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Chapter VI

REGIONAL COOPERATION IN TRADE LOGISTICS, ENERGY AND INDUSTRIAL POLICY



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Economic integration, which brings with it an increasing division of labour and a dense network of linkages between firms within and across sectors and regions, is not simply the result of market forces, nor can it be “engineered” in an open society by State planning and intervention. This is true for integration at the national level as much as at the regional and international levels. Market dynamics, private-sector production and investment decisions, and attitudes of governments to different forms of economic cooperation with their neighbours all play a role; but regional integration processes are also conditioned by structural characteristics and the complementarity of the economies of a region, the compatibility of national economic policies, as well as the overall macroeconomic environment. This explains why formal regional cooperation in trade and finance can be associated with very different degrees of effective regional integration, and why such integration has sometimes occurred among countries without prior conclusion of formal trade arrangements or other far-reaching policy cooperation. Moreover, some areas of coordinated or common policy action at the regional level may be as important as trade liberalization, depending on the specific conditions in the different regions. This chapter discusses various examples of such policies, from developing and developed countries.

The quality of trade logistics and trade-related information flows has a direct bearing on regional trade dynamics, with possible attendant effects on structural change and growth. Section A discusses several issues in the area of trade logistics, including cross-border transport conditions, which are crucial for any exchange of goods to be physically possible. The subsequent sections examine areas of regional policy cooperation that focus more directly on sustained growth, diversification and industrial upgrading, and, by enhancing the trade potential, also feed back into the pattern of regional integration. Section B examines some recent trends in regional cooperation in the energy sector, which is beginning to be perceived in a new light, stemming from increasing environmental concerns relating to energy production and consumption, and growing apprehension about the adequacy of future global energy supplies. Finally, section C looks back at the history of integration in Western Europe and the lessons it could offer with regard to the possible role of regional industrial policies in support of development, notwithstanding the considerable differences between the conditions in Europe and those in developing countries.

While the quality of trade logistics is critical for regional trade to take off, regional energy and

industrial policies help raise productivity, diversification and structural change, which requires a long time horizon. For example, they may allow the financing and implementation of projects that would not be feasible for an individual country,

and could also avoid fallacy of composition. Successful cooperation in all these areas can support national efforts to strengthen internal integration in each country as well as successful integration into the global economy.

A. Trade logistics

1. *Regional trade and its transport: a virtuous circle*

Intraregional trade tends to grow faster than interregional trade, despite the fact that (unit) costs of international transport are declining. Over the past few decades, intra-Asian container traffic has been growing faster than global container traffic, just as intra-European or intra-MERCOSUR trade has been increasing at a higher rate than trade between these two regional blocs. For example, for containerized trade, intraregional traffic is forecast to overtake East-West traffic (i.e. between Asia, Europe and North America) by 2015 (fig. 6.1). Due to larger traded volumes and the resulting economies of scale, unit transport costs have declined and frequency and service quality have increased. Also, in many regions, more transport options (road and rail) are available. This reduces delivery times, allows more just-in-time delivery, and thus tends to increase the demand for goods and components. In other words, more trade leads to better and less expensive transport services, which in turn results in more intraregional trade.

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There is a potential two-way relationship between broader regional economic integration and integration in the area of transportation. Less expensive and better intraregional transport services lead to further regional economic integration, and at the same time regional economic integration often includes the liberalization of regional markets for transport services. Within the EU, for example, maritime cabotage services are mostly liberalized for European registered vessels, common standards help to create a common market for transport services, and trucks from different member countries are, in principle, and within certain limits, free to move national cargo in other member countries. Other examples of regional integration of markets for transport services include efforts by the Association of Caribbean States towards a regional agreement on air transport services, the Pacific Island Forum Air Services Agreement, the SADC Protocol on Transport, Communications and Meteorology, and the Andean Community's General Framework of Principles and Rules for Liberalizing Trade in Services. Such regional agreements can also be expected to promote FDI in transport, as this gives investors access to a larger market.

Regional approaches are also particularly appropriate for transport facilitation along main transport corridors, including waterways. For example, regional solutions are being sought along the rivers Paraguay-Parana in South America (Acuerdo de transporte fluvial por la hidrovía Paraguay-Paraná), the Nile (Nile Basin Initiative) and the Mekong (Mekong River Commission).

There are, however, exceptions to these general trends. Many African countries, for example, are still better connected to industrialized countries in other continents via air and maritime transport services than they are to neighbouring countries (UNCTAD, 2006a). Inadequate infrastructure and cumbersome border-crossing procedures are an obstacle to intraregional trade, and existing trade and travel patterns often make it necessary to travel to a neighbouring country via a European hub-airport. Intraregional trade will not benefit from integration initiatives at the political level if these are not supported by practical measures that facilitate the movement of goods within regions.

2. Trade facilitation as an instrument to promote regional trade

Information deficiencies are often believed to underlie many of the most important sources of market failure in practice. Therefore public support in the dissemination of information on market opportunities can be an effective instrument at the regional level for building business contacts among neighbouring countries. This may be of particular importance for the poorer countries with very thin markets and a low level of internal integration. In these cases, regionally organized trade support institutions that identify and disseminate relevant information on regional trade and investment opportunities, based on supply and demand surveys of specific products, could help enlarge markets and identify possibilities for production linkages across borders. Such services can be supported by the organization of trade fairs and regional buyers/sellers meetings to allow firms from neighbouring countries to promote their products and services within the context of existing regional trade agreements, thereby creating regional value chains for global competitiveness (ITC, 2006a).¹

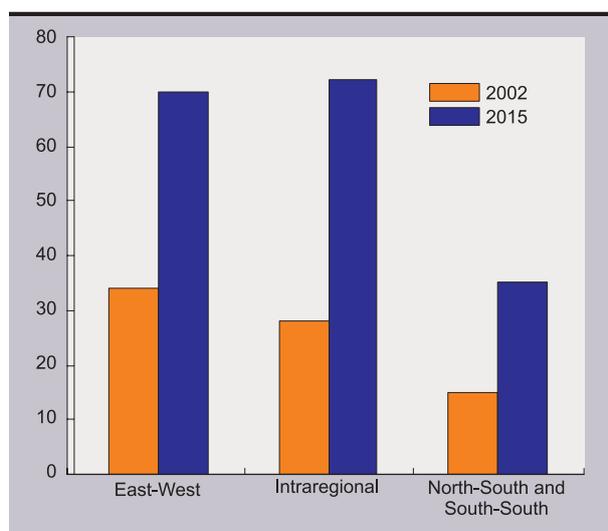
With these considerations in mind, an institutional network has been established in CEMAC and UEMOA, for example, for the management of trade information and the exchange of regional business opportunities among national trade support institutions to help small and medium-sized enterprises (SMEs) identify regional trade opportunities. A framework for trade information management and dissemination has also been defined for the Indian Ocean Commission (IOC) member countries to help them develop efficient national and regional information services and networks for the business sector (ITC, 2006b).²

In addition to information deficiencies, bureaucratic complications and inadequate transport conditions are frequently serious obstacles to the emergence of regional economic linkages. These problems cannot be solved by the reduction or elimination of tariff protection; rather, they require additional trade facilitation efforts. Many trade facilitation measures are achieved more easily at the regional than at the global level, including those that involve infrastructure, common standards,

Figure 6.1

INTRAREGIONAL AND INTERREGIONAL CONTAINERIZED MARITIME TRAFFIC

(Millions of TEUs)



Source: ESCAP, 2005: 32.

Note: TEU: twenty-foot equivalent unit.

Box 6.1**COMESA CUSTOMS DOCUMENT**

Article 69 of the COMESA Treaty provides for the simplification and harmonization of trade documents so as to facilitate trade in goods and services within the common market. It requires the reduction to a minimum of the number of trade documents and copies needed, and harmonization of the nature of the information to be contained in the trade documents. Article 71 of the Treaty further requires such trade documents to be designed and standardized in accordance with internationally accepted standards, practices and guidelines and to be adaptable for possible use in computer and other automatic programming systems. Accordingly, COMESA designed a single form for use as a customs declaration, the COMESA Customs Document (CD), which was adopted by the Council in 1997. To date 15 countries are using a Single Goods Document (SGD) based on the COMESA CD: Angola, Burundi, the Democratic Republic of the Congo, Egypt, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Sudan, Uganda, Zambia and Zimbabwe. The remaining five countries (Comoros, Djibouti, Eritrea, Seychelles and Swaziland) are in the process of adopting an SGD. In addition, most COMESA member countries are using UNCTAD's ASYCUDA Customs automation system, which has also incorporated the COMESA CD.

Source: COMESA, at: www.comesa.int/trade/customs.

licences, trade documents (box 6.1) and even basic facilities such as opening hours at border crossings. Regional partnerships in trade and transport facilitation can play an increasingly important role in helping to reduce regional transportation costs by improving transport infrastructure, transit arrangements and trade facilitation at border crossings. Partnerships tend to reflect the multidisciplinary nature of trade and transport facilitation. They can support the sharing of good practices, the identification of bottlenecks that extend beyond a single country and the formulation of policy proposals that require parallel undertakings in several countries.

Regional facilitation partnerships can include a variety of players from the private and public sectors, non-governmental organizations and multilateral donors. Examples include the Trade and Transport Facilitation in Southeast Europe Programme, the Association of Southeast European PRO Committees, and the Transport Corridor Europe, Caucasus, Asia programme. Business organizations active in this area are mostly sector-

specific, such as the European Association for Freight Forwarding, Transport, Logistics and Customs Services, and the International Confederation of Customs Agents. In Latin America, private companies have formed the Business Alliance for Secure Commerce (BASC), which focuses on improving security along the supply chain, while at the same time aiming to facilitate legitimate trade (box 6.2).

Trade and transport facilitation across a region may follow different approaches, depending on the degree of economic integration and political cooperation. More heterogeneous regions may need special case-by-case approaches that focus on specific facilitation measures. Regions already having a preferential or free trade agreement or customs union tend to work towards introducing comprehensive, all-inclusive measures. The Economic Cooperation Organization (ECO), on the other hand, has directed efforts at trade and transport facilitation before moving towards trade liberalization. There may also be cooperation in this area between regional organizations, such as

Box 6.2**BASC: SECURITY STANDARDS AS A TRADE FACILITATION TOOL**

During the past 10 years, the Business Alliance for Secure Commerce (BASC) in Latin America has worked as an association between the private sector, customs administrations, governments and international organizations to promote trade and ensure its security. The Security and Control Management System (SCMS) developed by BASC aims to improve logistics and prevent terrorism and drug trafficking, which affect legitimate commerce. If such a management system were to be recognized by the different countries' customs authorities, operations could be expedited through simplified customs procedures and the dispatching of merchandise in an efficient and secure manner. This would save time and reduce costs, thereby benefiting traders. The BASC SCMS procedures require compliance with legal requirements. They define the security system and responsibilities, taking into account administrative skills and capacities, the need for ensuring security of facilities, information and goods, as well as the selection of suppliers and clients. BASC certified companies benefit from a solid reputation in international markets and have direct and permanent contact through their national chapters with customs authorities and international organizations that participate in the programme. At present, almost 1,800 companies in 13 countries in Latin America are benefiting from more secure commerce due to the recognition of the BASC SCMS by more than 20 customs administrations and international organizations.

Source: Business Alliance for Secure Commerce, at: www.wbasco.org.

between the EU and CARICOM and between ASEAN and the EU.

Land-based trade often requires transit through neighbouring countries. Many countries only allow goods to transit their territory if these are placed under customs surveillance during the transit operation and if a guarantee is provided. The guarantee ensures that in case the goods do not leave the territory of the transit country, either due to an irregularity or because they have been illegally introduced in the market of the transit country, the corresponding taxes and excises will be paid if evidence that this has not happened cannot be produced. Guarantee systems during the transit procedure are an alternative to actually paying duties and taxes on the goods. Guarantees are issued by the owner of the goods or an agent (e.g. a customs broker or carrier) for the benefit of the customs authority in the country of transit. International transit systems, such as the Transports Internationaux Routiers (TIR), rely on a mutually recognized guarantee and a single set of

documentation (e.g. the TIR Carnet, in the case of the TIR system). Although the TIR Convention is in principle international, it is mostly applied at the regional level in Europe and neighbouring Asia. China is considering becoming a signatory to the Convention, following the adherence of Kazakhstan and other neighbouring Central Asian countries. In some regions, regional solutions to transit systems are being sought, including in the COMESA region, West Africa, ASEAN and the Mekong region.

In South America, two regional agreements – in the Andean Community and in MERCOSUR – aim at facilitating multimodal transport (i.e. a trade transaction where goods are carried by at least two different modes of transport, but with a single transport contract). The multimodal transport operator must keep a contractual civil responsibility insurance policy that covers the risks of loss, deterioration, or delay in the delivery of the merchandise covered by the multimodal transport contract.

3. Distance, shipping and the geography of trade

Distance is usually assumed to be one of the main determinants of transport costs, and thus also of the trade competitiveness of countries. There is no doubt that distance has an important impact on the geography of trade. However, it is not distance per se that is a direct hindrance to trade; rather, it is transport costs and transport connectivity, which in turn are not only related to distance but also to the ease with which merchandise trade can be transported.

An UNCTAD study on the Caribbean subregion carried out in 2006, found that distance explains around 20 per cent of the variation in maritime freight rates, while competition among liner shipping companies and economies of scale have a stronger impact on the freight rate (fig. 6.2). For routes where there is no company to provide a direct service (i.e. where all containerized maritime trade involves at least one trans-shipment in a third country's port), freight rates per 20-ft. container averaged \$2,056 in the UNCTAD sample (UNCTAD, 2007: 14).

For routes where there are between one and four carriers providing direct services, the reported freight averaged \$1,449, and when there are five or more competing carriers providing direct services, the average freight rate was only \$973. Transit time and the quality of port infrastructure are additional factors that determine transport costs. This example suggests that strategic liberalization of regional transport services, through its impact on competition and economies of scale can have an important, and in some cases perhaps a decisive, impact on the establishment of regional trade connections and economic integration.

Another policy option to enhance efficiency of transport providers, and thereby reduce intra-regional transport costs, is to foster inter-port competition. In Europe, the intercontinental trade of many countries actually moves through the ports of neighbouring countries, whereas in most

developing countries, the handling of merchandise trade is typically restricted to the national port(s) of each country. However, there are a few exceptions, where ports also handle intercontinental cargo destined for, or originating from, neighbouring countries, thereby reducing land-transport distances and increasing competition among ports; for example, Mombassa (Kenya) and Dar es Salaam (United Republic of Tanzania) for East Africa, and Buenos Aires (Argentina), Montevideo (Uruguay) and Porto Alegre (Brazil) for MERCOSUR. In both these regions, ports also compete for intercontinental cargo of neighbouring, landlocked countries.

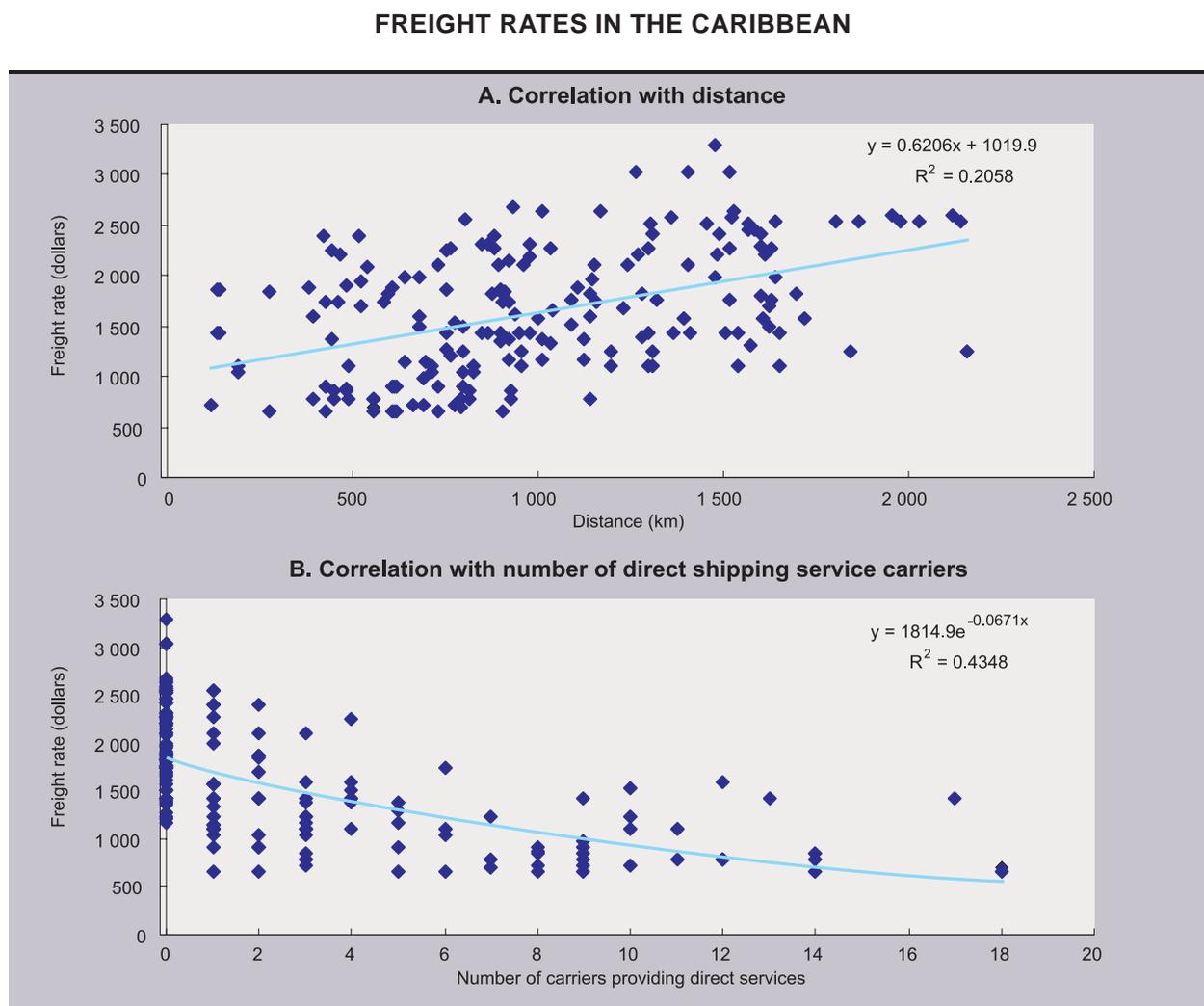
Enhancing inter-port competition requires corresponding road and rail infrastructure, as well as agreements on market access for land transport.

Another policy option to enhance regional competition in the area of transport is the integration of national (cabotage) and regional shipping services into global shipping networks. By allowing international carriers to also move cabotage cargo, or cargo between neighbouring countries, which at present might still be reserved for regional carriers, the overall market size would tend to increase, as well as the number of shipping options for national, regional and intercontinental cargo movements.

In some regions, developing countries trade much more with geographically close developed countries than with each other. While this is due in large part to the relative size of these economies and the structure of local production and trade, transport connections also play an important role. This is the case not only for Africa that trades mainly with Western Europe, but also for Central America and the Caribbean, where trade is concentrated in the United States and the shipping routes follow these trade patterns. Thus many specialized shipping lines connect the Central America and Caribbean island States with Miami, from where they receive most of their imports. Other shipping services link both regions to Europe and Asia via trans-shipment hubs in Jamaica and Panama. This combination of trans-shipment

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Figure 6.2



Source: UNCTAD secretariat calculations.

Note: Data is for freight rates from an UNCTAD sample of July 2006, for a 20-foot container. Each point in the figure represents an origin-destination pair of countries in the wider Caribbean. Wider Caribbean covers all the islands in the Caribbean plus Central and South American countries bordering the Caribbean basin.

ports and shipping routes results in a situation where most of the little trade that takes place between Central America and the Caribbean islands is trans-shipped via Miami, Kingston or Panama, and through a few additional regional hubs such as Cartagena (Colombia) or Santo Domingo (Dominican Republic).

Although trans-shipment services imply additional port handling costs and longer journeys due to deviation distances, there is an increasing trend to use more of these services as it reduces

the overall network costs. Many services from Australia, New Zealand or the Pacific islands, for example, that used to be direct, now involve trans-shipment via Singapore. Similarly, the number of direct services between the west coast of South America and Europe has been reduced as direct services are being replaced with trans-shipment services via Panama and Jamaica. A large proportion of trade between South America and Asia is trans-shipped via Panama or via North American ports. Trans-shipment services have a potentially positive impact on South-South trade relations at

Box 6.3**REGIONAL TRANS-SHIPMENT CENTRES AND INTRAREGIONAL SHIPPING SERVICES**

The indirect benefit of trans-shipment services for intraregional trade can be illustrated by the simplified scenario that captures the effects of a recent reorganization in the shipping network pattern between Central and South America and other continents. In that scenario, Chile, Mexico, Venezuela and Panama traditionally had – mostly separate – direct services to Asia, North America and Europe. After reorganization by some carriers, direct services from Chile, Mexico and Venezuela to Asia, North America and Europe have been suppressed and replaced with indirect services via Panama. This means that each of the three services that used to go, for example once a week to Asia, North America and Europe, now only go as far as Panama. However, from Panama four services per week are now connecting to Asia, four to North America, and four to Europe. Clearly, Panama has gained from the reorganization, as have Chile, Mexico and Venezuela, as they are benefiting from better connections to the other continents. Although they now have fewer direct services, they gain in terms of the greater frequency of services via Panama, and they also have more options and choices among competing carriers. Moreover, the countries of the same region – Chile, Mexico, Venezuela and Panama – are much better connected to each other than before. Hence, the introduction of regional trans-shipment hubs is potentially beneficial to intraregional seaborne trade (for more detailed information, see UNCTAD, 2006b).

the regional level and beyond, because they enable the transport of relatively small volumes of merchandise trade, such as exports of Chilean wine to Cambodia and Cambodian exports of T-shirts to Chile, which would not justify direct shipping services.

Practically all coastal countries are connected to global shipping networks. Improved port operations, increased containerization, and changed shipping service patterns have enabled many coastal developing countries to engage in regular trade in manufactured goods with other coastal developing countries, which was not economically feasible two decades ago. There are 162 countries that are connected to at least one other country with a direct regular shipping service, and as a result of growing containerization and interconnection of lines in trans-shipment ports, there exist regular shipping services between all sea-linked countries of the world. UNCTAD research has shown that 17 per cent of the 13,041 pairs of sea-linked countries are connected to each other with at least one direct shipping service, while seaborne

trade between the remaining 83 per cent requires at least one trans-shipment (UNCTAD 2006b). Increased use of trans-shipment services can be particularly beneficial to South-South and intra-regional trade (box 6.3).

4. From landlocked to land-linked: potential gains from regional cooperation in trade and transport facilitation

Today, in view of greater global integration, high transport costs and low connectivity levels are more detrimental to a country's development than ever before, presenting particular challenges for landlocked developing countries. In the 1990s, these countries had a negative average per capita GDP growth (-0.9 per cent) compared to a positive growth (1.3 per cent) in transit developing countries (Chowdhury and Erdenebileg, 2006: 7). GDP per capita is around 43 per cent lower in landlocked developing countries than in their neigh-

bouring coastal countries. High transport costs and inadequate connections are among the key causes of this negative development.

Distance from the sea might appear to be a major factor. However, many capitals and actual or potential industrial centres of landlocked developing countries are no further away from the sea than many inland cities of coastal countries. Therefore the major difference is that landlocked countries face additional border crossings as well as possible obstacles to transport connectivity. The latter may be related to infrastructure quality and also to segmentation in the market for transport services.

Given the low trade volumes of many landlocked developing countries, there is an observed negative correlation between transport costs and trade volumes: low trade volumes lead to higher transport costs as a result of diseconomies of scale. This creates a vicious circle whereby low trade volumes of landlocked developing countries lead to high transport costs, which in turn discourage further trade.

Most landlocked developing countries depend heavily on the export of a few commodities and on official development assistance; as a consequence, they typically have a trade deficit in manufactured goods. This leads to high transport costs for imports, since freight rates also cover the transport of empty containers or trucks back to their origin. Moreover, delays and uncertainty of delivery times at border crossings are major obstacles to the export competitiveness of these countries. Most importantly, in today's globalized production processes, high transport costs and long delivery times for imports also lead to higher production costs of goods that are destined for export markets. High transport costs for imports also deter investment, especially in assembly-type industries.

In many cases, an important means of overcoming obstacles to trade competitiveness is the promotion of "corridors" and bilateral and regional transit arrangements between landlocked developing countries and their transit neighbours. Coastal countries have a greater interest in such regional

or bilateral arrangements for two main reasons. First, they have come to realize that efficient transit regimes may help their transport service providers and ports to generate additional business. Secondly, landlocked countries may themselves become important transit countries when coastal countries choose to trade by land with other countries in the region. Attracting business from neighbouring countries can reduce a coastal country's international transport costs due to economies of scale, and this can improve its own transport connectivity because the extra traffic volumes help to attract additional shipping services. It is not only well-established ports, such as Singapore or Antwerp (Belgium), that have managed to generate economic benefits from neighbouring countries' trade, but also African transit ports, such as Maputo (Mozambique) and Djibouti (Djibouti), which are providing significant business and employment opportunities for their local populations.

Today, high transport costs and low connectivity levels are more detrimental to a country's development than ever before.

In the context of regional integration processes, landlocked developing countries should aim at becoming "land-linked", rather than focusing on their landlockedness. Being land-linked implies that a country can help its neighbours to trade with each other by providing infrastructure,

transport and logistics services for trade transiting through it. Afghanistan, for example, is aiming at serving as a "hub" for trade between the Indian subcontinent and Central Asia; trade between the Russian Federation and China could benefit from transit through Mongolia; and the Lao People's Democratic Republic could become a transit country for trade between Thailand and China. Another aspect of being land-linked concerns the trade of the land-linked country itself. Where the landlocked country can increase its land-based trade with countries of the same region, rather than depending on seaports and maritime transport services, its trade costs might actually be lower than that of a sea-linked country. If, for example, Afghanistan could increase its trade with Central Asia or other neighbouring countries, it would reduce its dependence on trading through the ports of Karachi (Pakistan) and Bandar Abbas (Islamic Republic of Iran). In view of the economic growth of East Asia, the Lao People's Democratic Repub-

Box 6.4**TRADE FACILITATION AND TRANSPORT ISSUES IN THE CIS AND CENTRAL ASIA**

Trade logistics are of central importance not only in developing countries which seek greater integration with other countries in their region and with the world economy, but also for many transition economies, in particular in the CIS where many countries are land-locked and distances are very large, and where new trade patterns have emerged after the demise of the former Soviet Union. According to a World Bank report the situation is rendered even more difficult as some CIS countries have sporadically used their geographical advantage by unilaterally imposing temporary transit quota limitations and additional hurdles in customs clearance, such as mandatory high-cost customs conveying, insurance and other fees, often in contravention of existing customs agreements between them (Freinkman, Polyakov and Revenco, 2004: 50). The activities of the CIS Customs Committee, which aim at harmonizing customs documentation and procedures and also include the provision of training to customs personnel and technical assistance, have not yet yielded the expected results. Since bilateral mechanisms have not proved effective in solving customs problems, it has been suggested that introducing international disciplines through strengthened regional institutions might be a better means of upholding non-discriminatory transit and transport regulations and revitalizing existing multi-lateral agreements (Broadman, 2005: 45).

The countries that, since 2000, make up the Eurasian Economic Community^a (EvrAzES) – aimed at the creation of a common market – have started to implement an agreement to ensure unrestricted transit of the goods of member countries through their territories. This has the potential to bring a substantial increase in trade and welfare gains, given that several EvrAzES members rely entirely on overland transport for their exports. There appears to be considerable scope for further trade-facilitating cooperation among CIS members, and some of the most pressing issues are best – or can only be – dealt with by different forms of regional cooperation, such as harmonization of customs procedures, facilitation of international transport and transit, and strengthening energy supply and telecommunications networks (Freinkman, Polyakov and Revenco, 2004: 51; ECE, 2003: 181).

Trade and transport facilitation has been the main focus of regional cooperation in the Economic Cooperation Organization (ECO) long before a preferential trade agreement among its members was launched in 2003.^b These countries, which in their cooperation effort are reviving old historic ties, are all connected by land, and several of them are landlocked. Thus improvements in both land-based and multimodal transport facilities connecting the ports of the coastal countries with industrial centres in other parts of the region are crucial for the economic development of the entire region. The traditional trading links of the six CIS members had been either by rail towards the Russian Federation and onwards to Central, Eastern and Western Europe, or through several lesser used routes via the Caspian Sea, to the Caucasus Republics of Armenia, Azerbaijan and Georgia via the Islamic Republic of Iran or Turkey. But the evolution of global trade patterns over the past 15 years has influenced the trade and transport patterns of the ECO region, leading to the establishment of new rail links between the Central Asian Republics, China and the Islamic Republic of Iran, and the opening of a number of road border crossings between the Central Asian Republics and the Islamic Republic of Iran. The coastal countries can thus benefit from improved transit and transport connections to the Russian Federation and China.

^a Belarus, Kazakhstan, Kyrgyzstan, the Russian Federation, Tajikistan and Uzbekistan.

^b The organization was created in 1985 by the Islamic Republic of Iran, Pakistan and Turkey, and in 1992 it was enlarged to include six CIS members of Central Asia and the Caucasus (Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and one other non-CIS member, Afghanistan. The six CIS members that joined ECO in 1992 are thereby reviving old historic ties. For more detailed information, see ECE, 2004.

lic and Mongolia might seek to increase their trade with, for example, China and Thailand. Such a strategy could also help diversify the structure of the landlocked country's foreign trade. Landlockedness in combination with changing patterns of trade is also an important policy issue in the transition economies, especially some countries of the CIS (box 6.4).

The mutual interests of landlocked developing countries and coastal transit countries appear to be greater than is often assumed, and regional cooperation in trade and transport facilitation may frequently lead to win-win situations, helping not only the landlocked countries, but also coastal countries to generate additional income and reduce their international transport costs.

B. Large regional projects: examples from the energy sector

Cooperation in energy and water supply is a central element in regional integration efforts among developing countries. Moreover, it is gaining in importance due to faster output growth in these countries at a time when global energy resources are becoming scarcer. Energy management requires not only measures to ensure that energy supplies are able to meet increasing demand, but also innovative policies to increase energy efficiency and support the exploration and use of alternative sources of energy. Considerable new investments in energy production and infrastructure development are necessary to meet this challenge. The large scale of such investments, their long pay-off periods and a mutual interest in securing energy supplies have provided an impetus for transnational and regional cooperation. Indeed, such cooperation was an important pillar of European integration in the 1950s, with the creation of the European Community for Coal and Steel and EURATOM (see section C).

The large scale of investments in the energy sector and their long pay-off period, as well as a mutual interest in securing energy supplies, have provided an impetus for regional cooperation.

In Africa, the importance of a well-developed regional energy infrastructure for industrial development, and thus for economic diversification and structural change, has been increasingly recognized. Regional cooperation in the area of energy also has the potential to leverage the necessary external support for financing the huge public investment needed to develop the energy infrastructure. The Economic Community of West African States (ECOWAS), where energy resources (petroleum and gas) are concentrated in coastal or offshore areas, initiated regional cooperation in power supply in 2000 with the launching of the West African Power Pool (WAPP) project. The project, to be implemented over a period of 20 years, aims at increasing and stabilizing regional energy supply and at improving the connections between national electricity grids. So far, ECOWAS has been able to obtain commitments of \$350 million from international organizations, donors and private investors. In addition, it plans to set up a fund to

finance access to energy services by remote regions and disadvantaged social groups, as part of the efforts to reduce poverty in line with the MDGs (USEIA, 2006).

Also in West Africa, Mali, Mauritania and Senegal are cooperating, through the Organization for the Development of the Senegal River, in the construction of a dam for the production of electricity and the creation of a related network for power transmission to the capitals of the three countries. Another example of such cooperation in Africa is

between the Gambia, Guinea, Guinea Bissau and Senegal through the Organization for the Development of the River Gambia. A common hydro-electric project is being prepared in combination with the regional integration of electric power grids in the four countries, which aims at ending the frequent power shortages and heavy dependence on imported petroleum products for the generation of electricity (USEIA, 2006).

A prominent example of successful regional cooperation with a bearing on both agricultural and industrial development, as well as on the achievement of the Millennium Development Goals (MDGs), is in water resource management in Southern Africa. In the Southern African Development Community (SADC) all continental SADC members share at least one transboundary river basin with other member countries; Mozambique alone shares nine such basins with its neighbours. There are also considerable imbalances between water availability and water consumption among its members; for example, South Africa alone accounts for more than 80 per cent of regional water consumption but has only 10 per cent of the region's water resources. SADC has made considerable progress in addressing these imbalances (AfDB, 2004), and it is the only regional cooperation scheme in Africa with a protocol on

Water resource management in Southern Africa is a prominent example of successful regional cooperation with a bearing on the achievement of the MDGs.

water issues that provides a framework for harmonizing national water laws and policies (ECA, 2004; ECA, 2006). Under its Regional Strategic Action Plan for Integrated Water Resources Development and Management, 31 regional projects are under way with considerable financial support from developed countries (AfDB, 2004; ECA, 2004).

In Asia, formal regional cooperation in the energy sector by the Association of South-east Asian Nations (ASEAN) has been more concrete and more far-reaching than in other

developing regions. In the mid-1980s, members concluded two agreements: an Agreement on Energy Cooperation and the ASEAN Petroleum Security Agreement. Coordination of national energy policies has helped strengthen not only the energy infrastructure of member States but also their position in negotiations and disputes on energy issues with other countries in the region (South Centre, 2007: 22). The ASEAN Centre for Energy (ACE), created in 1999, acts as a catalyst for growth and development in the member States by supporting joint activities for regional cooperation in the energy sector. It aims at coordinating energy strategies within ASEAN by providing relevant information and expertise on technological developments for energy efficiency and conservation. ACE oversees the ASEAN Plan of Action for Energy Cooperation that focuses on the creation of an ASEAN power grid and a trans-ASEAN gas pipeline to facilitate intra-regional trade in energy.³ These projects have the potential to improve efficiency in energy production and distribution at the regional level. The ASEAN power grid could enable the supply of cheaper electricity from members with better resource endowments and capacities for power generation

Coordination of national energy policies has helped strengthen the energy infrastructure of ASEAN and the position of its member States in negotiations on energy issues with other countries in the region.

to rapidly industrializing neighbouring countries with higher demand for power (Atchatawivan, 2006).

An innovative and forward-looking feature of ASEAN energy cooperation is the promotion of alternatives to conventional sources of energy, especially renewable sources, at the regional level. So far, little progress seems to have been made in this respect, but it is certainly an area of regional cooperation that holds considerable promise for the future, because, sooner or later, countries will inevitably have to engage in sustainable energy development. Moreover there is a huge potential in developing countries for the production of solar and wind energy and for energy from agricultural production owing to the favourable geographic and climatic conditions for such production in most developing regions.⁴ In terms of regional cooperation with a focus on new, and in particular renewable, sources of energy the EU is probably the most advanced. For example, it has recently launched an ambitious programme to support the production and use of alternative energies, including biofuels (see box 6.5).

Latin America has perhaps been the most active among the developing regions in pursuing regional solutions to the energy problem. These have included projects for electric power generation and the creation of cross-border and regional power grid interconnections, improved regional transport of gas through pipelines connecting several countries, agreements for joint exploitation of oil and gas resources, innovative financing schemes and preferential access to regional oil output.

An initial important step was the construction in the 1970s and 1980s of binational hydroelectric dams, by Brazil and Paraguay (Itaipu), Argentina and Uruguay (Salto Grande) and Argentina and Paraguay (Yacyreta) for joint generation of electricity. These joint projects also provided an electric power network among these countries that enables trade in electricity, particularly from Paraguay to Brazil and Argentina. These projects were the result of State-led initiatives, part of the pro-industry development strategies that were widespread in Latin America until the early 1980s.

Following orthodox policy reforms in the 1990s Latin American energy policies are again being reviewed in several countries, especially with regard to the role of the State in the production and distribution of energy.

Further initiatives to create power grids between different countries took place within regional agreements such as the Central American Common Market and the Andean Pact (now renamed the Andean Community of Nations).

Since the beginning of the 1980s, there has been cooperation in the provision of oil, including special financing arrangements, by the major Latin American oil exporters to those countries in the region that depend on oil imports. After the second oil-shock in 1979, Mexico and Venezuela agreed to supply up to 160,000 barrels per day to 11 Central American and Caribbean countries,⁵ with special financing arrangements covering 20–25 per cent of the oil bill. This agreement has been extended on an annual basis ever since. More recently, the Petroamerica initiative (box 6.6) sponsored by Venezuela has also adopted this form of regional cooperation.

A changing regional approach to energy production and management, as adopted in the Hemispheric Energy Initiative (HEI) with the participation of the United States, reflected the orthodox policy reforms of the 1990s.⁶ This initiative aimed at the privatization of public energy providers and extensive deregulation of the sector, including opening it up to private and foreign investors, liberalization of energy pricing and the provision of additional fiscal incentives for foreign investors.⁷ Since 2001, however, the HEI has lost much of its dynamism,⁸ and energy policies are being reviewed in several South American countries, especially with regard to the role of the State in the production and distribution of energy (Ruiz-Caro, 2006: 78).

The HEI, though not formally abandoned, has been replaced to a large extent by several South-South regional initiatives. The most comprehensive ones are the initiative for the Integration of the Regional Infrastructure in South America (IIRSA) of 2000, and the Plan Puebla Panama (PPP) of 2001. The latter involves the countries of the Central American isthmus⁹ and the southern states of Mexico. Both initiatives receive support from

Box 6.5**REGIONAL COOPERATION FOR THE ADVANCEMENT OF BIOFUELS IN THE EU**

In Western Europe, regional cooperation in the energy sector has a long tradition dating back to the creation of the European Coal and Steel Community (ECSC) in 1952, which for over 40 years was an important tool of European industrial policy (see section C). In 2001, the European Commission launched an energy policy initiative to promote the use and production of biofuels for transport in order to reduce greenhouse gas emissions and the environmental impact of transport. This initiative combines objectives related to energy security, technological innovation and agricultural diversification. The programme follows a “regulated market-based approach,” whereby government intervention is intended to help achieve the desired market outcomes. Initial non-binding targets for the share of biofuels in total fuel consumption were set at 2 per cent, to be reached by December 2005, and 5.75 per cent, to be reached by December 2010, compared with 0.6 per cent in 2002. Fifty per cent of the total supply is to be produced in the EU.^a As the share actually achieved in 2005 was only 1.4 per cent, the European Commission (EC), in acknowledging that the biofuels target for 2010 was not likely to be reached, proposed establishing a binding target of 10 per cent of biofuels in vehicle fuels by 2020.^b

The EC has also developed legislation on privileged tax treatment for the consumption of energy from alternative sources,^c including biomass or waste, while a third element of the EC biofuel policy relates to fuel quality.^d On the supply side, the EC supports the production of biofuels with a special programme of assistance for energy crops grown on non-set-aside land, under which energy crops are eligible for a subsidy of 45 euros per hectare. Currently, locally produced biofuels are not cost-competitive in the EU, mainly due to high-priced local feedstocks. Despite the recent reform of the sugar sector, EU sugar prices are expected to remain substantially higher than those on the international market, which means that sugar will continue to be an expensive feedstock.^e EU-produced biodiesel breaks even at an oil price of around \$72/barrel, while EU-produced bioethanol becomes competitive when oil prices are around \$107/ barrel. Therefore, while biodiesel is already competitive with oil (though not necessarily with imported biodiesel), bioethanol is still far from it. Consequently, the competitiveness of EU-produced biofuels will depend on subsidies, and in the case of bioethanol on import tariffs as well. Possible diminishing production costs may, however, change the situation in the years to come.

^a Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport (*Official Journal* L 123 of 17.05.2003: 42–46).

^b Communication from the Commission to the European Parliament and the Council: An Energy Policy for Europe, COM (2007) final, 10 January 2007.

^c Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (*Official Journal* L 283 of 31.10.2003: 51–70).

^d Council Directive 98/70/EC of 13 October 1998 relating to the quality of petrol and diesel fuels (*Official Journal* L 350 of 28.12.1998), as amended by Directive 2003/17/EC of 3 March 2003 (*Official Journal* L 76 of 22.3.2003).

^e In February 2006, the EC adopted a significant reform that will considerably reduce protection of its sugar sector. On the impact of this reform on the biofuels markets, see Schnepf, 2006.

Box 6.6

PETROAMERICA PROJECT

The Petroamerica project launched by Venezuela, the main oil exporter in South America, comprises three initiatives: Petrocaribe, Petrosur and Petroandina.

The Petrocaribe Agreement,^a signed in July 2005 by the Heads of State of Antigua and Barbuda, Bahamas, Belize, Cuba, Dominica, the Dominican Republic, Grenada, Jamaica, Saint Vincent and the Grenadines, Saint Lucia, Saint Kitts and Nevis, Suriname and Venezuela, guarantees the supply of Venezuelan oil to the other signatories under special financial conditions. A variable share of the oil bill – increasing with the price per barrel – is to be financed on concessional terms by Venezuela, and it can be honoured partly by payment in goods and services. The agreement also seeks to reduce intermediation costs, thus favouring direct trade between State agencies.

The Petrosur initiative provides a framework for a set of bilateral agreements signed since 2005 by Venezuela with Argentina, Bolivia, Brazil, Paraguay and Uruguay. It aims to foster cooperation and joint ventures between public oil and natural gas enterprises of these countries for exploration, exploitation and distribution (with Argentina, Bolivia and Brazil), joint construction of a refinery (with Brazil) and two gas segregation plants (with Bolivia). Similar to Petrocaribe, the agreements also stipulate the provision of Venezuelan oil under favourable financial conditions, (including long-term financing at low interest rates for part of the oil bill) and allow barter arrangements.^b

The Petroandina initiative of July 2005 is intended to serve as a platform for strategic associations of public oil companies of the Andean Community countries. Although the proposal has received a less favourable reception than the other two initiatives of Petroamerica, it has been agreed to consider this Andean energy initiative within the context of South American integration and existing bilateral agreements.

^a The text of the agreement is accessible at: www.petroleumworldtt.com/storytt05071002.htm.

^b For further details, see Ruiz-Caro, 2006: 30–39; and the Petróleos de Venezuela S.A. website at: www.pdvsa.com.

multilateral and regional development banks.¹⁰ The IIRSA has identified transport, energy and communications infrastructure for 10 “Axes of Integration and Development”,¹¹ and has defined 335 specific projects requiring a total investment of \$37.5 billion (IIRSA, 2006). In addition, the 12 South American countries¹² created the Energy Council of South America in April 2007 to develop a continental energy strategy, a plan of action and a South American Energy Treaty. Under the PPP, almost 100 projects, worth \$8 billion,

in the areas of energy, transport, communications and tourism were considered, and six of them were completed at the beginning of 2007.

Central American countries are implementing the SIEPAC project (a system for establishing electricity interconnections amongst them), which has two pillars: the physical regional interconnection of national power systems, and the creation of a common legal and regulatory framework to promote integration of the regional electricity mar-

ket. Progress made so far with the creation of a regional electricity network has included the exchange of electricity, reduced rationing and improved efficiency in the production of electricity (Ruiz-Caro, 2006: 60–62). Further development of the Central American electricity system could result in economies of scale in power generation.

In 2002, the Andean Community of Nations adopted a legal framework for harmonizing the policies and regulations relating to the electricity market, strengthening competition, preventing discriminatory practices and liberalizing trade in electricity.¹³ Power interconnections are already operational between Colombia and Ecuador, and Colombia and Venezuela, and will soon be established between Peru and Ecuador. Similarly, several grids link the electricity systems of the Southern Cone countries.¹⁴

There has also been significant investment in the construction of gas pipelines in South America, which has stimulated trade in gas among the countries of the region. In addition, several projects for further extension of the regional network of gas pipelines are either planned or under way.¹⁵ There is considerable potential in this area since some countries, in particular Bolivia and Venezuela, are able to exploit gas reserves in excess of their own needs, which could meet the rapidly growing demand for gas by others such as Argentina, Brazil and Chile. These projects could be integrated into the wider project of the Southern Gas Pipeline (Gran Gasoducto del Sur) to provide a long-term solution to the supply of energy in the region by connecting the gas reserves of Venezuela with major destinations in Argentina and Brazil. It could also serve Bolivia as a gas supplier, and Paraguay and Uruguay as consumers (Campodónico, 2007: 76; Ruiz-Caro, 2006: 44–45). Although this project is ex-

Regional energy cooperation can leverage the necessary external support for the huge public investment needed to develop the energy infrastructure.

Strengthening energy security through timely regional cooperation to identify and implement measures for energy conservation and the promotion of alternative sources could become a determining factor for long-term growth.

tremely ambitious and it is uncertain whether it can be realized as envisaged, its existence indicates a renewed interest in regional alternatives in energy policy. A case in point is Bolivia's decision to abandon a \$6 billion project to export gas to North America in favour of expanding its exports to neighbouring countries.¹⁶

In the context of regional energy cooperation in Latin America, the public sector is again assuming a more prominent role in the oil and natural gas sector. Many contracts

signed directly between governments or public firms are leading to joint ventures in this sector, to concessionary financing, and also to the creation of trade between the countries, since Venezuela has agreed to payment for its oil deliveries in the form of goods and services.¹⁷ A further deepening of economic integration linked to the oil and natural gas sector is intended by the partners of the Bolivarian Alternative for the Americas (ALBA) initiative, under which agreement was reached in April 2007 for joint ventures between the national energy companies firms of Bolivia, Cuba, Haiti, Nicaragua and Venezuela for projects in areas such as exploration and exploitation of oil and gas fields, construction or modernization of refineries and the construction of power plants.¹⁸

So far, questions related to energy efficiency and renewable sources of energy are not receiving top priority in most developing countries. However, the questions will be inevitable in the not too distant future. Therefore, the intention expressed in the ASEAN 2020 Vision to "promote cooperation in energy efficiency and conservation, as well as the development of new and renewable energy resources" (AMEM, 2004) merits heightened attention among developing country

policymakers more generally. Given the strong regional dimension of many energy projects and the substantial research and innovation efforts im-

plied, strengthening energy security through timely regional cooperation to identify and implement measures for the accelerated diversification of

energy sources and sustainable energy development could become a determining factor for long-term growth.

C. Regional industrial policy: issues and the European experience

Pursuing policies at the regional level that support the process of industrial development requires more than a simple extension of national industrial policies. Regional integration processes raise several issues for industrial policy that go beyond the well-known general controversies concerning the rationale and the preconditions for adopting efficient industrial policies (*TDR 2006*, chaps. V and VI). In particular, there are institutional issues related to consensus-building and policy coordination among nations that often adopt very different approaches towards economic policy. Additional challenges also surround the question of how best the relatively poorer nations among integrating countries can be helped to achieve economic catch-up without adversely affecting the economic activity and income levels of their relatively richer partners.

Except for cooperation in the energy sector, experience with formal regional cooperation in the area of industrial policy has been limited to Western Europe since the early 1950s. Developing countries have increasingly realized the relevance of different forms of industrial policy at the regional level, but few concrete steps appear to have been taken in this direction. In Africa, the new SACU agreement of 2002 calls for the development of a common industrial policy and for cooperation in agriculture and competition policy. In Asia, members of ASEAN have made various attempts to develop a common industrial policy, including the

adoption of agreements for establishing large-scale joint and complementary industrial projects. The grouping has also aimed at the creation of production and trade linkages between member States in an attempt to support national import substitution policies through regional cooperation.¹⁹ ASEAN Vision 2020 refers to a regional industrial policy – albeit in very general terms – as an instrument for the establishment of an ASEAN common market, in order to strengthen ASEAN's position in the global supply chain and increase its international market shares. However, no concrete measures have so far been identified (South Centre, 2007: 58).

The West European experience suggests that the need for certain forms of industrial policy, including harmonization of national industrial standards and competition policy, become necessary as the integration process advances. While most policy instruments for directly influencing the level and pattern of industrial investment, especially when they involve fiscal incentives, are easier to use at the national level, increasing coordination and harmonization of such policies will be necessary to prevent undesired distortions in economic activity across the member States. In addition, regional institutions can add new dimensions to industrial policy, as they could enable the design and implementation of projects that might exceed the resource capacities of a single country but that may become viable if several countries were to pool their resources.

Industrial policy in Europe can broadly be divided into four phases. The sequence of these phases illustrates how the changing targets and instruments of industrial policy have evolved with the regional group's position in the international division of labour and have helped determine the main actors involved in the implementation of that policy. The beginning of the first phase, which predates the creation of the European Economic Community (EEC) through the Treaty of Rome in 1957, came to an end in the mid-1970s, as Western Europe became well advanced in its rapid productivity catch-up with the United States. The second phase, during which industrial policy became more defensive, began in the mid-1970s and ended with the Single European Act of 1987. The third phase is associated with a reorientation of industrial policy through this Act and continued until EU enlargement in 2004, which marks the start of the fourth phase.

The European Coal and Steel Community (ECSC) and EURATOM were the first two European institutions that, apart from providing a basis for sectoral trade liberalization, provided a framework for industrial policy in a broad sense. The creation of the ECSC in 1952 between France, Germany, Italy and the Benelux States involved a limited transfer of sovereignty to a supranational body even before the inception of the EEC. It satisfied United States geopolitical interests to integrate Germany into the Western bloc on an equal footing with other Western European countries. It also responded to the interest of some of these countries in preventing excess capacity in the very capital-intensive coal and steel industries through its coordination of investment and marketing (Foreman-Peck and Federico, 1999: 44). The ECSC provided for the pooling of the coal and steel resources of the member States, which were key sectors in their productive structures. A High Authority, which could

Developing countries have increasingly realized the relevance of different forms of industrial policy at the regional level, but few concrete steps have been taken in this direction.

Regional institutions allow the design and implementation of projects that exceed the capacities of a single country but may be viable if several countries pool their resources.

take binding decisions by majority vote, controlled the production of these industries in all member States, investments in those industries, as well as mergers and agreements among companies; it also supervised national government subsidies to these industries.²⁰ Within this regulatory framework, intra-regional trade in coal, iron ore, scrap metal and steel was fully liberalized. Although this trade doubled in the four years after 1953, the main achievement of the ECSC was probably a political one, "considering the wrangling over these ... resources that had bedevilled international relations earlier" (Foreman-Peck and Federico, 1999: 439). Indeed, given that steel had played an important role in arms production during the Second World War, confidence-building through cooperation among European States, in order to prevent the emergence of new conflicts, was a key objective of the ECSC Treaty.

Two other early regional cooperation projects, which can be considered as marking the beginning of a European technology policy, were the European Organization for Nuclear Research (better known as CERN, derived from Conseil Européen pour la Recherche Nucléaire), established in 1954, and EURATOM in 1957. CERN was established by 12 countries as a laboratory for the study of high energy particle physics, and was intended as a purely scientific organization in a domain requiring complex and expensive experimental facilities which no single State could afford on its own. It soon became the centre of a science and technology network for its 20 European members as well as for the many non-European countries that also participate in its research activities. Over the years, the institution has been credited with fundamental discoveries and has proved its ability to foster international cooperation and cross-fertilization among the national scientific communities. It has made significant breakthroughs, including the World Wide Web, which,

although unplanned, has had a major economic impact.

The main objective of EURATOM, which in 1957 brought together the same six members as the ECSC some years before and the EEC that same year, was to foster the use of atomic energy to meet the expected energy needs for European industrial development. At the time, electrical energy from nuclear fission was seen as a cheap energy source for the future, and the nuclear industry required additional engineering capacity for that sector to evolve. Thus, EURATOM not only provided for a common market in nuclear material and equipment for peaceful use, but also for the pooling of regional experts' skills, as well as for cooperation in research and development (R&D) of nuclear energy, which was considered key to solving the members' future energy problems. Although EURATOM was an example of regional cooperation in areas of industrial development that exceeded the financial and scientific capacities of individual member States, its impact remained limited. This was mainly because of changing trends in the energy market and the growing awareness of the previously underestimated or neglected technological and safety risks and the possible environmental impacts. In recent years, it has focused mainly on regional initiatives for nuclear waste management and nuclear safety standards. Overall, the achievements of EURATOM in terms of advancing technological change have been limited, which may at least partly be attributed to insufficient consultation and links with industry and social actors (Stajano, 1999). However, it has contributed significantly to the management of radioactive waste and disposal, which has been a shared challenge for all EU countries. Moreover, the EURATOM Treaty is said to have put in place the provisions for the research programmes that were to follow later within the framework of the EEC.²¹

When the EEC was founded in 1957 by the same six members States, they had not only benefited from a period of confidence-building through institutions such as the ECSC, but were also able

to draw on that organization's experience in regional cooperation and institution-building. The Treaty establishing the ECSC (in force from July 1952 to July 2002) thus served as the foundation for the development of the EEC and paved the way for economic integration.

The Treaty of Rome did not explicitly mention industrial policy. However, it embraced the concept that the reciprocal opening up of markets and the resulting free movements of goods, services and production factors would help bring about industrial restructuring. The result of this approach was the de facto maintenance of industrial policies at the national level which aimed at accelerating productivity growth as quickly as possible. State-owned enterprises, often benefiting from preferential treatment in government procurement

and generous State aid, were the key elements of industrial policy strategy during this phase. They had been established in most Western European countries – either during the Second World War or in the subsequent reconstruction period – in a wave of nationalizations of substantial segments of industry, especially those with supposed natural monopoly characteristics (e.g. electricity, gas and coal), and

of key industrial sectors, including steel and automobile industries. State-owned enterprises were also leading actors in the newly emerging and strategically important high technology sectors, such as nuclear power, computers and aerospace.

Transnational ventures among State-owned enterprises began with the aerospace industry due to this sector's enormous fixed costs for product development, and the most obvious were those among neighbouring countries. The best-known example of such ventures is Airbus, a consortium of British, French, German and Spanish aerospace industries, formed in 1970. It is also an example of a common industrial policy that had positive effects in terms of technological advancement, industrial upgrading and employment creation. (Neven and Seabright, 1995: 57). However there were other individual examples (such as the Concorde aerospace project) that were commercial failures.

When founded in 1957 the EEC benefited from a period of confidence-building in the context of the ECSC, and was able to draw on its experience of regional cooperation and institution building.

Transnational ventures involving large national enterprises have generally faced significant challenges relating to securing agreement on product specifications, production location and cost control. Moreover, such common projects have often been seen as a means to strengthening domestic industrial capabilities, generally through linkages with other sectors and spillovers of know-how and technology. As a result, individual countries have tried to obtain from each programme an equivalent to what they had contributed, without giving due consideration to common interests and benefits. This has often caused duplication and unnecessarily high production costs (Foreman-Peck and Federico, 1999: 443).

The second phase of European industrial policy relates to the period between the mid-1970s, the end of the “golden age” marked by the strong growth momentum gained from post-war reconstruction, and the Single European Act of 1987. The overall industrial policy objective of this phase was defensive, aimed at stemming deindustrialization and a pervasive productivity slowdown. National considerations continued to play a key role. Regional industrial policy during this phase was meant to smoothen the adjustment pressures that were mainly reflected in emerging industrial overcapacity and rising unemployment related to the recession following the first oil crisis and to the ascent of East Asian economies in industries such as steel, shipbuilding, and textiles and clothing.

Industrial policy actions typically took two forms. Individual firms were granted State aid, which was compatible with EC regulations, to enable them to reorganize their activities and become more efficient by investing in new machinery. Groups of firms were allowed to form crisis cartels to guide reductions in overcapacity and partition market shares according to historical quotas. In these cases, public aid was sometimes granted for dismantling obsolete plants. These actions affecting industrial activity within the Community were combined with selective trade policy measures vis-à-vis third countries. Exam-

ples of such protective trade measures were bilateral trade limitation agreements through so-called “voluntary export restraints” with Japan, concerning the automobile industry, and the Multi-Fibre Arrangement, negotiated under GATT auspices in 1973, which imposed quotas on the quantities of textiles and apparel that could be traded. Given their focus on sunset industries and the lack of support to dynamic industries (such as financial services, computers, telecommunications and semiconductor equipment), into which Japan and the United States were moving very rapidly, these policies were often criticized for blocking structural change, that eventually would be unavoidable, and therefore leading to “eurosclerosis”.

The third phase is associated with deepening economic integration, and marks the return to a more offensive industrial policy that was conceived horizontally (i.e. not explicitly targeting specific sectors). The Single European Act, which revised the Treaty of Rome and came into force in 1987, outlined the transition from a customs union towards an economic and monetary union. This process implies the break-up of the nexus between national industries and nation States. Deepening regional economic integration has an inherent political dimension, because economic interests and relations, as well as the design and implementation of instruments to accelerate the process of industrial and corporate adjustment to an extended market, must be redefined in a context that exceeds the sphere of influence of individual governments.

The initial industrial restructuring strategy within this process was based on the belief that: (i) the creation of a wider “internal” market (by 1993) would ensure the free movement of goods, persons, services and capital, which would enhance efficiency through increased economies of scale, and that (ii) reduced customs formalities and common voluntary standards would increase the effectiveness of cross-border trade and provide an additional stimulus to economic efficiency. One of the results of this strategy was a Europe-wide wave of corporate mergers and acquisitions. Na-

While some projects of a common industrial policy were commercial failures, others, such as Airbus, had positive effects in terms of technological advancement, industrial upgrading and employment creation.

tional governments continued to grant State aid, albeit now directed towards subsidiaries of select transnational corporations (TNCs), particularly those involved in the production of computer chips or motor vehicles. This led to competition between countries in offering the most favourable conditions to TNCs.

As a result of this industrial strategy, joint competition policy moved to centre stage. Economic liberalization and integration is difficult to steer without coordinated competition policies, because individual countries may be tempted to adopt lax competition policies, allowing the emergence of monopolies on their national markets in order to gain a larger share of particular industries on the regional market. Common or coordinated competition policies are also required to regulate market power in order to prevent monopolistic tendencies from distorting the process of market integration.

It was soon recognized that trade liberalization might lead to improved allocative efficiency and short-term growth effects, but also that for making an economy more dynamic in the longer term a direct stimulus to investment and innovation would be needed. As a result, the initial industrial restructuring strategy gave way to a more proactive stance. The Maastricht Treaty of 1992, which established the European Union, called upon the member States to coordinate their industrial policies. More importantly, for the first time it granted powers for formulating industrial policy to a pan-European institution – the Commission of the European Communities, which is the executive body of the European Union. Industrial policies were outlined in an EC White Paper (EC, 1993), which asserted that improved competitiveness of the Union's industrial sectors was necessary to raise employment and bridge the productivity gap with the United States. This gap was once again widening after a successful catch-up phase between the early 1950s and the mid-1970s. The new perspective

European industrial policies in the 1970s were often criticized for blocking unavoidable structural change.

Coordinated competition policies to regulate market power are necessary to prevent distortion of market integration by monopolistic tendencies.

also implied a shift in approach towards sector-specific policies. But while previous sectoral policies had targeted existing industrial sectors of great strategic and employment importance, such as the automobile and aeronautics industries, they now addressed the design and implementation capacities of innovative industries which would be able to influence the development of other sectors. Thus, although in principle this approach advocated horizontal industrial policies, it, nonetheless, included a sector-specific component by singling out the biotechnology, information technology and audiovisual sectors.

However, the role of the EC in funding technology policy remained marginal. In the 1990s, 16 per cent of the R&D conducted in the EU member States, involved cross-border cooperation and 5 per cent was under direct control of the EC. Nevertheless, it appears that this expenditure was instrumental in defining an EU-wide technology and industrial policy. According to one observer, EC funding and the financial resources invested by European industry in cost-sharing technology programmes had a significant impact on the growth and competitiveness of European industry and on cohesion in the EU (Stajano, 1999).

The coordination of industrial policy activities at the pan-European level, which is concerned mainly with promoting research and the adoption of new technologies, requires a framework with detailed specifications for different areas of R&D. The so-called “Lisbon Strategy” formulated by the European Council in 2000 was intended to provide such a framework. It aimed at making the EU “the most dynamic and competitive knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion, and respect for the environment by 2010”.²² The Strategy was based on the belief that the EU suffered from a productivity deficit with respect to the United States mainly because of its

much lower participation in the information, technology and communications (ITC) revolution, which in turn was responsible for insufficient modernization of production and distribution techniques.

Apart from its concentration on the knowledge economy, the most innovative element of this third phase was the shift from a “top-down” approach favouring national champions (i.e. the approach followed during the first phase) towards a “bottom-up” approach through the adoption of the concept of “networking” for industrial innovation (Bianchi, 1998: 174–180). This concept emphasized the development of SMEs and the promotion of transnational networks of enterprises, sectoral groups, operative units and local institutions in order to achieve common goals. A major consequence of adopting this approach was that, to a large extent, it transferred the capacity to formulate and implement industrial policies from national governments to the supranational and local levels. A major advantage of this approach was that it took into account the perspectives of local entrepreneurs regarding business opportunities and investment constraints, as well as their expertise in judging the economic feasibility of undertaking innovative investments. On the other hand, this form of collaboration risked creating closed and defensive interest groups that would be detached from a single common reference framework to guide and control individual actions in the name of common objectives and principles. The Commission also risked losing itself in the bureaucratic management of individual programmes, while at the same time, the so-called “open method of coordination” implied that implementation of national measures required to reach a common target could not be enforced.

The current fourth phase of industrial policy in Europe is associated with the enlargement of the EU to 27 members. The fact that, in spite of some catching up through pre-accession support, income levels in the acceding countries are significantly below the Union’s average level, has increased the challenge of catching up to global technology leaders while at the same time being

able to create or maintain cohesion among the member States. The instruments of EC cohesion policy are the Structural and Cohesion Funds. As a

result of accession to the EU of 12 new members, in 2004 and 2007, economic and social disparities in the EU have grown, so that countries that formerly were net beneficiaries of these funds now have to assume a net financial burden. The challenge of EU-wide cohesion policies, which absorb more than 35 per cent of the total EU budget, appears to have di-

verted attention away from industrial policies, although the two are closely related. Of the total Cohesion Fund expenditures, 62 per cent are supposed to finance projects linked to the Lisbon agenda for growth and employment (EurActiv, 2007).

However, the horizontal approach to industrial policies implemented through the Lisbon Strategy has so far generated disappointing results, as observed in the mid-term review of the Lisbon Strategy, the so-called Kok Report (EC, 2004). While the Report did not suggest specific remedies, it confirmed the relevance of horizontal industrial policy at the EU level (EC, 2004: 39–43). Apart from recommending that member States should offer tax incentives at the national level “for newly founded small and medium-sized enterprises (SMEs) that invest in research”, it called for “public support for R&D at the EU and national levels ... particularly on key technologies that drive economic growth, both to strengthen the science base and to increase the leverage effect on R&D investment by the private sector.” It also suggested that “Europe’s science base should be strengthened by funding and coordinating long-term basic research ranked by scientific merit via the creation of a European Research Council. At the same time, member States and the Commission should look at ways in which public procurement could be used to provide a pioneer market for new research and innovation-intensive products and services. In addition, increased efforts should be mobilised at national and EU level by all concerned stakeholders to promote technological initiatives based on Europe-wide public-private partnerships” (EC, 2004: 21). In implementing the Lisbon Programme to strengthen its manufacturing indus-

The Lisbon Strategy stemmed from the belief that the productivity deficit of the EU was due to its much lower engagement in the ITC revolution.

try, the EC is following an integrated approach to policies and actions in support of research and innovation. Certain industrial policy challenges, such as major competition issues, regulation of the single market and social and economic cohesion, are to be addressed at the European level by focusing on promoting conditions for increased adaptability to changes in the world market of individual manufacturing sectors (EC, 2005).

European Space Policy, building on a Framework Agreement between the European Community and the European Space Agency, which also includes non-EU members, is also understood as a form of industrial policy, although it also has obvious military and defence aspects. In the space sector, as an institutionally driven strategic industry, “governments compensate for the market failure which would lead to underinvestment in new technologies” (EC, 2007: 4). This is an example of regional cooperation in an area at the frontier of technological research and development, where a collaborative approach can not only prevent contradictions and incoherence between uncoordinated national policies, but also lead to achievements that would not be possible by individual countries in isolation, given the magnitude of the investments involved. Moreover, regional cooperation in this area serves to advance the development of the European space industry in the most cost-effective manner, while at the same time ensuring independence from other actors in access to space (EC, 2007: 5). It is also an example of regional cooperation undertaken in favour of developing a strategic sector that has substantial repercussions on other areas of economic activity through its increasingly important role in collecting and distributing information and through numerous research and technological spillovers to other sectors.²³

Taken together, the four phases of industrial policy in the European integration process demonstrate the importance of institutions with a long-term perspective on investment. They also show that coordination and consensus-building in pur-

su-ing industrial policies at a pan-European level are a major challenge. Budgetary transfers, traditionally a preferred instrument of European industrial policy, have been able to influence industrial restructuring. However, this influence has fostered technological upgrading only when it has been based on a vision as to which would be the promising industrial sectors. Moreover, budgetary transfers will achieve little if they try to preserve industrial sectors that have lost their comparative advantage, and, in particular, when they are used in a pan-European context with insufficient coordination and a lack of consensus as to the objectives.

One achievement of European industrial policies may be that they have disciplined State aid (including the granting of tax breaks) and harmonized standards and regulations, thereby preventing a return to the beggar-thy-neighbour industrial policies of the 1930s (Foreman-Peck and Federico, 1999: 457). On the other hand, Europe’s industrial policies often supported sunset industries as opposed

to emerging dynamic sectors, such as telecommunications, transportation, energy and financial services that would have generated the greatest benefits in terms of productivity growth and technological catch-up. Also, generally, there has been a lack of political integration as a complement to economic integration, resulting in a persistent heterogeneity of national approaches. The lack of institutional reforms makes decision-making particularly difficult in a group of 27 countries with widely varying in-

come levels, and therefore different economic policy priorities.

The European experience offers a number of lessons for developing countries, not only as an example of regional cooperation that has included various elements other than trade liberalization and the reliance on market forces to strengthen regional integration. This was already the case prior to the creation of the EU, although industrial integration among the Western European countries was already well advanced even before enhanced regional cooperation found support from

A major consequence of the “networking” approach for industrial innovation is that it largely eliminates the capacity of national governments to formulate and implement industrial policies and transfers this capacity to the supra-national and local levels.

the United States and Marshall Plan aid became instrumental in regional institution-building and supporting the dynamics of industrial reconstruction. From the very beginning industrial policy was part of the regional policy agenda, and even today, at a much more advanced stage of industrial development, it is still an area of common policy-making with a twofold objective: to strengthen integration within the EU, including convergence between the more and the less advanced members;

and to strengthen the position of EU industry, particularly the technological leaders in different sectors, vis-à-vis the rest of the world. From that perspective, an agenda such as the Lisbon programme, despite its disappointing results so far and the hindrances to its implementation, could be of similar, if not greater relevance for regional cooperation in industrial policy among developing countries that are trailing behind the EU in industrial upgrading.

D. Conclusions

The experiences of some existing and new regional cooperation initiatives in the specific areas of trade logistics, energy and industrial policies discussed in this chapter highlight the role of such cooperation in enhancing trading conditions and strengthening the potential for creating and upgrading technological, productive and supply capacities. Without adequate attention given to improving trade logistics, a strong regional trade dynamic is unlikely to unfold. Energy and industrial policies are becoming more urgent in a world of increasingly scarce traditional energy resources, growing environmental concerns and greater challenges of global competition, especially in manufacturing. The concrete forms of such cooperation will have to be adapted to the specific needs, institutional capacity and culture of cooperation in each region. Joint efforts and common policies that complement those at the national level could strengthen the position of the members of a cooperation agreement in the international trading and financial sys-

tems to an extent that cannot be achieved by independent national efforts. Gains from greater coherence of industrial policies among countries in a region and from the possibility to pursue investment projects, including in science and technology, on a scale unachievable by any single country, could compensate to some extent for the loss of national policy space in a globalizing world economy.

Additional efforts to tackle practical problems of intraregional economic relations may be as important as further trade liberalization.

Regional cooperation in the areas of trade and transport facilitation, as well as energy and water supply, is indispensable for the identification of bottlenecks that extend beyond a single country, and for the

formulation of proposals to deal with constraints that require parallel undertakings in several countries. Improving trade logistics and transport connectivity is an obvious element in any policy that aims at making better trading opportunities work for accelerating growth and structural change. In many cases, formal trade liberalization may not lead to the desired result because some fundamen-

tal elements of trade logistics might be neglected, or might be used deliberately as non-tariff trade barriers. In other cases, insufficient or complete lack of infrastructure might make trade physically difficult, if not impossible, quite independently of the trade regime. Therefore, rather than focusing regional cooperation exclusively on the legal aspects of trade policies, additional efforts to tackle these practical aspects of intraregional economic relations may be as important as further trade liberalization.

Information deficiencies are often believed to underlie many of the most important sources of market failure. In addition to reducing red tape in cross-border trade and improving overall transport conditions, the creation of new regional information networks and institutions and the strengthening of existing ones for the dissemination of information on market opportunities would also be an effective means to broadening and deepening business links within a region. This would also enhance cross-border regional integration, especially of small and medium-sized firms.

Regional trade facilitation projects can directly reduce the transport costs of intraregional trade and unleash a virtuous circle of increasing trade and economies of scale in the transport sector, and reducing transport costs, which in turn may further stimulate intraregional trade. Many developing countries are better connected to other continents than to neighbouring countries, and therefore cannot fully benefit from the potential gains of regional integration. Within a geographical region trade is often land-based, whereas long-distance trade is mostly seaborne or airborne. Similarly, trade facilitation at seaports and airports tends to be more beneficial for interregional trade than for intraregional trade. Therefore, when designing regional trade facilitation programmes, it is important to decide with whom trade should be facilitated as a first priority. Enhancing trade with partners outside a region would require an emphasis on measures such as pre-arrival customs clearance at seaports, port community portals or the use of standardized documentation, such as

the FAL forms of the International Maritime Organization. If the priority is regional integration, trade facilitation should give emphasis to measures such as joint border operations, mutual recognition of trade- and transport-related documents and licences within a region, common documents or automated customs formalities at border crossings.

While the optimization of trade logistics contributes to increasing both intra- and extra-regional trade, the other areas of regional cooperation addressed in this chapter are geared towards influencing structural change, technological progress and growth more directly. In low- and middle-income countries, faster growth

and industrialization are associated with increasing energy needs. Thus an efficient energy infrastructure is a precondition for economic development in general, and for industrial development and diversification in particular. However, it is very capital-intensive, requiring large-scale investment which governments in developing countries often find

difficult to fund. Yet, mobilizing such financing through privatization may not always be compatible with long-term strategic considerations. Moreover, energy supply and distribution is largely determined by the natural resource endowments of each country and only in a few countries can it be optimally organized without cooperation with neighbouring countries. For both these reasons, the energy sector can be a starting point for regional cooperation, which may subsequently extend into other and more far-reaching areas of policy coordination or common policy-making, as shown by the European example. When undertaken among poorer countries, initiatives for regional cooperation in the areas of energy supply and distribution and transport infrastructure, may also serve to leverage external financial support.

Past experience with regional cooperation in the energy sector, and the large number of new initiatives in this area, indicate that there is already a considerable degree of awareness of these issues in developing countries, but also that it is time to translate this into decisive and coherent action at the national and regional levels. The evo-

The energy sector can be a starting point for regional cooperation, which may subsequently extend into more far-reaching areas of policy coordination or common policy-making.

lution of Latin American energy policy shows that reducing the role of the State in a strategic sector like energy provision and leaving its control to large foreign investors without appropriate regulations is unlikely to lead to optimal outcomes for development. The particular structural characteristics of this sector make it prone to market failures, and, owing to its importance for the functioning and expansion of almost all other sectors of economic activity, there is a risk of such market failures being amplified. The perception that both the State and regional cooperation have an important role to play in the energy sector is not new: it already formed the basis of regional institution building in post-war Western Europe. Strengthening forward-looking regional cooperation in the area of energy has the potential to support national policy efforts aimed at accelerating industrial output growth, especially at a time when environmental concerns relating to both energy production and consumption have become increasingly pressing.

Energy management in the new millennium is not only about ensuring that traditional energy supplies match increasing demand; it also has to do with innovative policies to increase energy efficiency and support the exploration and use of alternative sources of energy. The challenges in this regard are formidable: energy research and technological innovation require substantial outlays, the adjustment process will be long and uneven, and the possible energy sources are not equally distributed across countries. All these factors have been driving transnational and regional cooperation in the field of energy management over the past 50 years, and their importance is growing as industrial development and output growth progress at the same time as environmental concerns become more and more serious.

Regional coordination and major regional investment projects are also an issue in other sectors besides energy. They can also be motivated by the desire to avoid costly overcapacities in other industries or to meet the requirements for investments on a scale that exceeds the capacities

of an individual developing country. Such cooperation is not always easy to achieve because of perceived conflicting national interests, especially when it involves financial transfers to a supra-national institution. However, the long-term benefits may outweigh the seemingly high financial costs, in particular when such cooperation and investments have the potential, following a period of confidence-building, to extend into other mutually beneficial areas of development. The experience of Western Europe, from the founding of the ECSC in the early 1950s to the European Space Policy in the new millennium, could hold useful lessons, not least in terms of the pragmatism that has governed industrial policy in the EU.

Tight budgets and human resource constraints frequently hinder developing-country governments from increased spending on “horizontal” industrial policies, such as support for innovation and R&D activities, for which there is no strong domestic lobby. Moreover, such activities have a relatively long gestation period and require substantial investments in physical and human capital. Industrial policy instruments aimed at boosting capital accumulation in manufacturing are likely to vary, depending on whether they are national or regional. While fiscal incentives

By providing public goods, helping to correct market failures, regional cooperation can deepen effective regional integration and improve the chances of successful integration into the global economy.

for certain types of investment or R&D will typically remain an instrument in the national domain, financing of such investments may well be supported through regional initiatives, either by pooling scientific and financial resources or by funding through regional development banks. However, industrial policies concern more than intervention in favour of the industrial sector. Once countries have embarked upon a strategy of selective opening up, the benefits from an open trade regime can also be increased through the creation of an environment that encourages competition, thereby enhancing industrial productivity growth. And since markets for manufactures in individual smaller developing countries are often very limited, involving only a few actual or potential suppliers, an effective competition policy at the regional level that takes into account the specific market structures, may be an additional element of industrial policy.

Collective action in the areas examined in this chapter will generally be a complement to national policies, but its scope extends beyond simple consultation on and coordination of national policies; and with increasing experience regional instruments may gradually substitute national ones. By providing public goods in support of long-term development strategies, helping to correct market failures and reduce asymmetries in a regional com-

munity, regional cooperation can deepen effective regional integration, strengthen national integration in each economy, and also improve the chances of successful integration into the global economy. Moreover, confidence-building through regional cooperation in these areas can also prepare the ground for more far-reaching forms of cooperation, for example in the monetary and financial area. ■

Notes

- 1 Organizing such events has been an important feature of technical cooperation provided by the International Trade Centre of UNCTAD/WTO under its South-South Trade Promotion Programme. In 2006, 750 small and medium-sized enterprises (SMEs) and 416 business associations from around the globe explored business partnerships during 14 buyers/sellers meetings and matchmaking events. These events generated new business worth an estimated \$32.5 million. Under this Programme, SMEs were also given training on aid procurement procedures, trade information and quality management to prepare them for their meetings with potential trading partners.
- 2 One indication of the need for such information networks is the fact that African firms supply just 10 per cent of the \$3.6 billion spent in United Nations humanitarian aid provided to the continent although the regional supply potential for the procurement of humanitarian aid items is likely to be much bigger.
- 3 For more detailed information on the ASEAN Centre for Energy, the Plan of Action and its implementation, see: ASEANenergy.org at: www.aseanenergy.org/.
- 4 The issue of alternative energy uses in ASEAN is discussed in greater detail in Atchatawivan, 2006.
- 5 Barbados, Belize, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Nicaragua and Panama.
- 6 HEI is an energy-related working group established on the occasion of the Summit of the Americas in 1994 at Miami, where 34 Heads of State launched the process to establish a proposed Free Trade Area of the Americas, from Alaska to Tierra del Fuego. The guidelines agreed upon at the HEI meetings included the promotion of policies to facilitate the development of infrastructure, such as cross-border connections, in order to integrate energy markets and facilitate trade in the energy sector (HEI, 2001: 13).
- 7 Privatization was seen “as a means of introducing greater efficiency in the energy sector as well as reducing budget deficits and raising needed investment. Countries are competing for available investment resources” (USEIA, 1999). However, not all countries opened up their energy sector to private capital to the same extent. While Argentina, Bolivia, El Salvador, Guatemala and Peru privatized most of their energy sectors, privatization was more limited in Brazil, Colombia, Mexico and Venezuela. More recently, Bolivia and Venezuela re-nationalized most of the assets in their energy sector that had been privatized in the 1990s.
- 8 No ministerial meeting of HEI has taken place since 2001.
- 9 Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama.
- 10 These include the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF) and the Fondo Financiero para el Desarrollo de la Cuenca del Plata (FONPLATA). The PPP has also established a Commission for Promotion and

- Financing comprising representatives of the IDB, the Central American Bank for Economic Integration (BCIE), the Andean Development Corporation and the Official Credit Institute of Spain (ICO). (For further details, see BIC, 2007; and PPP, 2004.)
- 11 The axes are: (1) Andean Axis (covering areas of Bolivia, Colombia, Ecuador, Peru and Venezuela); (2) Southern Andean Axis (parts of Bolivia and Argentina and most of Chile); (3) Capricorn Axis (parts of Argentina, Brazil, Chile and Paraguay); (4) Amazonas Axis (parts of Brazil, Colombia, Ecuador and Peru); (5) Guayana Axis (northern Brazil, Guyana, Suriname and Venezuela); (6) Southern Axis (Argentina and Chile); (7) Hydro-way Parana-Paraguay (across Argentina, Bolivia, Brazil, Paraguay and Uruguay); (8) Central Inter-ocean Axis (Bolivia, Brazil, Chile, Paraguay and Peru); (9) Mercosur plus Chile Axis (Argentina, Brazil, Paraguay, Uruguay, plus Chile); and (10) Peru-Bolivia-Brazil Axis.
 - 12 Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Uruguay, Suriname and Venezuela.
 - 13 See Comunidad Andina, Decisión 536, 19/12/2002, at: www.comunidadandina.org/normativa/dec/D536.htm.
 - 14 In addition to those linked to binational hydroelectric plants, a number of major interconnections operate between Argentina and Brazil, Argentina and Chile, Argentina and Paraguay, Argentina and Uruguay, Brazil and Paraguay, Brazil and Venezuela and Brazil and Uruguay (Sánchez Albavera, 2006).
 - 15 A pipeline between Colombia and western Venezuela is expected to become operational in August 2007, and a projected new pipeline between Bolivia and Argentina (on which construction is due to begin in October 2007) would considerably increase Bolivian gas exports. Another projected gas pipeline would connect Peru with northern Chile.
 - 16 Bolivia's decision was the outcome of a complex political process, triggered by strong public opposition to the North American gas deal, as both the price for the gas agreed with the North American importers and the royalties payable to the Bolivian Government were considered inadequate (*TDR 2005*: 115). The contracts with the foreign companies were reviewed and it was agreed to increase the royalties. In the new agreement, two main customers of Bolivian gas, Brazil and Argentina, agreed to pay a higher price (between \$4.2 and \$5 per million British thermal units (BTU), compared to less than \$1 proposed in the North American project). In addition, Argentina and Venezuela have proposed to install gas separation plants in Bolivia and provide technical assistance to that country in the domestic use of its gas.
 - 17 For example, an agreement was reached on the exchange of Venezuelan oil against Cuban medical services.
 - 18 For more detailed information on ALBA, see *Acuerdos de Integración*, at: www.alternativa bolivariana.org/modules.php?name=Content&pa=showpage&pid=230.
 - 19 Examples are the Basic Agreement on ASEAN Industrial Projects signed in Kuala Lumpur, Malaysia in March 1980 (see: www.aseansec.org/6373.htm); the ASEAN Industrial Complementation Scheme (1981); the ASEAN Industrial Joint Ventures Scheme (1983); and the Basic Agreement on the ASEAN Industrial Cooperation Scheme concluded in Singapore in April 1996 (see: www.aseansec.org/6385.htm).
 - 20 The High Authority consisted of nine independent members, two each from France and Germany, and one each from Italy and the Benelux States, plus one common nominee. They represented both the executive and the legislative branch of the ECSC. The High Authority was accountable only to the ECSC's Common Assembly of 144 members delegated by the national parliaments. However, the Assembly, the forerunner of the European Parliament, had no legislative power, except over the budget, and only very weak controlling powers. Attached to the High Authority was an Advisory Committee of 51 members: 17 each representing producers, tradesmen/consumers and labour unions, while an independent Court settled disputes over the interpretation and application of the ECSC Treaty; its decisions were binding on both the Community's institutions and the member States.
 - 21 See interview with Webster (Head of the Unit for Nuclear Fission and Radiation Protection within the European Commission's Research Directorate General) in *CORDIS*, 23 March 2007, at: cordis.europa.eu/fetch?CALLER=FP6_NEWS_EURATOM.
 - 22 European Parliament, Lisbon European Council 23 and 24 March 2000, Presidency Conclusions. Available at: www.europarl.europa.eu/summits/lis1_en.htm.
 - 23 See, for example, Jaffe, Fogarty and Banks (1997) on the spillovers of the United States space programme, and Iorio (2002) on the role of "intangible assets", such as those created in the space industry, on economic development.

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