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# Globalization, growth, and the transport industry: the case of Asia

**The high rate of economic growth in Asia in the past 20-30 years has been the effect of and reason for globalization which is now universally recognized as the principal engine of economic development throughout the world. As the direct result of globalization, world trade increased twice as fast as GDP since the 1990s.**

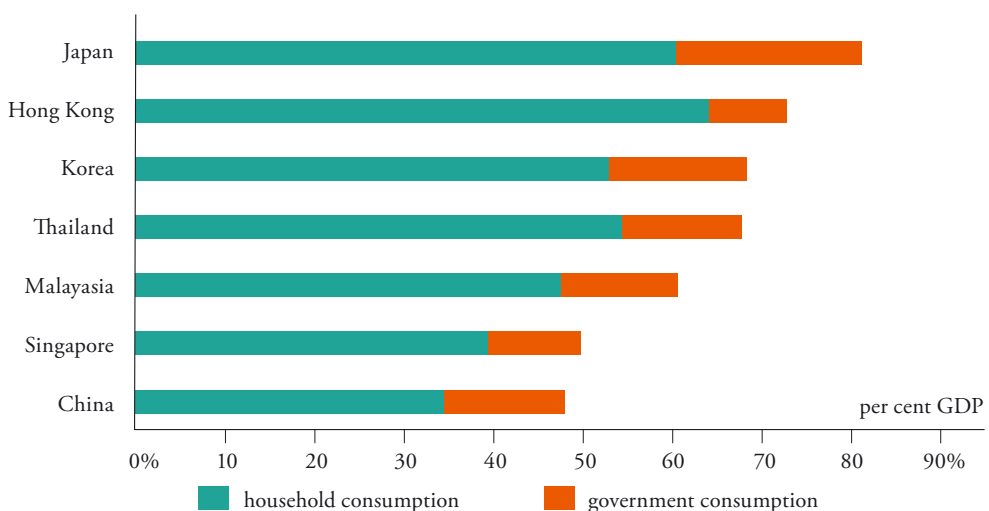
The difference in the rates of increase in world GDP and trade is often attributed to two main factors: lowering of transportation costs between exporting and importing areas due to technological and operating improvements, and to the increase of internal consumption. The latter factor is increasingly present in China which is slowly moving from a mainly

exporting nation to one that is gradually putting more emphasis on domestic consumption.

Figure 1 illustrates disparities in the rate of consumption in selected Asian countries. China finds herself at the bottom of the list of the countries with the combined domestic and government consumption below the level of 50% of GDP. At the top is Japan with the ratio in excess of 80%.

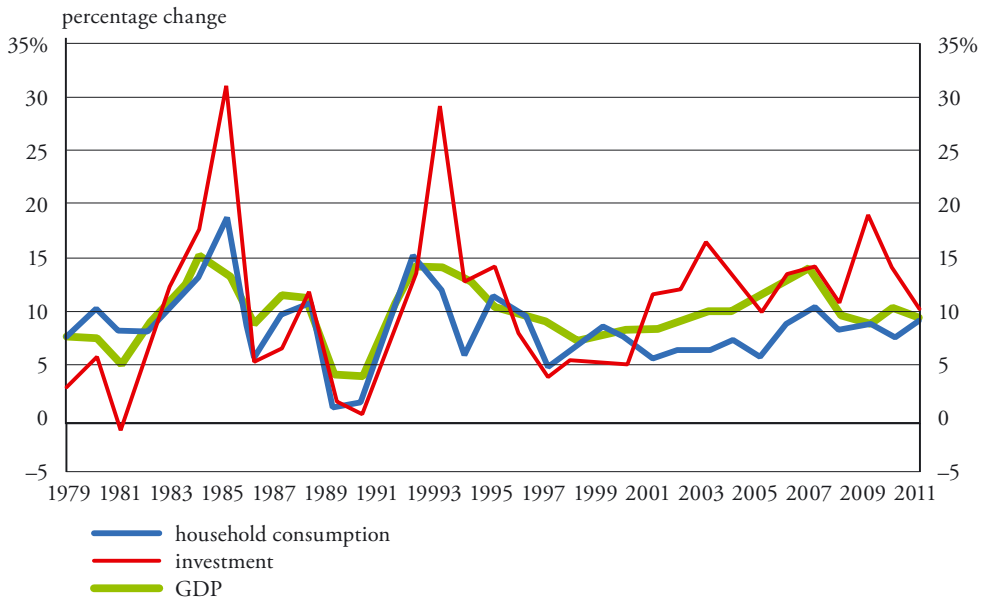
Such huge discrepancies with regard to the role of consumption in the formation of GDP in the countries shown in Figure 1 point right away to the nature of China's greatest economic challenge; transformation of the structure of the country's economy. In the not-too-distant future this economy will have to undergo

**Figure 1 Household and government consumption in selected Asian countries**



Source: Hubbard P., Hurley S., Sharma D. [2012].

Figure 2 **China: evolution of GDP, consumption and investment 1979-2011**



Source: Hubbard P., et al. [2012].

profound changes, and in particular a transition from the economy based on exports to one where internal consumption will constitute the major, if not the principal, component of GDP. Meanwhile, consumption – households and government consumption combined – represents less than half of China’s GDP.

The spectacular fall in China’s foreign trade in 2015, and particularly her imports, might have come as a surprise to some observers. However, it has been forecast by the market analysts for some time now and is the result of switching from the policy of supporting trade at any cost to one based on greater role of consumption. Data in Table 1 is still preliminary

and needs to be corroborated with more official trade statistics [World Bank, 2016].

The increasing share of consumption in China’s GDP started in the 1970s. It is still slower than the growth of investment which increased on average over 10% on an annualized basis. It should be emphasized, however, than the move towards more consumption is by no means a uniquely Chinese phenomenon. All the other nations quoted in Figure 1, like most of developing nations in general, have moved along a similar path.

The reasons for that pattern are quite obvious – a substantial increase in the level of disposable income. Chinese GDP *per capita* has grown rapidly in the recent

Table 1 **Growth of China’s foreign trade 1981-2015**

years	two-way trade (%)	exports (%)	imports (%)
1981–85	+12.8	+8.6	+16.1
1986–90	+10.6	+17.8	+4.8
1991–95	+19.5	+19.1	+19.9
1996–2000	+11.0	+10.9	+11.3
2001–05	+24.6	+25.0	+24.0
2006–10	+15.9	+15.7	+16.1
2015*	-8.0	-2.8	-14.1

\*preliminary figures

Source: World Bank Data [2016], <http://beta.data.worldbank.org>, dostep 15/09/2016.

few decades. Now this new wealth, albeit unevenly distributed among the 1.4 billion strong Chinese population, has to find new spending avenues. It is not surprising therefore that China is one of the leading markets in the world for luxury goods, quality cars, etc. This trend is there to remain. Regardless of the model of the economic policy applied – pro-exporting policies or the ones that favour strong domestic consumption – the economies of the major Asian nations are increasingly affected by the new developments in the area of international transport.

One of these trends relates to vagaries in two main modes of international transport, sea and air, both passenger and freight, and in particular the uncertainty over the cost of energy. Only several years ago almost every writer covering this issue was predicting a spiraling increase of fuel costs [Rubin, 2008 b, 2010]. Whether these reduced fuel costs will translate into lower freight rates still remains to be seen, but unquestionably such developments have a direct impact on the economics of international trade.

This paper covers some issues of the relationships between Asia's transport and trade. Needless to say this short essay will not be able to cover all such issues, bearing in mind first and foremost the enor-

mity of the area covered. Consequently, it will focus on selected issues in the field of transportation rather than being country specific.

### Transport industry in Asia

A quick glance at the map of the world gives us a fair idea of what transport in Asia may look like. This vast continent, or rather a part of what is sometimes referred to as Euro-Asia, is totally surrounded by water. One of the four oceans that surround Euro-Asia – the Arctic Ocean – is not navigable due to partial or total ice cover. For this reason the vast land area referred to as Siberia, and the adjacent countries such as Mongolia, Kazakhstan, Tajikistan, and other post-Soviet republics, are effectively land-locked. This fact had finite geopolitical consequences that impacted first the czarist, then the Soviet and nowadays the Russian Federation's geopolitics.

Asian economies are invariably related to ocean transport. Of the four oceans mentioned above, the Pacific and the Indian oceans are of paramount importance for Asian countries' trade, both international and intra-Asian.

The Asian economic expansion as a whole has been possible due to two major factors: low labour costs, and low transportation costs [Graafland, 2016]. Labour

Figure 3 Annual GDP growth in China against Asia and the Pacific (%)



Table 2 **World seaborne trade in 1970-2013 overall and by type of cargo (million metric tons)**

year	oil and gas	main bulk cargoes	other dry cargo	total
1970	1,440	448	717	2,605
1980	1,871	608	1,225	3,704
1990	1,755	988	1,265	4,008
2000	2,163	1,295	2,526	5,984
2005	2,422	1,709	2,978	7,109
2006	2,698	1,814	3,188	7,700
2007	2,747	1,953	3,334	8,034
2008	2,742	2,065	3,422	8,229
2009	2,642	2,085	3,131	7,858
2010	2,772	2,335	3,302	8,409
2011	2,794	2,486	3,505	8,784
2012	2,841	2,742	3,614	9,197
2013	2,844	2,920	3,784	9,548

Source: UNCTAD [2014], p. 6.

costs in Asia are several times lower compared to the industrialized world. Cheaper transportation allows exports of lower quality but cheaply produced consumer goods that have virtually wiped out manufacturing of such products in the traditional industrial countries. Just one visit to a local supermarket will confirm this universal trend.

In 2013 Asia accounted for 38.7% of the world seaborne trade (goods loaded)

and for 49.4% in terms in terms of goods unloaded (imported). Putting it another way, Asian countries consume every other ton of goods shipped and received by sea in the world. The increase of the volume of goods unloaded in Asia's ports in 2013 over the previous year was 7.0%, or more than twice the rate of increase in the world. In terms of goods loaded the increase over the previous year was 6.1%, as compared to 3.8% for the world as a whole. These figures imply that Asian

Table 3 **World seaborne trade by type of cargo (goods loaded and unloaded)**

Goods loaded					Goods unloaded			
year	total	crude	petroleum products and gas	dry cargo	total	crude	petroleum products and gas	dry cargo
millions of tons								
2006	7700,3	1783,4	914,8	5002,1	7878,3	1931,2	893,7	5053,4
2007	8037,7	1813,4	933,5	5287,1	8140,2	1995,7	903,8	5240,8
2008	8229,5	1785,2	957,0	5487,2	8286,3	1942,3	934,9	5409,2
2009	7858,0	1710,5	931,1	5216,4	7832,0	1874,1	921,3	5036,6
2010	8408,9	1787,7	983,8	5637,5	8443,8	1933,2	979,2	5531,4
2011	8784,3	1759,5	1034,2	5990,5	8797,7	1896,5	1037,7	5863,5
2012	9196,7	1785,7	1055,0	6356,0	9188,5	1929,5	1055,1	6203,8
2013	9548,2	1755,3	1088,5	6704,4	9505,1	1889,5	1090,6	6524,9

Source: UNCTAD [2014], p. 6.

Table 4 Asia's seaborne trade 2006-2013 by type of cargo (goods loaded and unloaded)

year	Goods loaded				Goods unloaded			
	total	crude	petroleum products and gas	dry cargo	total	crude	petroleum products and gas	dry cargo
millions of tons								
2006	3073,1	921,2	357,0	1794,8	2906,8	552,7	248,8	2105,3
2007	3214,6	938,2	358,1	1918,3	3263,6	620,7	260,8	2382,1
2008	3203,6	902,7	338,6	1962,2	3361,9	565,6	286,8	2509,5
2009	3054,3	872,3	345,8	1836,3	3592,4	636,3	269,9	2686,2
2010	3094,6	907,5	338,3	1848,8	3838,2	651,8	333,1	2853,4
2011	3326,7	916,0	388,2	2022,6	4108,8	697,8	328,0	3082,9
2012	3480,9	905,8	398,1	2177,0	4386,9	725,7	355,5	3305,7
2013	3693,9	903,6	423,9	2366,5	4697,3	767,5	380,1	3549,7

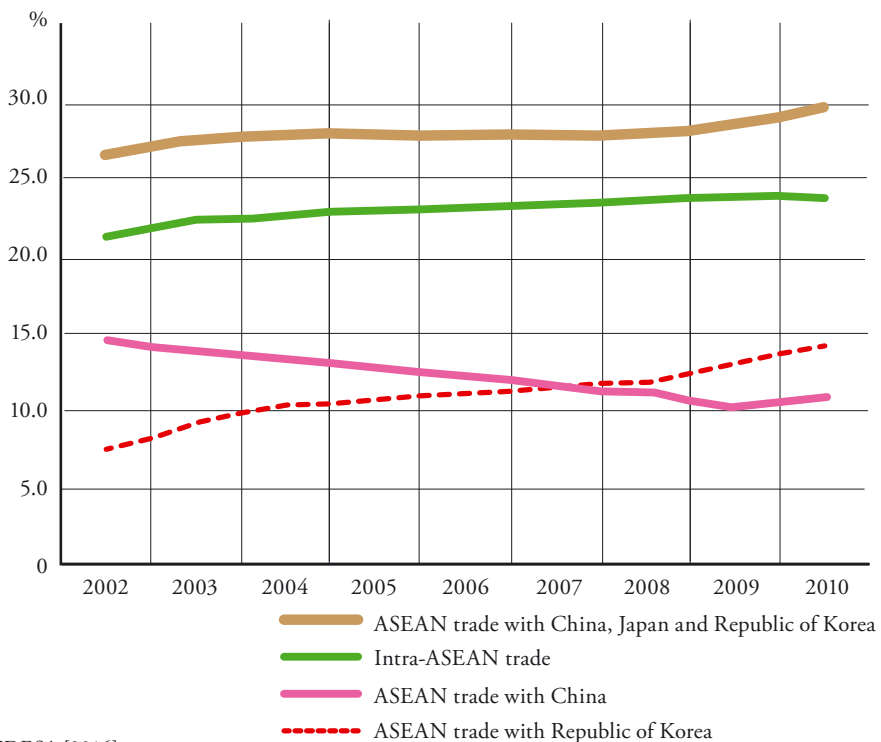
Source: UNCTAD [2014], p. 9.

economies fare well, at least in comparison with the rest of the world. That is partially explained by a 7.6 % increase in India's exports and China's 4.8% increase [UNCTAD, 2014].

The preliminary trade statistics shown in Table 1 before may, however, suggest that the uninterrupted growth trend in Asia's seaborne trade may have come to a

standstill. The difficulty with showing the relationship between trade and shipping statistics is that the latter are issued with considerable delay compared with the former. That disparity is due to the fact that trade agreements are concluded well ahead of the delivery of goods which at times may take months, if not years, to implement.

Figure 4 Shifting total trade market shares in Asia 2002-2010



Source: UNDESA [2016].

Watchful observers of the latest trends in the world economy in general and Asia's in particular will notice new developments that are slowly changing the trade patterns. While investment-driven growth in these countries and notably in China is still the main force cranking up their economic performance, it may gradually be substituted by consumption-driven growth. We shall return to that question later on.

As cheaper labour seems to be slowly losing its overwhelming impact on competitiveness of Asian economies, transport costs will most likely continue to be a factor of primary significance in this respect. China, India, Singapore, Korea and other economic powerhouses of Asia have been taking advantage of lower transportation costs to boost their economies, and in particular their exports, for quite some time now. In the historical perspective, that was the main reason for such an amazing progress of globalization which would be unthinkable without the decrease in maritime transport costs.

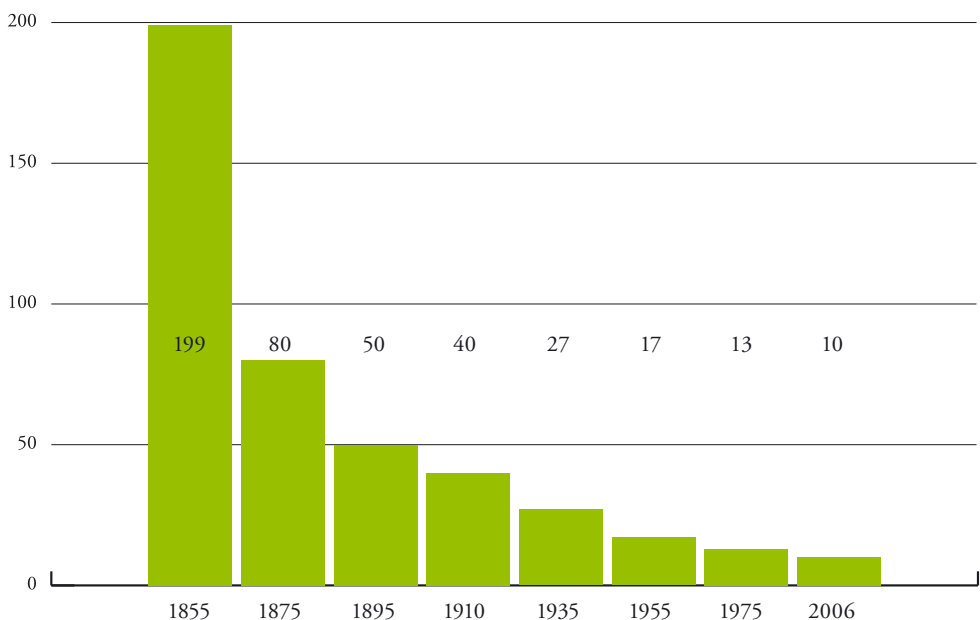
The reduction of these costs was in turn the effect of a dramatic improvement

of efficiency of world shipping. Increases in an average ship size, more efficient systems of propulsion, automation and better management of operations contributed to a spectacular fall of the unit cost of maritime transport. Figure 5 shows the evolution in terms of fuel consumption per one ton-mile in world shipping over the period 1855-2006.

During the span of one and a half centuries the unit consumption of fuel in world shipping has decreased over 20 times. Understandably, the decrease has been principally due to the passage from steam to the internal combustion engine that was much more efficient. But other factors, not mentioned earlier, also played a role, not the least of which was the slow steaming of ships over defined spans of the ocean route, helping to save fuel, in particular on these shipping lanes where speed was not crucial.

The issues briefly described above come within the scope of pure shipping economics and cannot be extensively covered in this short outline. None-the-less they are of great practical significance and by no means should be overlooked. But

Figure 5 **Fuel consumption (in pounds per one ton-mile)**



one aspect of transportation costs that must be looked at more thoroughly is fuel costs. These costs belong to the main categories of costs in shipping and are strictly related to globalization – on one hand they decisively contributed to the rise of globalization as we know it today, and on the other hand they may limit its further progress or even stop it altogether [Bott, 2014].

### **From globalization to reverse globalization?**

It has been stated time and again in this paper and elsewhere in the literature that lowering of transportation costs has greatly contributed to the phenomenon of globalization. It was true for the first era of globalization when mechanical propulsion was introduced into shipping. It is still true today when petroleum dominates as a source of energy for ships. It is noteworthy that unlike other sectors of the world economy, ocean transport will most likely continue to depend on petroleum products for a long time yet. Other types of energy, solar, wind, nuclear etc. with the possible exception of gas, offer less viable solutions.

Fuel costs in ocean transportation are directly dependent on the price of oil and other combustibles [Abbott, 1975]. These prices and their evolution are of the greatest uncertainty. Several months ago oil was trading at 80-100 dollars a barrel. Now it is roughly half that amount. Will it stay at that level or are we heading towards another hike of oil prices? This is anybody's guess.

Current fuel costs, however, are not directly reflecting the downward trend in crude prices. Just like in most cases prices per gallon at the pump do not automatically go down with a fall of the price per barrel of crude. It always takes time and is less than proportionate. The same goes for the price of bunker. When it drops the

drop is not proportionate to that in the price of crude.

Nonetheless, bunker prices fell across the board in the first half of 2016. It is uncertain whether this drop will last and for how long. Various factors determine the price of bunker at a given port; economic, political, climatic etc. A positive point was the drop in bunker prices throughout the year 2013, averaging \$593 in Rotterdam compared to \$638 in 2012, which supported daily returns of most tanker markets [UNCTAD, 2016, p. 57]. However, such initiatives as the control of sulfur level in ship bunker may push the prices up again. The interplay of all these factors may have an unpredictable impact on the cost of shipping in the long run.

On the other hand however, price increases in crude oil will almost invariably exert a negative impact on the process of globalization. J. Rubin [2008 b] claims that rising costs of energy that lead directly to higher freight rates will slow down the progress of globalization if not stopping it altogether in some areas. The trend towards localization of production near the consumption areas has already started. US is China's largest market and the two are thousands miles apart.

Critics of such views will be quick to observe that J. Rubin wrote his paper eight years ago, when oil was at nearly \$150 a barrel and globalization was in full swing. Nowadays oil trades at approximately \$45-50 a barrel and there is plenty of capacity due to oversupply of shipping tonnage in almost every segment of the market. Consequently, one can reasonably expect that freight rates will remain flat and it will still be advantageous to outsource transport and energy intensive industries, such as steel, to the overseas nations.

Such opinions may be quite widespread nowadays but they can also quickly prove wrong. In today's extremely volatile

situation in which the world has found itself, things can change rapidly. True the shale revolution has pushed oil and gas prices below the viability threshold, and there seems to be enough supply of these two principal sources of energy. All this may change, however. Asian economies seem to be doing well right now. And this situation may continue for some time yet. But change is inevitable. In economics as well as in politics.

### From export to consumption-driven economy

Nowhere is this more true than in Asia, and especially so in China, India and other Asian economic superpowers. Transport costs represent some 10% of the price of exports and imports worldwide but in China they represent twice that much. This high transport-intensity of Asian economies, both in exports and imports may actually become a liability in a highly competitive environment.

China which has the second largest economy in the world seems to have already started the process of rethinking its economic future. Much points to

the prospect of a shift in the allocation of resources. Less of the national wealth will go to investment, especially in export promoting segments of the national economy, and more will be dedicated to promoting internal consumption. The reasons for such a shift of emphasis seem quite obvious and they are mostly of an internal nature: the Chinese people want to live better lives, consume more and enjoy a higher quality of life. This trend is likely to intensify.

Turning a blind eye to these inevitable changes would be tantamount to an upheaval, but the Chinese leaders realize that. They will have to let go, at least initially and let the populace believe that further economic growth will benefit them. It is not yet clear how the change will be achieved but it is certain that it will occur. In economics you cannot have it both ways – enjoying a high quality of life in which consumption is a major component, while pursuing the policy of an export-based development with heavy investment. In particular in a country like China that is still poor by Western standards. An average Chinese has 5-8 times

Table 5 Wage overheads in emerging Asia in international dollars

country	average minimum annual salary per worker	average mandatory welfare; % against salary	total labour cost
Bangladesh	798	n/a	798
Cambodia	672	n/a	672
China	1500	50	2 250
India	857	10	943
Indonesia	1027	6	1089
Laos	1057	9,5	1157
Malaysia	4735	23	5824
Mongolia	2004	n/a	2004
Myanmar	401	n/a	401
Nepal	1889	n/a	1889
Pakistan	984	7	1052
Philippines	2053	9,4	2246
Sri Lanka	1619	n/a	1619
Thailand	2293	6,9	2451
Vietnam	1002	15	1152

Source: IMF [2010].



less disposable income than an average Westerner. And there is no doubt that he/she would like to reduce this gap as soon as possible. To do that profound changes in Chinese economic policies are indispensable.

The issues briefly highlighted above are not the major thrust of this paper which deals with the role of transportation in further economic growth in Asia and China in particular. For what has been said so far about China is to a large extent also true for most of that continent and not exclusively for its biggest player.

### Consumption-based growth

By the sheer size of its territory and population China, and other economic power-houses of Asia, such as for instance India, South Korea or Singapore, although to a different degree, are by and large heavily dependent on transport, both domestic and international, freight and passenger. But that dependence is not the same in each case. In Indonesia, for instance, the contribution of the transport industry to GDP accounts to some 15%, or 3 times more compared to most developed economies. The higher this contribution the greater the country's dependence on transport.

High dependence on transport does not automatically translate into higher transport intensity. When comparing such countries as the former Soviet Union with Canada or the USA, the former had a several times higher transport intensity than the latter countries. The reason was mainly the low unit value of cargoes carried by the Soviet railways, trucks, coastal shipping or inland waterways.

In China, as in other rapidly developing economies of Asia, the internal transport system is still generally underdeveloped. It also lacks a lot in terms of inter-connectivity between transport modes, throughout the various parts of the vast territory. While a lot has been

achieved in terms of modernization of the Chinese transport system, vast expanses of the country's territory are still void of modern transport infrastructures.

Putting the emphasis on consumption as a new engine of economic growth in China will depend on the upgrading of her domestic transport system in order to avoid a situation in which transport and logistics might undermine that growth. In Eastern parts of the country, transport infrastructure is quite satisfactory, with some of the most advanced technologies in the world (e.g. the magnetic levitation rail connection between Shanghai and its principal airport). However, the country's interior represents quite a different picture.

While China is in a much better situation for modernization of her domestic transport system thanks to enormous cash reserves from exports, the other Asian countries, such as the insular Indonesia or the Philippines, let alone the land-locked countries like Kazakhstan, Mongolia, and others, suffer from insufficiency of funds. This insufficiency of available financial resources may represent a major roadblock on the way to modernization of their transport systems, itself a necessary condition for the continuation of the economic development.

Transportation is a sector with heavy capital-intensity of investment and requires innovative systems of financing. Such systems would require pulling together of all financial resources – public, private, domestic and international. One of the particularities of the transport systems, and Asia is no exception in this respect, is the space immobility of transport infrastructure, particularly in land transport. Maritime transport, and especially its shipping segment, is rather mobile because ships can move from one shipping lane to another. The freedom of shipping is guaranteed by the international law of

the sea. Some restrictions of course do apply. On the commercial side of it are size restrictions, mostly as far as port accessibility is concerned. This is why shipping industry introduced the Baltimax, Panamax or Capemax, etc., types of ships with their maximum draft adjusted to these waterways. But in the case of Asia's transport systems their internal configuration is equally crucial and this is so not only in terms of national transport networks but also at the regional level. Lack of connectivity between transport modes, due among other things to considerable distances involved, do not allow for a construction of a transport system that would help inter-operability of various modes at the national, regional and international level. Only such a flexible transportation system will guarantee the creation of adequate distribution channels in Asia. Growing internal consumption will generate huge flows of goods throughout the country. Demand for transport will dramatically increase.

ASEAN can be commended for its role in building an efficient and effective Pan-Asian transportation system. Still a lot needs to be done to extend ASEAN's actions deep into the interior of Asia and beyond, before overall development goals for the Continent can be achieved.

### **Asian economic growth and the transport industry**

The future of Asia's economy will be strictly linked to the performance of the continent's entire transportation system. To effectively fight poverty, hunger, disease, pollution of urban areas and other negative consequences of an unprecedented growth, particularly in China, India, South Korea and other countries in Asia, new innovative, cost-effective and environmentally friendly transport concepts must be quickly developed. If the transport development does not follow the priorities of land-use plans, both in terms

of industrial use, but also in terms of demography and urbanization, crises will become inevitable. Already centres such as Beijing, Mumbai, Jakarta or Shanghai have reached the point of saturation. The negative aspects of such uncontrolled growth may already outweigh its benefits. In the worst case scenario Chinese, Indian or South-east Asian economic growth may eventually consume itself out.

New patterns of future economic growth in Asian countries will call for new transport technologies. Asia has to draw conclusions from the developed world where frantic attempts to cope with pollution, congestion, external costs engulf tremendous amounts of money and the end results fall short of expectations. Asia follows the same development patterns. A private car, as a rule underutilized [Illitch,1975], has become the same symbol of social advancement it was in America or Western Europe in the 1950s and 1960s. If China or India ever attain a car ownership ratio, even remotely resembling those of the developed world, mankind will slowly die of carbon dioxide.

The introduction on a massive scale of what is called an "intelligent car" will not eliminate all the problems large agglomeration are confronted with today. Electric cars will still cause congestion and be involved in accidents. And what will be the use of clean cars if the industry in Asian power-houses continues to pollute their territories, and the world for that matter, at today's rates?

Then there is a question of limits to growth. How far should Asia go to catch up with the post-industrial world in terms of wealth per capita? Will this be ever possible and at what cost?

These questions and others which are not mentioned in this short essay, should preoccupy transport planners in Asia. Transport and growth are nowhere else more interconnected than in that part of the world. They should be even more

interconnected because sustainability of economic growth will not be possible without sustainability of the transport sector; in Asia and elsewhere.

## Conclusion

Asia has embarked upon the road to become the economic centre of the world. Evidence indicates that the Continent will attain this goal sooner rather than later. This will be possible because Asia has most of what it takes to advance: cheap and abundant labour with necessary skills, energy and capital, including human capital. China and other Asian nations are now producing more engineers

than US and EU combined. Technology is not only available to those who can buy it but is also quickly and effectively assimilated – all conditions for a rapid economic growth are thus in place.

This economic growth will depend more than ever before on the availability of a modern, efficient and productive transport system of the highest level of inter-operability. A system is needed that will alleviate most of the disadvantages of a rapid economic growth that the leading Asian economies have so far experienced. If these countries fail to create such a transportation system their economic goals may become elusive.

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