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GLOBALISATION: EUROPE-ASIA LINKS

**TRENDS IN EUROPE-ASIA TRADE AND CONSEQUENCES FOR TRANSPORT
REPORT**

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The onset of the 21st century is being shaped by far-reaching, unprecedented changes in the world economy and in the interactions between countries and continents. The volume of international trade is growing sharply, driven in particular by countries in Asia. Annual gross domestic product increases in excess of 5%, and near 10%, for populations of more than a billion, as in China and India, are exerting a heretofore unknown “mass effect” on production and world trade.

In Europe, the economic growth of recent years has clearly not been as brisk, with recovery lagging behind while in 2003 numerous economic indicators had already started becoming much more favourable around the world, in Asia and America, and Russia was entering into a phase of sustained growth.

Against this backdrop, Europe too is undergoing profound change in its institutions, and following a phase of enlargement to the countries of Central Europe it is undertaking a policy of co-operation and outreach to its new neighbouring countries in the Commonwealth of Independent States (CIS), Central Asia and the Mediterranean.

All of these factors are contributing to a sharp increase in trade along a broad East-West axis between Europe and Asia, which many observers expect to enter into a new phase of acceleration, world trade having already grown 2.2 times as fast as global GDP over the past ten years.

It is nonetheless a fact that Asia’s financial difficulties in 1997 lie in a not very distant past, and that the future of European institutions has yet to be decided. Oil prices surging to \$50 per barrel and spiking even higher, pressures in raw materials markets as a result demand from Asian countries, widening social disparities and environmental risks are constant reminders that this economic growth can be put at risk with little or no warning.

But 2004 was also a year when a great many developing countries returned to broad macroeconomic equilibria more rapidly than expected, and these same countries are becoming increasingly aware of the risks inherent in social imbalances and environmental degradation.

Moreover, higher oil prices can create new resources for producer nations in the CIS and in Central Asia, facilitating the funding of new transport infrastructure.

One of the features of the current growth in trade between Europe and Asia is that an entire group of countries are now involved, from Europe to China, with important roles being played by Russia and the Central Asian countries, and by other, more southerly countries such as Turkey and India. This spatial dissemination aspect is paramount for tracing the broad routes of world trade, which flows not just between the extremities, but also between major hubs within the continent of Eurasia.

The purpose of this report, then, is certainly not to analyse in detail the factors underlying this growth of the countries in Europe and Asia but – more modestly – to

highlight a number of the repercussions of that growth on the transport system, modes of delivery, the choice of itineraries and the main problems to address in view of such a rise in the volumes transported over especially long distances.

For the ECMT, whose perimeter now extends over a large swath of the area stretching from Europe to Asia, the issues involve transport by sea and land alike, with, on the one hand, sustained sharp growth in traffic on major maritime routes and in the large ports that serve them, and, on the other, the rediscovery of major land routes over vast distances opening up new horizons for all modes of transport, and for rail in particular.

This report will therefore comprise three parts:

1. A recapitulation of selected economic data on trade growth between Europe and Asia;
2. An analysis of the consequences of that growth on the international transport system;
3. A review of the main problems involved, and emerging prospects.

I - ABRUPT ACCELERATION OF TRADE BETWEEN EUROPE AND ASIA

The economic awakening of the countries of Asia was to be expected, and historians have often stressed the fact that some 300 years ago China was a party to roughly one-third of the world's production and trade – a level to which it may return in the thirty years to come.

After Japan's breakthrough in the 1950s and that of the Asian "dragons" and "tigers" in the 70s and 80s, China was expected to arrive in force in the 1990s, followed by India. Even so, the force with which this happened came as a surprise at the dawn of the 21st century, at a time when Europe was experiencing difficulties with its recovery.

But the breakthrough into international trade by Russia and the CIS countries had also been expected since the mid-1990s, after the successful economic transition of the Central European countries, which have now been integrated into the European Union. These partners are creating a new dynamic all along an axis that spans the continent of Eurasia – partners which in many cases possess a wealth of raw materials, including oil, a key asset for a fresh economic takeoff.

This growth, spurred by the dissemination of "intangible" information technologies in a context of globalisation, entails "tangible" growth as well, prompting massive construction of urban housing and infrastructure to service the new frontiers.

Farther south, a country like Turkey is bolstering its position as a crossroads between East and West, as are to some extent Iran and India, whose populations are becoming more similar to that of China: while India's growth in recent years has been less robust than China's, it became remarkable in 2004 with growth rates approaching those of China, reflecting an economic model that is different but perhaps just as efficient.

This acceleration of growth and trade warrants a close look at the aspects that will have repercussions on the volumes transported, the means of transport used and the construction of infrastructure between Europe and Asia.

1. Growth which was to be expected in Asian countries, and especially China

What came as a surprise was not so much the growth of the Chinese economy but the vitality of its growth: between 1990 and 2001 China's economy recorded average growth of 10% per year – which was probably the highest growth rate in the world over that period – for a population of approximately 1.3 billion people.

Today China accounts for 4% of global GDP and 5% of world trade, and it has become Europe's second-ranking partner (see Table 1).

An important feature of this trend is the role played by the export sector and international investments. The Chinese economy is extremely open to the rest of the world, with exports-to-GDP ratios of roughly 40% – well above the ratios observed in the United States and Japan, and comparable to those in Europe.

A second feature is that only a portion of this international trade is carried out with Europe or America: growth in trade between Asian countries has been even sharper, with significantly higher container traffic.

In an initial phase, the major exporting centres of Asia and China were concentrated primarily on the coasts, triggering a real explosion of major urban centres serving also as ports and attracting rural populations from the hinterland. The new Asian economy was still very maritime-oriented.

But a current objective of Asian governments is to conquer inland areas as well, in order to limit internal migration and establish centres of economic growth in the interior of countries like China. For business enterprises, this conquest of the hinterland, facilitated by the construction of highway, air and rail systems, holds out the advantage of cheaper labour than in coastal cities, where per capita income has swelled to four or five times the national average. Growth is now under way in the great industrial centres of China's heartland.

With regard to business operations, it is important to stress that this growth is relatively diversified, with rapid appropriation of know-how. Many of China's exports are the result of tax-favoured assembly operations involving close associations with foreign enterprises. These activities contribute to a substantial proportion of import and export traffic – a fact having repercussions for logistics, which is becoming a priority in the organisation of product flows.

2. The emergence of Russia and the Central Asian countries

Russia and the CIS countries had also been expected to grow once the process of economic transition was under way; by the end of the 1990s, Russia and the CIS countries were back on the road to sustained growth (see Table 2). Since 2001, growth in the CIS countries has hovered between 5 and 6% – outpacing that of the Central European countries (between 4 and 5%) and well above that of Western Europe (around 2%).

In contrast to the pattern in Asia, this growth was sustained more by the availability of raw materials, and oil in particular, than by exports of manufactured goods, with stimulation of domestic demand in both cases.

This has resulted in sharp growth in foreign trade for the CIS countries, in respect of imports and exports alike – growth that is giving rise to new flows in the Black Sea and Caspian Sea areas and throughout the eastern Mediterranean. At

the same time the economy opened up to world trade, an entire set of flows that had been broken off suddenly with COMECON's collapse were being gradually restored, although these international flows now extend beyond the borders of the former Communist bloc.

3. Material growth for all types of products

The models of economic growth and the geographical distribution of centres of activities will have a very direct impact on freight volumes and the spatial breakdown thereof.

Here, it would seem more than ever that all types of products are involved, insofar as economic development is not achieved solely through heavy industries, but also through industries that produce high value-added products involving complex production processes bringing together internationally disparate entities.

To be convinced of this, one need only take a quick look at the sectors in question, which suggests all the ensuing transport and logistical constraints.

- Energy products, and especially natural gas and oil: The CIS countries' contribution to world supplies is going to increase considerably during a phase in which development in Asia will ensure that energy needs will not diminish.
- Raw materials and intermediate products: Growth has spawned major construction projects, especially in urban centres. China, for example, consumes half of the world's cement. The fact that the price of a tonne of steel has trebled in less than three years reflects the demand-driven pressures prevailing in the market for intermediate goods. The supply of timber for construction and furniture is another example.
- Manufactured goods: Phases of rapid growth are in many cases accompanied by a sustained increase in imported manufactures of final consumer goods and capital goods. This was the case for the Central European countries, the CIS countries and countries in Asia, including Japan and China. In many cases, this growth proved stronger than initially expected because of greater response to new products in developed and developing countries alike.
- Assembly parts: The relocation of factories and rapid accession to leading-edge industrial know-how in a large number of Asian countries have created production processes that are more widely scattered around the world and more complex, greatly increasing transport requirements. The case of China was cited as especially revealing, showing clearly that the development of assembly plants was not always incompatible with the activity of "affiliated" production units located elsewhere, in more highly developed countries.

All these elements contribute to strong, diversified and in many cases sophisticated demand for international transport. It has been pointed out that over the past ten years the elasticity of international trade to global GDP increased to 2.2, whereas it had previously been only 1.5. It would not seem that this elasticity is likely to decrease, or that the “dematerialisation” of trade, which is often proffered as an explanation of the slower relative growth of tonnes transported, is contradicted by fresh demand for raw materials and intermediate goods.

4. Sustainable growth?

Many economists wonder whether the growth in recent years is sustainable, especially in Asia, where very high growth rates have nearly reached double digits.

The first question, of course, is to define what is meant by “sustainable”. If the environmental impact of growth is taken into consideration, it is obvious that the risks are increasing at the same time; more and more developing countries are becoming aware of this and are prepared to incorporate environmental protection objectives into their growth strategies.

The same holds true for risks of financial, economic and social imbalance, which can also jeopardise such rapid growth scenarios.

Even so, a number of elements prompt a certain degree of optimism:

- Governments are becoming aware of the risks that these imbalances entail, as pointed out above.
- The reality of a highly interconnected new world economy with foreign investment and associations of enterprises: it has been shown that a large proportion of Chinese exports result from combinations of Chinese and foreign firms.
- Growth models are diverse, whether in India, China, Russia or other countries in which there is a greater capacity to adapt to national and local contexts. As compared with the early 1990s, when talk of growth was relatively “monolithic”, the integration of the “market economy” now appears much more “elaborate”, and this can be taken as assurance of “sustainability”.

Little documentation is available to support a projection exercise. One of the rare documents in existence provides energy projections, in a realm that has always required long-term vision¹.

The projections in that document would suggest that the trends of the early 2000s could and should persist over a 15 to 20-year time frame, even if some of them are becoming more moderate.

1. *Energy Outlook 2004.*

Statistics on container traffic in ports in 2002, provides insight into the significance of the globalisation of trade in Eurasia. Table 2 projects growth rates to 2025 for various countries in the world and show wide variances from country to country, with average annual growth of between 2% and 6%, bringing about far-reaching change in the breakdown of value added between countries (*Energy Outlook 2004*).

In the Annex, a Comext study for 2003 breaks down maritime and rail trade with the main CIS and Asian countries by major product family: it shows the volume of trade in high value-added goods with Asia and of intermediate goods with the CIS.

Table 1 – European Union Foreign Trade (extra UE-15) in Billion Euros

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
	Imports											
Extra-EU-15	465.39	464.71	514.33	545.25	581.01	672.57	710.54	779.82	1033.34	1028.36	989.31	987.73
Czech Republic		5.64	7.38	9.00	9.77	11.75	14.67	16.84	21.64	25.14	27.54	29.74
Hungary	5.00	4.88	6.06	7.61	8.85	11.68	14.66	17.62	22.05	24.83	25.26	26.02
Poland	7.97	8.41	10.13	12.26	12.25	14.23	16.18	17.58	23.31	26.62	28.26	31.32
Turkey	6.88	6.85	7.90	9.24	10.18	11.87	13.62	15.07	17.55	20.23	22.05	23.98
Norway	20.63	21.06	23.67	25.52	27.86	33.71	28.13	29.59	46.10	45.11	46.50	48.70
Switzerland	37.67	38.47	41.80	43.22	42.75	45.13	49.46	52.88	60.02	60.83	58.74	55.96
European Free Trade Association (EFTA) (CH, IS, LI, NO)	59.25	60.38	66.38	69.93	72.04	80.48	79.45	84.54	108.62	108.56	107.91	107.26
Russian Federation	10.85	17.62	21.35	21.49	23.40	27.04	23.17	25.98	45.72	47.77	47.73	51.84
United States	92.79	90.60	99.87	103.67	113.14	137.85	152.02	160.59	199.02	195.80	175.46	151.17
China (excluding Hong Kong)	17.96	21.13	24.62	26.34	30.04	37.49	41.97	49.65	70.27	75.90	81.87	95.22
Japan	56.34	52.20	53.78	54.30	52.56	59.88	66.04	71.91	87.13	76.28	68.54	66.78
Dynamic Asian Economies (DAEs) (HK, KR, MY, SG, TH, TW)	43.02	46.00	50.62	54.38	57.93	68.12	77.93	85.24	109.43	98.09	91.92	90.95
Oil exporting countries (OPEP)	42.82	41.53	41.48	38.44	43.98	51.29	40.52	48.37	86.22	77.02	67.59	71.26
African, Caribbean and Pacific countries signatories to the partnership agreement (Cotonou agreement)(77 countries)	27.85	24.35	26.08	27.65	30.25	32.14	31.22	32.58	43.33	47.64	45.69	43.28
	Exports											
Extra-EU-15	415.30	468.12	523.77	573.28	626.29	721.13	733.43	760.19	941.27	982.97	994.32	972.92
Czech Republic		7.10	9.21	11.66	14.01	15.91	17.21	18.43	24.00	27.67	29.14	30.23
Hungary	5.38	6.45	8.05	8.73	10.03	13.60	16.86	18.44	23.04	23.88	25.04	26.14
Poland	9.22	11.12	12.30	15.31	19.97	25.08	28.21	28.97	33.81	35.68	37.37	38.34
Turkey	8.75	12.41	9.27	13.39	18.32	22.38	22.19	20.58	29.95	20.26	24.34	28.13
Norway	14.34	14.43	16.40	17.48	19.75	23.36	25.09	23.24	25.60	26.15	26.63	25.83
Switzerland	41.86	42.68	46.65	51.04	51.46	53.02	57.18	62.56	70.78	74.76	70.74	68.41
European Free Trade Association (EFTA) (CH, IS, LI, NO)	56.98	57.87	63.76	69.78	72.67	78.07	84.23	87.84	99.00	103.30	99.47	96.54
Russian Federation	7.11	13.16	14.35	16.13	19.13	25.54	21.17	14.73	19.92	27.96	30.46	33.07
United States	79.34	91.40	103.40	103.32	114.88	141.37	161.55	183.02	232.47	239.94	242.14	220.48
China (excluding Hong Kong)	7.57	12.36	13.99	14.69	14.75	16.48	17.41	19.35	25.50	30.09	34.23	40.13
Japan	22.20	24.66	29.00	32.90	35.77	36.10	31.57	35.37	44.94	44.92	42.69	40.06
Dynamic Asian Economies (DAEs) (HK, KR, MY, SG, TH, TW)	37.30	46.91	56.95	65.57	70.20	77.66	60.08	62.00	81.57	81.89	78.22	73.20
Oil exporting countries (OPEP)	43.17	42.07	37.84	38.99	41.94	51.14	47.08	43.94	53.99	63.94	66.80	66.49
African, Caribbean and Pacific countries signatories to the partnership agreement (Cotonou agreement)(77 countries)	23.55	23.19	22.99	26.54	27.54	30.22	32.70	31.52	38.41	40.20	40.24	40.27

**Table 2 – Annual Growth in GDP by Selected Countries and Regions, 1977-2025
(Percent per Year)**

Region	History				Projections		
	1977-2001	2001	2002	2003	2001-2025	2005-2010	2010-2025
Industrialized Countries	2.7	0.9	1.5	1.7	2.4	2.6	2.4
United States.....	3.0	0.3	2.4	2.3	3.0	3.2	2.8
Canada.....	2.9	1.9	3.3	2.0	2.7	3.0	2.5
Mexico.....	3.3	-0.3	0.9	1.5	3.9	3.6	4.4
Western Europe.....	2.2	1.7	1.0	0.7	2.0	2.2	2.1
United Kingdom.....	2.3	2.1	1.7	2.0	2.4	2.5	2.5
France.....	2.2	2.1	1.2	0.3	2.1	2.2	2.2
Germany.....	1.9	1.0	0.2	0.0	1.6	1.8	1.7
Italy.....	2.2	1.7	0.4	0.3	1.9	2.1	2.0
Japan.....	2.9	0.4	0.2	2.5	1.7	1.8	1.7
Australia/New Zealand.....	3.1	2.5	3.7	2.6	3.0	3.0	2.9
EE/FSU	-0.4	4.6	4.0	5.1	4.1	4.4	3.9
Former Soviet Union.....	-1.0	5.9	4.8	6.1	4.2	4.5	3.8
Eastern Europe.....	0.8	2.6	2.7	3.4	3.9	4.1	3.9
Developing Countries	4.5	2.4	3.5	3.9	4.6	5.2	4.5
Asia.....	6.8	3.9	5.6	5.2	5.1	5.8	4.7
China.....	9.5	7.3	8.0	7.7	6.1	6.8	5.5
India.....	5.2	5.6	4.3	5.8	5.2	5.4	5.1
South Korea.....	6.9	3.2	6.3	2.8	4.2	5.6	3.4
Other Asia.....	5.8	0.5	3.6	3.5	4.3	5.1	4.2
Middle East.....	3.3	-1.7	3.3	3.9	3.7	4.0	3.6
Turkey.....	3.3	-7.5	7.8	5.0	4.2	4.2	3.9
Africa.....	2.7	3.2	3.0	3.3	4.0	4.5	3.9
Central and South America....	2.4	0.5	-1.2	1.1	3.7	4.1	4.2
Brazil.....	2.7	1.4	1.5	0.5	3.7	3.9	4.1
Total World.....	2.8	1.3	2.0	2.3	3.0	3.2	3.0

Sources : History: Global Insight, Inc., *World Overview* (Lexington, MA, September 2003). Projections: Global Insight, Inc., *World Overview* (Lexington, MA, September 2003); et Energy Information Administration, *Annual Energy Outlook 2004*. DOE/EIA-0383(2004) (Washington, DC, January 2004).

II - REPERCUSSIONS ON TRANSPORT BETWEEN EUROPE AND ASIA

The repercussions of the context of economic growth on international transport between Europe and Asia are fundamental. They are not limited to the impact on volume, with tonnage rising by more than 6% per year (doubling in 10 or 12 years), but involve profound changes in transport itself, whether maritime, which is the mode used most commonly, or by land (not to mention air freight). Today, land transport is positioned as a link in the chain of maritime transport as a means of access to ports, and also as the primary mode of transport over long distances across Russia and Central Asia to China.

The organisation of maritime transport had already been transformed in response to international traffic growth, as can be seen from the emergence of major hubs in the Mediterranean, northern Europe and Asia. Today, ship owners are planning to operate a new generation of vessels in excess of 8 000 or even 10 000 containers on services between Europe and Asia via the Suez Canal²: this illustrates the importance this route has taken on in global trade.

At the same time, networks spanning continental Asia are taking shape and interconnecting, originating in Western Europe and Asia, but also in countries in the central portion, in Russia, Kazakhstan, Turkey and Iran, with links tailored for long distances holding out new opportunities for rail transport.

Changes in the organisation of transport and logistics are thus combining with a diversification of itineraries, if not of new combinations of maritime and land shipping.

The purpose of this second part is thus to explore in greater detail the main repercussions on transport of the changing context of international trade between Europe and Asia.

1. Responding to steady, high – if not accelerating – growth in container traffic

The growing use of containers has for some fifty years been closely correlated with the globalisation of trade. In particular, the emergence of Asian countries has led to increasingly heavy concentrations of containers in the area, where today's largest container ports are to be found. Containers were well suited to needs, offering a standardised load unit, while at the same time the superior performance of container ships facilitated trade so much as to greatly attenuate the effect of distance. The price of shipping a container from Europe to Asia is hardly more expensive than a 500 or 1 000-km road freight shipment. While maritime transport times are still fairly long, varying between four and six weeks depending on

2. In some cases continuing on to the west coast of the United States.

destinations, reliability and regularity make ocean shipping fairly easy to control and integrate into door-to-door logistics chains.

Projections of container traffic between Europe and Asia yield growth rates of approximately 6%³. One of the features of the traffic has been the use of ever-larger and more efficient vessels, which today have capacities in excess of 7 000 containers, as mentioned above, with special concentration of the largest ships on Europe-to-Asia routes and the large port hubs along the way.

The debate over the growth of ship size is still on, but it would seem that the limit of 10 000 containers will be reached fairly soon on that route, generating new productivity gains.

Shipping charges fell to extremely low levels around 2000-01, with significant differences stemming from load imbalances between Europe-to-Asia and Asia-to-Europe (see Table 3). Today these charges are affected adversely by rising oil prices and higher security costs, but this link in the chain is nonetheless still an extremely efficient one. At this level there would not seem to be any major difficulties coping with rising demand, to which technologies can adapt fairly readily.

Table 3

**Shipping Charges of the Three Main Maritime Lines
2000-2002
(\$/twenty footer and difference in percentage)**

	2000	2002	Difference (2000-02)
Trans-Pacific			
United States – Asia	852	768	-9,9
Asia – United States	2013	1502	-25,4
Europe - Asia			
Europe – Asia	741	663	-10,5
Asia – Europe	1620	1172	-27,7
Trans-Atlantic			
United States – Europe	976	832	-14,8
Europe – United States	1204	1182	-1,8

Note: Average from six big shipping companies. The annual figures are averages based on quarterly figures. Twenty footer: standard capacity container.

Source: CNUCED, *Review of Maritime Transport (2002, 2003)*

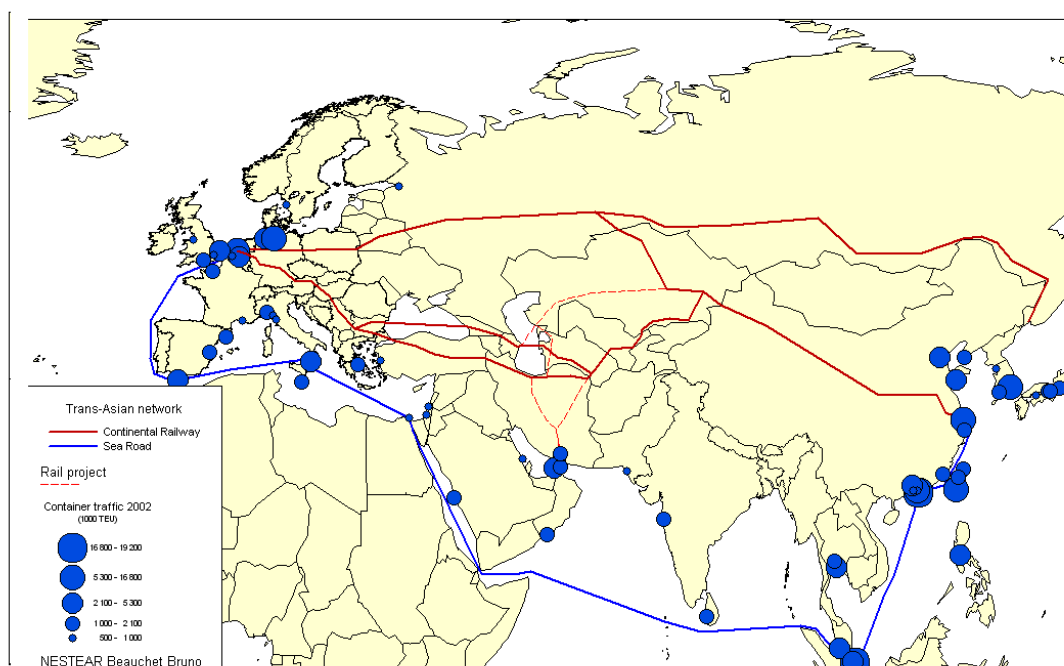
3. Source: "Regional Shipping and Port Development Strategies" (ESCAP/UNDP)

2. The emergence of major maritime hubs

The operation of ever-larger ships also entailed a radical transformation in port service, in respect of both land and sea (feeder).

The outcome was to limit the number of ports involved as ship sizes increased, and to make more systematic use of transshipments in major hubs between mother ships, for intercontinental transport, and feeder ships, to serve maritime terminals (see Map 1).

Map 1 – Main Maritime Ports of Container Traffic



The explosion of traffic in the major ports is thus the result not only of trade growth, but also of the generalisation of these modes of transport with a limited number of ports involved and a greater number of transshipments. Some ports along the most direct shipping routes experience especially high rates of transshipment. But continental ports generally combine land-based service to the hinterland with maritime transshipment.

Insofar as container port terminals are also becoming increasingly efficient and their operations computerised, and in some cases automated, there would not seem to be any capacity problems at these major hubs, which are on the scale of the regions served: the number of terminals has grown in Asia and Europe alike. Competition between them remains fairly keen, and more and more ports on the southern shore of the Mediterranean are preparing to play this role.

It is in fact the growth of trade with Asia that spurred the emergence of the major Mediterranean hubs, whereas previously such hubs had been located almost exclusively on the northern edge of Europe at a time when transatlantic trade dominated, with routes via the Panama Canal that can no longer be used by today's largest Asia-bound ships.

The experts generally concur in their optimism over the reception of large vessels in "port hubs" and the increasing number of such hubs along the main shipping routes.

Problems of congestion and overcrowding arise rather in respect of land access, although transshipment onto feeders would seem highly efficient as well.

3. Integrating door-to-door logistical chains

The institution of shipping routes between Europe and Asia with heavy concentrations of traffic in the major ports generated new forms of integration of logistical chains and land access to the ports.

An initial trend was to seek inland points of dispersion so that port access traffic could be concentrated, and to ensure faster and more efficient evacuation towards major inland centres, spawning a rise in the number of "dry ports" offering regular services to improve service to the hinterland.

In Asia, port-bound services generally involved shorter distances, insofar as over three-quarters of imports and exports were bound for or originated in coastal areas.

The main modes for onward journeys of over 300 kilometres to and from inland points of dispersion became railroads and inland waterways, but the underlying principle being to concentrate traffic along major corridors, the number of these "dry ports" would always be limited.

In this context, many ship owners sought to retain control over the entire transport chain, including management of containers in inland areas and direct contact with forwarders. A smaller number preferred to limit themselves to narrow specialisation in maritime transport.

Nevertheless, the European Commission was prompted once again to lay down the rules governing commercial practices in the realm of port access in order to preclude distortion in the choice of ports within door-to-door chains.

Competition between ports shifted inland with a more direct confrontation between northern and southern ports. Railway links developed very rapidly to the ports of Antwerp, Rotterdam and Hamburg, including routes serving the new EU Member States of Poland, the Czech Republic, Slovakia and Hungary. In the Mediterranean, the spreading out from major hubs generally took the form of feeder

services redefining the place of major historical ports like Marseille, Genoa, Barcelona, Valencia, Leghorn and Trieste in maritime organisation.

Regarding trade in other goods, such as oil and other raw materials, the question of logistical integration requires specific analysis, depending on the location of production facilities. In the case of energy products, an alternative is transport via pipeline over short or long distances. With respect to raw materials, it must be borne in mind that it is in many cases more difficult for the supply of transport to adjust to changes in demand, triggering a spike in maritime tramping rates along with today's sharply rising product prices.

4. New land and sea routes

The new transport needs are not limited to higher port and ocean shipping capacity, especially insofar as the growing trade between Europe and Asia also involves continental countries between Western Europe and southern and East Asia.

Both of these factors are conducive to the opening of new land arteries, some of which retrace such historical trade routes as the Silk Road and the trans-Siberian route.

In the search for new long-distance land routes that meet transit needs but also the accessibility requirements of the countries along the way, railways and inland waterways often enjoy an advantage when the distances involved are very great – in many cases thousands of kilometres for relatively concentrated flows, in countries fairly well endowed with railway infrastructure, even if a number of “missing links” need to be built to satisfy a market on a scale mirroring the continents involved, after a long period during which borders were fairly impervious to trade.

Both for the European Union and for the countries of Asia, and China in particular, this search for new trade routes is fully consistent with political objectives.

Europe's current policy is characterised by outreach to new “neighbours”, and it involves the extension of trans-European networks, redefined to encompass 25 countries, towards the CIS and Central Asian countries along major corridors, as had been done previously for Central European and Mediterranean countries.

On the Asian side, China is developing an entire network of rail and highway infrastructure at a very rapid pace, designed to cover the entire country and link up with connections to Kazakhstan, Mongolia and Russia, in an effort to reconquer its heartland.

For their part, all of the CIS countries are also adapting their infrastructure from Russia to the Central Asian and Caucasus countries, as well as Kazakhstan, Turkmenistan and Iran, which also occupy central positions along the great East-

West routes. Connections to countries lying farther to the south, such as Turkey, India and Pakistan, have not been forgotten and are gradually being incorporated into a network of major links within a vast Eurasian expanse.

The major trans-Asian routes are above all railway routes (see Map 2).

1. The Trans-Siberian, which spans Russia from the Baltic to Vladivostok, including a container service as an alternative to ocean shipping. This line extends westward from Moscow and connects in St. Petersburg to extensions towards Finnish ports; it is used frequently for European traffic bound for Central Asia. But more southerly connections, through Ukraine and Central European countries, are possible as well. The AGC network map (see Map 3) shows the main railway connections extending eastward through Kazakhstan towards China and Mongolia.
2. The co-called "TRACECA" corridor, which offers a number of itineraries along what was once the Silk Road. A central route includes a Black Sea crossing to Georgian ports and then a crossing of the Caspian Sea. From there, it is possible to go farther east, towards China for example. Another, more southerly, itinerary runs through Turkey to Georgia and Azerbaijan; today this is primarily a road route.
3. A more southerly trans-Asian rail route through Turkey and Iran. This links up in Central Asia with the networks of Turkmenistan and Kazakhstan, but work on it is required in numerous locations.

Another option for railway shipment to China is through Kyrgyzstan, along a route that carries less traffic than the more northerly route through Kazakhstan, via the border station of Druzhba.

Major projects have been developed for this trans-Asian rail corridor, by Kazakhstan in particular: a European gauge investment has been planned from the Caspian Sea to China over nearly 3 000 km. The line runs along the Caspian Sea, with a north-south branch over 700 km across Turkmenistan to link up with the Iranian network with 70 km of new track – all of which representing an investment estimated at between seven and eight billion dollars.

Thus there are possibilities for direct connections between the ports of Hamburg and Rotterdam to that of Lianyungang in China, where containers already transit towards Central Asia.

On the route between Iran and Turkey, investment has also been planned, including a rail bypass of Lake Van and a rail crossing of the Bosphorus (by tunnel) for a European-gauge line from end to end – having the same gauge as in China.

4. A North-South line through Iran will improve maritime access for Central Asia.

This North-South rail connection leads to the Iranian port of Bandar Abbas at the entrance to the Persian Gulf: this port is already served by a branch line. A new itinerary is under construction, to be opened in 2007, and will serve Iranian mines and avoid a detour via Tehran.

Railway access to maritime services would be greatly enhanced, providing new sea and land combinations for the countries of Central Asia.

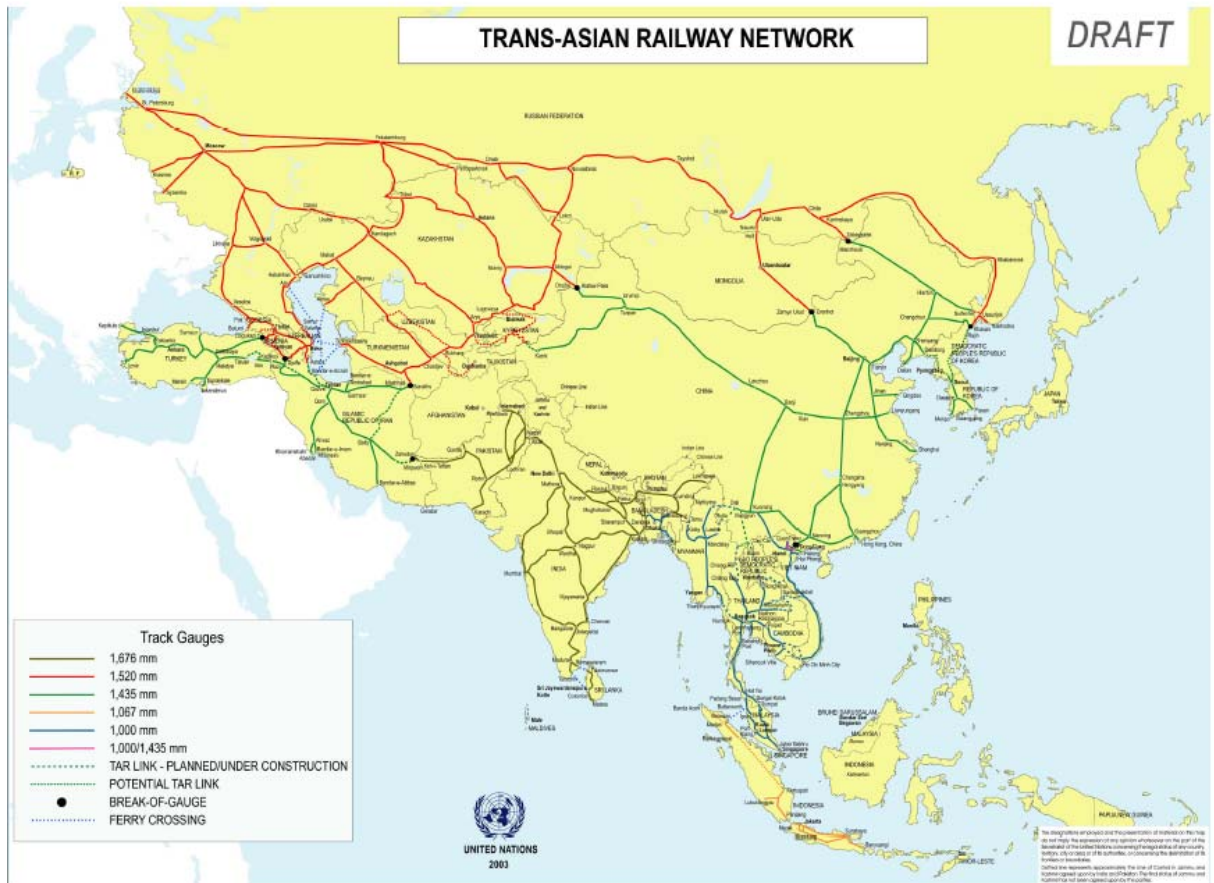
But the Asian continent is also covered by a denser road network (see Map 4) linking the main cities, and in particular those located more to the south, especially in India, Pakistan and the Cambodian peninsula.

While major road itineraries sometimes run parallel to East-West rail lines, especially in the northern part of the continent, this is less true farther south because of geographical difficulties which constrain rail lines more than they do roads.

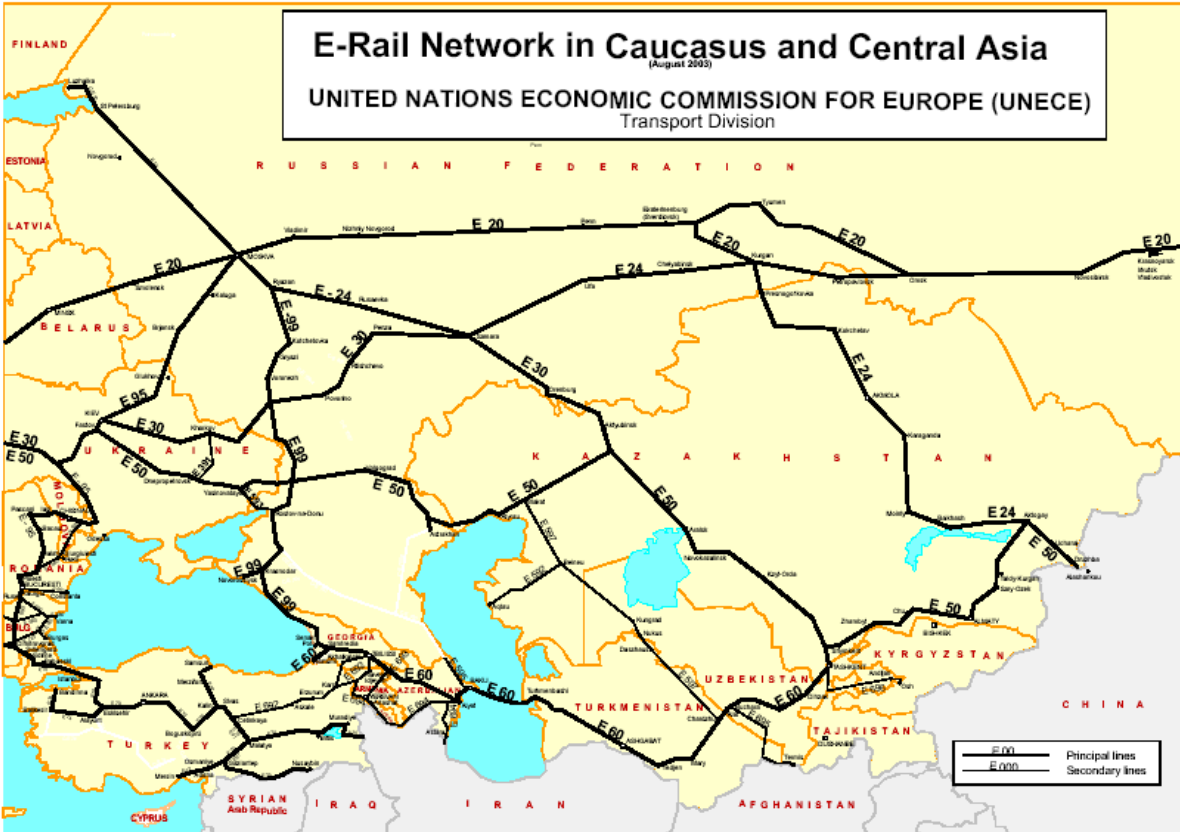
Using UNECE (see Map 5) classifications (Europe's "E-routes"), these major road systems are known as E20 across Siberia, E24 with a more southerly branch towards Kazakhstan and China, E50 to the southern shore of the Caspian Sea, E60 across the Caucasus; E24, E50 and E60 still converge at the major border point with China (Druzhba).

In this change, the UN with the political support of ECMT must continue to handle specifications for a basic network (see Map 6), providing a frame of reference for modal infrastructure and operations.

Map 2- Trans-Asia Railway network



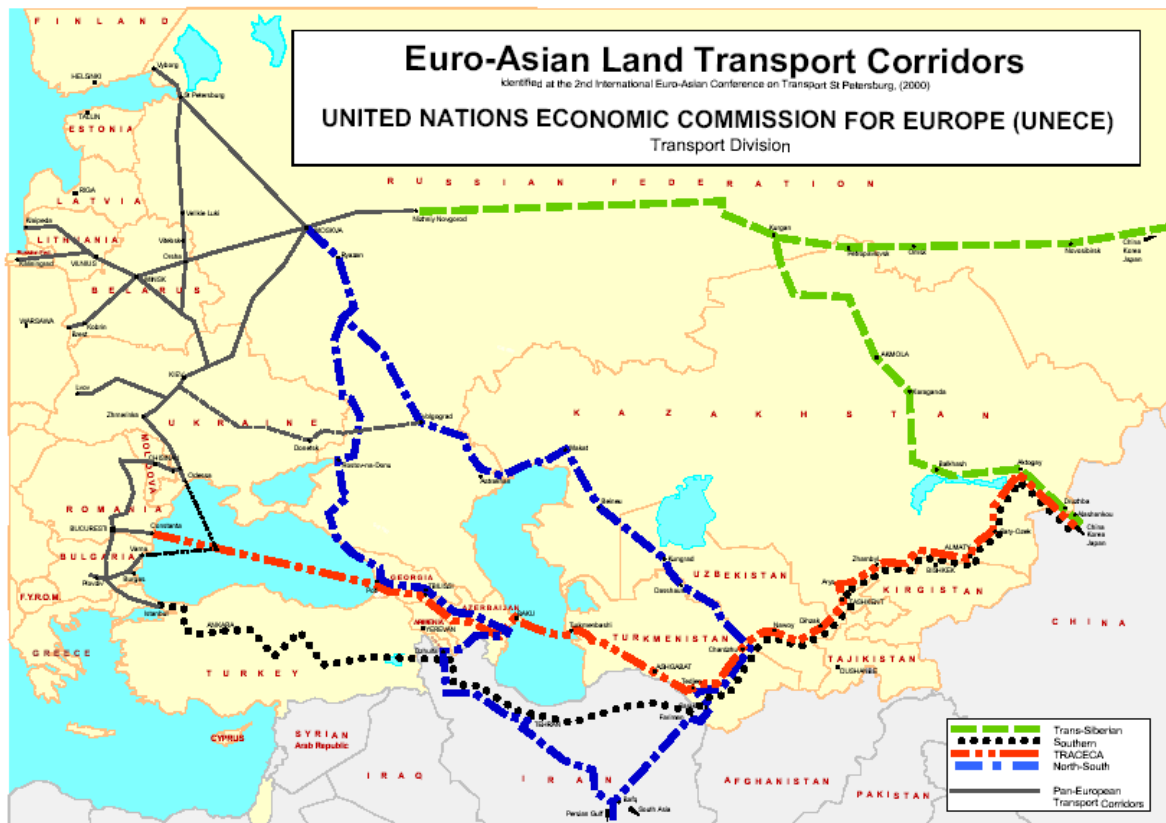
Map 3



Map 4 –Asian Road Network Project



Map 6 – Corridors of Euro-Asian Road Transport



III - PROBLEMS AND OUTLOOK FOR TRANSPORT BETWEEN EUROPE AND ASIA

From the economic background analysis in Part I, it is clear that the most likely scenario is for very strong growth in traffic between Europe and Asia. The growth will be the result of the integration of an increasing number of countries into both the world market and the regional market, creating a sort of continuity in international trade flows which will no longer be limited to traffic between the Far East and Western Europe.

It was seen that this sharp growth in traffic tonnage, which is hard to quantify, will probably exceed 5 or 6% per year, based on past experience with the opening of economies in Europe and Asia, and on economic trends over the past 15 years⁴.

The fact that energy products, raw materials, intermediate goods and high value-added products are all involved, swelling the volume and the diversity of transport requirements, would suggest that a stronger-than-ever increase in demand along the major arteries joining Europe and Asia cannot be ruled out. This is probably the result of the current context of globalisation, as illustrated over the past decade by the rapid integration of the European Union's new Member States and the success of the Asian countries.

But a growth situation such as this raises a number of problems involving transport market regulation, capacity adjustment, infrastructure planning between countries, security and environmental protection. In other words, it calls for a comprehensive undertaking of forward-looking vision, co-operation and empowerment of public organisations on a scale transcending that of most existing regional organisations.

The sole purpose of Part III is to raise a number of these problems.

1. Market equilibrium and short- and medium-term capacity problems

A doubling of traffic every 10 or 12 years over more than four decades inevitably puts pressure on the transport market and strains capacities.

This pressure does not show up evenly along the chain, some links being better able to absorb it than others. The growth of port traffic in Asia, and even in certain Mediterranean ports, would have been difficult to imagine just a few years ago, and yet it took place without seeming to threaten the port system with paralysis. The same holds true for maritime shipping, with orders for ever-greater numbers of container ships reaching a point where risks of port or maritime overcapacity cannot be ruled out if the volume of trade were to weaken for a year or two.

But the system is still vulnerable, and all the links in the chain need to be considered.

4. *Energy Outlook 2004*, for example, and the result of the *Maritime Policy Planning Model* (ESCAP/UNDP).

- **Freight rates for maritime transport**

An initial question is how shipping rates will be affected by rising demand and oil prices. Higher oil prices have started to put pressure on shipping rates, which had remained very low despite the aforementioned steady growth in traffic. Productivity gains have absorbed cost increases in a still-very competitive market. In recent times, price increases on regular shipping lines have run a fairly moderate 10 to 20%. We have seen, however, that prices on the far-more-sensitive charter market have already trebled or quadrupled. If oil prices stay over \$50 per barrel, this situation might be altered drastically, with price rises that would be far more difficult to absorb and a weakening of demand in conjunction with the economic downturn.

Demand for oil is likely to continue rising at a pace near that of global growth because of the very fact that countries in Asia are developing rapidly. Chinese consumption as a proportion of global oil supplies will quadruple in twenty years.

Foreseeable major changes will be in the geographical distribution of oil production, with Caspian Sea countries playing a more important role.

Lastly, substitution between natural gas and oil can also be expected to have an impact on geographical distribution and modes of conveyance between pipelines and maritime shipping.

- **Congestion of land access to ports**

A large amount of port traffic has to be transported to the hinterland over distances that are tending to increase, particularly in respect of containers headed for inland regions and heartland countries of Europe and Asia.

Clearly this issue is moot if a port is used essentially for transshipment (e.g. Algeciras, Gioia Tauro and Malta for Europe), or if the importing or exporting regions are almost exclusively "maritime" (Hong Kong, Taiwan, Japan and until now to a large extent China) or in the immediate vicinity of the port.

One response to this has been to develop alternatives to road shipping – concentrated inland waterway services if possible, and especially rail services.

Efficient rail service is becoming the best guarantee of the extension of port hinterlands. Many countries are seeking to connect their ports to freight lines in order to boost rail capacity and service quality. This idea is re-emerging with the proposal for a freight network in Europe, where port services are driving demand for connections through sensitive areas like the Alps.

- **Vulnerability and security of maritime shipping routes**

This vulnerability stems from the risk of terrorist attacks and the existence of points where shipping is concentrated, and from mandatory points of passage along the routes between the port hubs of Europe and Asia.

To date, one response has been to increase the security of maritime shipping and institute control procedures to prevent attacks.

The vulnerability of shipping routes only enhances the value of diversifying itineraries and opening land-based alternatives, although these are not exempt from risk either.

2. New land trade routes between Europe and Asia

We have seen that these routes are not really “new”, insofar as they have existed in the past – the distant past and the more recent past of the Soviet bloc.

Leaving aside the issue of river routes, which are not to be neglected in the West, with great Russian rivers like the Volga, or in the East, with the Yang Tze, this is primarily a matter of rail transport. The same track gauge is used throughout the CIS, with transshipment needed for connections with the European Union or Chinese networks at either end.

Nonetheless, the potential value of road transport should not be ruled out, even over long, if not very long, distances, as already demonstrated by Turkish freight services to Central Asia. Here, however, it is also possible to work with road hauliers to devise intermodal solutions to optimise the efficiency of road, rail and maritime links to provide quality service for all of the countries of Asia and Central Europe.

Let us recall some quantitative information about these new trade routes.

- Regarding routes between Europe and Asia, distances are generally shorter by land than by sea, especially if the origin and/or destination points are in regions that lie deeply within China or Central Asia.

In the case of regions farther to the south of Asia, the differential becomes less, of course, with maritime distances converging with land-based ones, and in many cases the terrain is more difficult.

In the case most favourable to land routes between the Baltic and North-East Asia, the distance differential is roughly 1:2, with approximately 12 000 km by land (with Kazakhstan being about in the centre) but over 20 000 km by sea.

- Regarding services, it must be acknowledged that available West-East or East-West trans-Asian services are limited. Services have been proposed along the Trans-Siberian railway between the Baltic ports and Vladivostok which do not entail gauge changes for an electrified line: these rail services are included in the COMEXT database statistics for trade with the Baltic Sea States.

Other than that, we have seen that most services involve routes between Europe and Central Asia, or between Central Asia and China; in either case, transport times would have to be at least two weeks.

- Regarding prices, it is difficult to give rough estimates, especially for the segment between Central Asia and China. In the western portion, the price for a container would range between \$1 500 and \$2 000, which would seem lower than the prices charged a few years ago. It must be borne in mind that Turkish road hauliers are also very present and competitive on services to Central Asia.

But another question that arises is the outlook for trans-Asian itineraries: from this standpoint the status quo offers a poor reflection of possibilities for the future.

It must be borne in mind that a quality two-track rail line can attain capacities of roughly 50 to 100 million tonnes, if not more.

Looking at speed, a trans-Asian service between Europe and China could take approximately 20 days, whereas it takes over six weeks for ships.

This gives a general idea of the potential of trans-Asian railroads with good terms of supply, as may be the case for the “Trans-Siberian” and another trans-Asian line set up farther south.

Regarding prices, it is still difficult to make projections; given the extremely competitive rates of current maritime channels, land prices would probably be far more – double or triple, excluding port approach costs, which can be comparable for pre- or post-shipping distances in excess of 300 km.

To save approximately ten days, if not more, there is certainly a new intermediate market between maritime and air freight services between Europe and Asia.

But even more importantly, rail cost analysis as conducted in Europe shows that if the rolling stock is used efficiently and operated effectively between six and seven hours per day per driver, and if, where appropriate, long trains are formed, rail costs can be reduced considerably over long distances. This is clearly the case for trips across Russia or through Asian countries over several thousand miles.

In such cases, the cost of rail transport can be less than €10 or €12 per train-km, which would entail a cost of less than €2 000 per load unit – if not far less, depending on train length – to link the two ends of the Eurasian continent.

In conclusion, efficient operation of East-West rail lines would make available a significant additional capacity (of several million TEUs) at costs that could be competitive for many services between regions in Europe and Asia.

In this competition, the cost of onward land carriage will certainly be a decisive factor in the choice between land and maritime transport.

While it cannot be said that trans-Asian rail service would solve the problem of port access in Western Europe, or even in Asia, it could certainly enhance service to a large number of inland regions and absorb a significant portion of the growth in the number of containers in circulation between Europe and Asia – growth that will involve more than ten million containers within the next ten years.

3. A vision of corridors between Europe and Asia, with gradual cover of Eurasian networks

A vision of “great corridors” between Europe and Asia is probably what will facilitate implementation of efficient services, as was the case, on a smaller scale, for European enlargement.

In this vision, it must be emphasised that railways have retained a dominant role in the CIS countries, even if the same cannot be said for services farther south, or for North-South services with Turkey, Iran or India.

This initial vision is the one that already prompted the proposal for the TRACECA corridor linking Western Europe to the Caucasus countries.

In the European Union, this approach is being developed in conjunction with the New Neighbours policy being furthered by the high-level group chaired by Ms. De Palacio.

It is therefore important that this “Eurasian” approach be tied in with national programmes, so that the countries crossed derive optimal benefits, ensuring the continuity of infrastructure and facilitating the operation of international services. These countries’ need for international transport can only incite them to move in this direction. The resources derived from raw materials can in some cases deliver the necessary financing.

This corridor approach is in no way incompatible with a network approach – quite the contrary. The process used for Europe’s enlargement and outreach to the CIS and Mediterranean countries can be tailored to the context of the Eurasian continent.

Priority corridors will thus become part of a vast continental Asian network under the aegis of international organisations in co-operation with trade organisations in the railway and road haulage industries.

As an enlarged Europe reaches out to Asia, steps must be taken to turn this vision into a truly forward-looking process.

4. A forward-looking process for services between Europe and Asia

Analysis of the economic context has shown the abruptness of recent changes, with the expected emergence of the Chinese economy, which itself followed the emergence into the world economy of most of the countries of Asia.

Tomorrow, it is to be expected that a large country like India, with a population in excess of 1 billion, will follow China and in turn experience a phase of more rapid growth; in 2004 its economic growth was approximately 10%.

Closer to Europe, Russia and the CIS countries are also entering a new phase of their economic growth with strategic reserves, energy products and raw materials, and a central position in land networks, although their access to the sea is in some cases difficult: clearly a sea route via the Arctic Ocean would change all this by putting Europe about 12 000 km from the Far East, but it would also be the sign of a highly disturbing change in the earth's environment.

It is probable that Europe has not been quick to become aware of the irreversible shift in the centre of gravity that has been taking place in the past few years on a planetary scale.

Once again, the transport sector finds itself in the vanguard of these changes and is compelled to find new channels in order to cope with them.

It is probably more necessary than ever to institute a truly forward-looking process to plan for the required investment and provide suitable services.

Such a process will necessarily include the following:

1. Definition of common scenarios for trade prospects with basic assumptions compatible with the socio-economic context of the countries concerned.
2. Principles for establishing and operating networks to achieve interoperability between road, maritime and rail services, which is already well under way with the existence of an extensive Russian network and rapid development of the Chinese network with European gauge.
3. Co-ordination with transport infrastructure programmes along major corridors.
4. Socio-economic evaluation of traffic growth and its environmental impact in order to find the best response for sustainable development.

For many Central, East and South-East Asian countries, investment in transport is being sustained by an unprecedented wave of economic development. The aim is not so much to scale back investment but to seek out the most efficient projects for the policy of sustainable transport development.

CONCLUSION

The dawn of the 21st century is seeing the economies of Central Europe and Asia burst into the global economy, altering the medium- and long-term balance between Europe and Asia.

Because the phenomenon is such a rapid one, it is still difficult to assess all its repercussions; moreover, it is neither very likely nor desirable for this to stall, lest it jeopardise global economic balance and supplies of strategic basic products.

Transport is again one of the sectors most revealing of the changes under way, with trade flows conveying a clearer understanding of the forces involved.

Thus it is necessary to open up new itineraries and find new modal combinations better suited to needs, so as not to increase the vulnerability of transport; and to control its impact on the environment.

From this standpoint, it is important to benefit from past experience with the opening of the European economy to undertake joint efforts on the even larger scale of services between continents.

**ANNEX – MARITIME INTERNATIONAL EXCHANGES
(COMEXT BASIS FOR 2003)**

COMEXT2003_Sea_General Cargo (in thousands of tonnes/year)										
Imports										
Rep./part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	133	57	740	931	147	37	77	262	108	1 300
NL	61	24	862	948	168	17	98	283	72	1 302
DE	69	130	1 579	1 778	387	155	179	720	104	2 602
IT	1 988	17	3 927	5 933	951	688	356	1 995	1 157	9 085
UK	81	75	1 591	1 747	405	151	321	878	494	3 119
IRL	0	7	239	246	20	20	46	85	93	424
DK	144	14	867	1 025	53	84	14	151	7	1 183
GR	0	0	0	0	0	0	0	0	0	0
PT	63	0	139	203	39	35	36	110	267	580
ES	339	94	1 678	2 111	242	222	215	678	831	3 620
BE	27	84	1 322	1 433	148	194	674	1 015	195	2 643
LUX	0	0	0	0	0	1	3	4	0	4
SW	15	17	2 223	2 255	40	36	71	147	12	2 414
FIN	4	18	649	671	8	10	40	58	14	743
AT	0	0	17	17	12	5	37	53	8	78
Total	2 924	538	15 835	19 297	2 620	1 654	2 165	6 439	3 361	29 097
Exports										
Rep./part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	59	1	104	164	843	60	181	1 085	501	1 750
NL	5	1	137	143	625	144	143	912	372	1 427
DE	92	2	191	285	2 103	249	872	3 224	882	4 391
IT	3	0	36	40	551	69	95	715	660	1 415
UK	50	8	129	186	726	447	197	1 371	312	1 869
IRL	0	0	9	9	47	2	10	59	11	79
DK	11	1	190	202	74	35	40	148	49	399
GR	0	0	0	0	0	0	0	0	0	0
PT	0	0	0	1	11	2	4	16	58	75
ES	9	0	87	97	366	47	84	496	487	1 080
BE	1	1	49	51	705	47	47	799	494	1 344
LUX	3	0	3	5	12	4	2	18	12	36
SW	28	8	147	184	266	73	465	804	94	1 082
FIN	2	1	20	23	234	19	501	754	58	835
AT	0	0	3	3	16	5	125	146	7	156
Total	265	22	1 106	1 394	6 579	1 203	2 766	10 548	3 997	15 938

COMEXT2003_Sea_Unitised (in thousands of tonnes/year)										
Imports										
Rep./part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	7	0	18	25	1 166	69	129	1 364	619	2 008
NL	10	0	13	23	1 307	131	163	1 601	216	1 841
DE	1	1	294	296	3 178	136	253	3 567	454	4 317
IT	33	2	151	185	2 138	124	134	2 395	2 450	5 030
UK	23	9	432	465	2 976	204	291	3 472	889	4 825
IRL	0	0	1	1	114	18	22	154	54	209
DK	0	6	75	81	176	13	8	198	37	316
GR	0	0	0	0	0	0	0	0	0	0
PT	0	0	30	30	95	21	14	130	818	978
ES	102	0	907	1 009	1 312	165	93	1 569	2 537	5 115
BE	0	3	79	83	821	45	121	987	333	1 402
LUX	0	0	0	0	13	1	2	15	0	15
SW	6	4	39	49	362	32	32	426	67	542
FIN	0	0	15	16	109	8	17	134	29	179
AT	0	0	2	2	170	9	10	188	29	219
Total	183	25	2 056	2 264	13 935	976	1 289	16 201	8 532	26 997
Exports										
Rep./part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	19	0	173	191	388	148	546	1 081	235	1 507
NL	2	1	518	521	246	90	239	575	101	1 197
DE	9	1	288	298	866	199	442	1 506	230	2 035
IT	19	3	101	122	402	170	411	983	381	1 486
UK	30	4	273	306	282	126	276	684	165	1 155
IRL	1	0	89	90	17	8	32	58	9	157
DK	3	1	84	89	70	40	294	404	3	496
GR	0	0	0	0	0	0	0	0	0	0
PT	1	0	8	9	20	37	26	82	34	126
ES	106	2	219	327	214	123	101	439	281	1 047
BE	4	0	109	113	197	125	223	545	110	767
LUX	0	0	0	0	5	1	3	8	0	9
SW	9	2	95	106	216	37	166	419	83	608
FIN	7	1	73	81	186	49	342	577	169	827
AT	0	0	7	7	77	35	93	205	18	230
Total	210	15	2 036	2 260	3 185	1 188	3 194	7 567	1 820	11 647

COMEXT2003_Sea_Bulk (in thousands of tonnes/year)										
Imports										
Rep/part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	194	987	5 011	6 192	395	7	29	431	116	6 739
NL	216	0	1 547	1 763	1 468	36	169	1 673	131	3 567
DE	4	45	6 499	6 547	740	9	88	837	31	7 415
IT	4 501	0	4 235	8 736	2 178	14	182	2 375	3 468	14 578
UK	234	97	10 070	10 401	941	18	38	997	154	11 551
IRL	0	0	2	2	29	1	3	33	11	46
DK	14	0	1 996	2 010	401	1	1	403	8	2 421
GR	0	0	0	0	0	0	0	0	0	0
PT	43	20	598	661	10	0	0	10	22	693
ES	979	40	4 954	5 973	507	23	27	557	1 085	7 614
BE	335	8	2 990	3 333	631	25	28	684	291	4 309
LUX	0	0	0	0	0	0	0	0	0	0
SW	5	97	1 903	2 006	397	1	3	401	62	2 468
FIN	9	1	7 098	7 108	555	0	1	557	60	7 724
AT	0	0	1	1	15	0	1	17	3	21
Total	6 532	1 296	46 904	54 732	8 269	136	570	8 975	5 439	69 146
Exports										
Rep/part.	Ukraine	Belarus	Russia	Sub-Total	China	South Korea	Japan	Sub-Total	Turkey	Total
FR	49	0	8	57	131	95	73	299	162	518
NL	1	1	44	45	373	71	83	528	938	1 511
DE	1	1	19	20	264	64	122	449	463	932
IT	1	0	4	5	360	65	74	499	958	1 463
UK	4	0	19	23	487	92	71	651	1 358	2 031
IRL	0	0	8	8	1	4	2	7	1	16
DK	0	0	5	5	52	1	4	57	127	189
GR	0	0	0	0	0	0	0	0	0	0
PT	0	0	0	0	40	0	7	47	58	106
ES	0	0	3	4	396	50	42	489	226	719
BE	0	0	17	18	279	90	37	407	1 070	1 495
LUX	0	0	0	0	0	0	0	0	0	0
SW	0	0	168	169	114	5	10	129	1 144	1 442
FIN	0	0	8	9	123	144	13	280	120	408
AT	0	0	0	0	8	1	0	9	0	9
Total	56	3	303	362	2 629	684	539	3 852	6 627	10 840