPAs indicated that another government agency was taking care of promotional activities, while none indicated that investment was prohibited.
- ⁷ Among IPAs from developed countries, 17% indicated that attracting FDI into agriculture is now more important than three years ago and 28% expected this to continue for the next three years.
- ⁸ Only a few respondents cited food security as a motivation for attracting FDI.
- ⁹ For instance, four agencies in developed countries said that barriers overall were low, and that policy uncertainty and macroeconomic and trade barriers were their major focus (both 11% of respondents). In contrast, some of the

- agencies from Asia and Latin America and the Caribbean also mentioned these issues, but none of the IPAs from Africa did so.
- 10 See <http://www.ghanalap.gov.gh/privatecontent/File/lands%20commission%20folder/Land%20Bank%20Directory%202nd%20edition.pdf>.
- 11 International aspects of investment protection are discussed in section D.2.
- 12 The suggestion had been made by the Government of Japan. It aims at establishing a set of principles for both host countries and foreign investors, covering the following issues: Transparency and accountability, respect for rights and benefits of local population, developmental and environmental impact assessment, food security and market principles (see http://mofa.go.jp/policy/economy/fishery/food_sec0907.html).
- 13 See for example, India's State Agricultural Produce Marketing (Development and Regulation) Act (APMA Model Act) of 2003, Chapter VIII, No. 38, Viet Nam's Decision No. 80/2002/Qd-TTg of 24 June 2002 and Thailand's Standard Contract Farming Agreements of 1999.
- 14 For example, in the United Republic of Tanzania, the planned Guidelines for the Marketing and Private Sector Development Component in the Agricultural Sector Development Programme also cover contract farming (see: www.actanzania.org/index.php?option=com_content&task=view&id=119&Itemid=39).
- 15 See <https://www.landbank.com/about.asp>.
- 16 *Source:* Field study undertaken by UNCTAD in Heze in April 2009.
- 17 For instance, in recent years there has been a growing interest in "smart subsidies particularly in Africa. These subsidies are innovative input delivery systems that are intended to reduce common problems facing subsidy programmes and to extend their benefits (Dorward, Hazell and Poulton, 2008).
- 18 The Protocol on Biosafety is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another. It was adopted on 29 January 2000 as a supplementary agreement to the Convention on Biological Diversity and entered into force on 11 September 2003. The Protocol imposes upon signatory countries the responsibility for ensuring that activities involving GMOs are conducted in a manner that does not pose a risk to biodiversity or the environment. It is intended to increase transparency on the nature of traded goods by stipulating requirements for advanced informed agreement on the part of the importing country. This entails undertaking a scientifically sound risk assessment of the GMO. Accordingly, it calls for the development of regulatory frameworks and a capacity for risk assessment in countries that still lack them (Burachik and Traynor, 2002).
- 19 See *Catalogue for the Industrial Guidance of Foreign Direct Investment* (amended in 2007).
- 20 For instance, land use is currently excluded from the CDM, with the exception of afforestation and reforestation projects. The United Nations Convention to Combat Desertification (UNCCD) has suggested expansion CDM coverage of agricultural land (see http://www.fao.org/fileadmin/user_upload/foodclimate/statements/unccd_kalbermatten.pdf).
- 21 Guideline 8.10 of the FAO Guidelines on the Right to Food (see also box V.8) emphasizes the need to promote and protect the security of land tenure, especially with respect to women, poor and disadvantaged segments of society, through legislation that protects the full and equal right to own land and other property, including the right to inherit; and it recommends advancing land reform to enhance access for the poor and women. Securing land rights also makes economic sense: it has been widely documented that providing land owners or users with security against eviction enhances their competitiveness by encouraging land-related investment, and lowers the cost of credit by increasing the use of land as collateral. *Source:* comments provided by the UN Special Rapporteur on the Right to Food, Mr. Olivier De Schutter.
- 22 The ILO Declaration on Fundamental Principles and Rights at Work: available at <http://www.ilo.org/public/english/protection/safework/agriculture/agrivf01.htm#nl>. (<http://www.ilo.org/public/english/dialogue/sector/sectors/agri/standards-rural.htm>).
- 23 Although in some cases private standards only reflect host-country standards.
- 24 The *United Nations Global Compact* is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with 10 universally accepted principles in the areas of human rights, labour, environment and anti-corruption. *GRI* promotes and develops a standardized approach to reporting to stimulate demand for information on sustainability, and can be used as a benchmark for assessing organizational performance with respect to laws, norms, codes, performance standards and voluntary initiatives. Adherence to it demonstrates organizational commitment to sustainable development and enables comparison of organizational performance over time. *GlobalGap* is a partnership between agricultural producers and retailers to establish certification standards and procedures for good agricultural practices (GAP) (see also chapter IV, box IV.11). The *SAI Platform* is an organization created by the food industry to communicate worldwide and to actively support the development of sustainable agriculture among the different stakeholders in the food chain. Other relevant initiatives include the SA8000, ISO 14001, the Ethical Trade Initiative (ETI) and various international framework agreements.
- 26 The research made an assessment of CSR strategies and reporting based on available online corporate documents such as annual reports, business codes and sustainability reports, and especially focused on adherence to relevant UNGC and GRI principles. This information was obtained from the Agrodata database of UMR MOISA, Montpellier, and company reports.
- 27 Some 40% of global food is produced on irrigated land, and significant additional investment in irrigation systems will be needed in the future (FAO, 2007b).
- 28 Xinhua News Agency.
- 29 In the current Doha Round the treatment of preferences is a controversial issue among developing countries especially because of different tariffs for tropical products.
- 30 This includes government support and indirect support such as transfers from consumers to producers through higher prices due to boarder measures.
- 31 PPP can be defined in this context as any research collaboration between public and private entities in which the partners jointly plan and execute activities with a view to accomplishing agreed objectives, while sharing the costs, risks and benefits incurred in the process (Spielman, Hartwich and von Grebmer, 2007).
- 32 The CGIAR is a worldwide network of agricultural research centres with a permanent secretariat, supported by the World Bank, with the FAO, UNDP and IFAD as co-sponsors. It now has 64 governmental and non-governmental members and 15 research centres. It is a centre-driven coalition to promote collective action among the centres and between the centres and their partners.
- 33 The IAASTD process was initiated in 2002 by the World Bank in open partnership with a multi-stakeholder group

- of organizations, including FAO, GEF, UNDP, UNEP, WHO and UNESCO and representatives of governments, civil society, private sector and scientific institutions from around the world. The objective was to evaluate the impacts of past, present and future agricultural science and technology on 1) the reduction of hunger and poverty, 2) improvement of rural livelihoods and human health, and 3) equitable, socially, environmentally and economically sustainable development.
- ³⁴ See, for instance, the extensive literature surrounding the Canadian Supreme Court case of *Monsanto Canada Inc. v. Schmeiser* [2004] 1 S.C.R. 902, 2004 SCC 34.
- ³⁵ Taking 18 major agrochemicals' country markets as a proxy for the global market, it is estimated that 77% of the global agrichemicals are dominated by six players (as of the year 2004): Bayer (Bayer Crop Science), Syngenta, BASF, Dow (Dow AgroSciences), Monsanto and DuPont (chapter III).
- ³⁶ USPTO, Registration Number, 3381739, 12 February 2008. Starbucks had abandoned its original application dated June 2004 for the registration of trademark SHIRKINA SUN-DRIED SIDAMO, application serial number 78431410. Starbucks confirmed that the coffee beans are sun-dried and originate from the Sidamo region of Ethiopia.
- ³⁷ Fair trade standards are set by Fairtrade Labelling Organizations International (FLO).
- ³⁸ For example, Café de Colombia is a registered GI of coffee in the EU originating from Colombia. There are 10 pending applications originating from China, and 2 applications from India that request the registration of Darjeeling tea and Kangra Tea.
- ³⁹ World Intellectual Property Organization (WIPO), Agreement for the Protection of Appellations of Origin and their International Registration, Lisbon 1958, and Lisbon System for the International Registration of Appellations of Origin. For instance, Mexico has registered Café Chiapas, and Café Veracruz as appellations of origins.
- ⁴⁰ The Republic of Korea, Ministry for Food, Agriculture, Forestry and Fisheries, Public Notice, No. 2008-355.
- ⁴¹ For details, see <http://oai.ekr.or.kr/ekr/oai.html>.
- ⁴² As at 2001, the AAAID had invested about \$352 million: 38% of that went into plant production, 21% in animal production, 37% in agricultural processing, 2% in inter-Arab trade development and another 2% in agricultural services. Most of the AAAID's activities are directed to Sudan (AAAID, 2002).
- ⁴³ For example, failures by Korean companies in the past mainly resulted from insufficient research (Kim Yong-taek and Bae-sung Kim, 2007), which is why the Government of the Republic of Korea opened an Information Centre for Overseas Agricultural Investments in 2008.
- ⁴⁴ This section only deals with developments at the multilateral and regional – not the bilateral – level.
- ⁴⁵ Reservations on fisheries were not taken into account. In the North American Free Trade Agreement (NAFTA), for example, Mexico has a reservation stating that “only Mexican nationals or Mexican enterprises may own land for agriculture, livestock or forestry purposes.” For instance, the BIT between Lithuania and the United States specifies: “The Government of the United States of America reserves the right to make or maintain limited exceptions to national treatment [...] in the sectors or matters it has indicated below: [...] the use of land and natural resources.”
- ⁴⁶ For instance, the FTA between Malaysia and Pakistan states: “Malaysia reserves the right to adopt or maintain any measures with regard to approval for [...] agricultural projects. All approvals are subject to National Land Code and other laws, regulations and policies of the Central and Regional Governments.”
- ⁴⁷ For example, in the Economic Partnership Agreement between Indonesia and Japan, the definition of investment also comprises intellectual property rights, including new varieties of plants (Art. 58 (f) (vi)).
- ⁴⁸ UNCTAD database on investor-State dispute settlement cases.
- ⁴⁹ The 15 CARIFORUM-EPA countries are: Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, the Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, Saint Vincent and the Grenadines, Saint Kitts and Nevis, Suriname, and Trinidad and Tobago.
- ⁵⁰ One example of this approach is the 2004 United States model BIT with its extensive interpretative language on the meaning of the fair and equitable treatment standard and its notion of an indirect taking.