EIR Feature

Asia Can Be the Motor of Economic Recovery for Europe

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Introduction

The sustained, rapid growth of China and some other Asian countries, has been one of the few pieces of actual good news in the world economy over the last two years. Not only has China, with its population of nearly 1.3 billion people, maintained a 7-8% growth rate in spite of a global economic downturn, but China is "preprogramming" that growth far into the future, by a policy of productive credit-generation and the channeling hundreds of billions of dollars of new investment every year into large-scale infrastructure projects throughout the country (see "China's New Deal Is the Engine of Asia's Growth," *EIR,* April 25).

China's industrialization has made it the world's largest single market for machine tools and other industrial equipment, with machine-tool orders to Germany jumping upward by over 50% in the single year 2002! The Chinese boom is spreading to much of Southeast Asia, which is emerging from the crisis of 1997-98 into a new period of rapid development. Meanwhile, India, with over 1 billion population, the second giant of Asia, maintains a steady growth—somewhat slower, but no less ambitious than its Chinese neighbor.

This suggests a question of greatest importance to the future of Europe and the world as a whole: Could the economic development process, now occurring in China and its neighbors in Southeast and Southern Asia—together accounting for over half the world's population—offset the effects of the profound economic crisis gripping most of the rest of the world? Could Asia's growth prevent a full-scale "Great Depression" from taking hold of the global economy, and provide a way

Construction of a new railway bridge on the Eurasian Land-Bridge rail line from Lianyungang on China's East Coast. China's extremely rapid international construction and industrial growth will not take *jobs from European nations; once-poor nations like Japan and South Korea, the more industrialized they became, continually* increased their per-capita imports *from European countries. The key is to restore an international system of long-term, low-interest trade credits and fixed currency values.*

out for Germany and other export-oriented nations in Europe?

Our answer, developed here, is a resounding "Yes!" We shall document the gigantic growth potential of Asia, unprecedented in history, and show how this can be harnessed to revive the industrial economies of Europe, securing a sustained period of prosperity and full employment for the coming several decades.

This alternative to a threatened depression will not come about spontaneously, however. To actually realize the needed "locomotive" potential of Asian development for Europe, requires *urgent changes in economic and financial policies.* Above all, it is necessary to go beyond the purely "market-oriented" thinking that has dominated company strategies and government policies more and more over the last 20 years, to establish a long-term "Eurasian Development Plan." By "plan," we do not mean something out of the museum of the socialist command economy, but rather, an ongoing process of deliberation and coordinated action among relevant European and Asian governments, with participation of private industry and banking, around the policies we shall present here.

This means going back, in many ways, to the kinds of economic thinking and methods, which predominated in the postwar period of reconstruction of Western Europe, and the 1950s-to-mid-1970s period of technology-sharing with developing nations. Exemplary is the role of the German Kreditanstalt für Wiederaufbau (KfW), both in the postwar reconstruction of West Germany, and above all, in financing a boom of German exports to developing countries in the 1960s and 1970s.

In the latter context, the KfW functioned as a combined *export-credit facility* and *development bank,* supporting major infrastructure, agricultural, and industrial projects in developing countries around the world. Working closely with the German government and industry on the basis of a well-considered, long-term strategy, the KfW both actively promoted real economic growth in partner nations of the developing sector, and at the same time established long-term markets for German investment in goods-exporting industries in those countries.

During the same period, Italy and other European countries, as well as the United States itself, had developed parallel approaches to a development partnership with nations of the Third World. For reasons we shall briefly summarize below, this development partnership was essentially aborted, from the late 1970s on—with devastating long-term consequences for both the developing countries, and the industrial countries. But now, with the outbreak of full-scale financial and economic crisis in the United States, Europe, and most other parts of the world, the unique prospect for recovery through an Asian-centered development boom gives rise to a qualitatively new situation.

The time is now becoming ripe, to *revive* methods and approaches which have proven their effectiveness in the past, while adding some *essential new features.*

How To Launch Recovery

A key instrument for unleashing a Euro-Asian economic boom, is the creation of an integrated network of transcontinental "development corridors" running North-South and East-West across the Eurasian land mass, and involving large-scale projects for modern energy, transport, water, and other basic economic infrastructure. The effects of such comprehensive development of infrastructure, will be: 1) to greatly accelerate the internal economic growth of Asia's developing countries, as measured in rates of increase of per-capita consumption; 2) to "bring Asia closer to Europe" in effect, by drastically reducing the time and relative cost of transport across Eurasia, through the creation of high-speed, high-efficiency transport corridors; 3) thereby to expand the volume

of exports of investment goods from Europe to the Asian countries, at rates of 15-20% or more *yearly* throughout the coming two decades.

This policy, developed by Lyndon LaRouche and his collaborators and discussed all over the world, has become known as the "Eurasian Land-Bridge" (see EIR Special Report, *The Eurasian Land-Bridge: Locomotive for Worldwide Economic Development,* January 1997). As was documented in a 35-page report in *EIR* for Nov. 2, 2001, and in a conference report in *EIR,* April 11, 2003, the Land-Bridge is not at all a "paper dream," but has already begun to be implemented in many places, including construction and modernization of crucial rail links in the future Eurasian transport system.

What we need now, to launch a full-scale economic "take-off," is for some core group of nations to initiate a corresponding shift in economic, financial, and credit policy, in the following directions. Firstly, we require, in each of the participating nations of Europe and Asia, a revival of the methods of productive credit-generation (so-called "Hamiltonian national banking") and large-scale state-supported infrastructure investment, exemplified historically by Franklin Roosevelt's 1930s anti-Depression policy in the United States, and proposed at the same time, but not implemented, as the Lautenbach Plan in Weimar Germany (see *EIR,* April 18, 2003). China has been using exactly the same methods to finance its unprecedented economic expansion (see "China's New Deal," *EIR,* April 25, 2003), providing a new example of the policy's success for the world today.

Secondly, we require new institutional arrangements among the nations, to provide long-term, low-interest loans for joint development projects, technology-transfer, and preferred categories of trade. Here, the 1960s-1970s role of the Kreditanstalt für Wiederaufbau provides a useful reference point, as do other features of the monetary, credit, and trade arrangements that permitted the postwar reconstruction of France, Western Germany, and other European nations, as well as significant development in many Third World nations, after World War II. However, this time, the rates of government-supported investment, trade, and technology-transfer, to be realized between Europe and Asia, will rapidly reach a scale orders of magnitude beyond such historical precedents as the Marshall Plan or New Deal.

In many cases, the new credit and trade arrangements will be preceded by measures of financial reorganization, including the "freezing" or writing-off of large quantities of unpayable debt, and restructuring of bankrupt financial institutions.

The policy directions indicated here are all essentially contained in Lyndon LaRouche's proposal for a "New Bretton Woods" reform of the world financial system. It is not necessary to wait, however, for an initiative from the United States or a full international consensus of states, in order to set the required Euro-Asian economic boom into motion. On the contrary, it will be enough for a core group of European and Asian nations—such as France, Germany, Russia, China, India—to take the initiative. As the process develops, more and more nations will join it. In many ways, the recent, extraordinary emergence of a *political* coalition among exactly those nations, around the attempt to stop a war in Iraq, sets the stage for launching a joint *economic initiative* of the type we have described.

The conditions are indeed ripe, for the coming together of a set of "cooperation triangles" that have already established themselves across Eurasia: the new French-German-Russian triangle; the "strategic triangle" of Russia-China-India; and the Northeast Asian triangle of China, Korea, and Japan.

In the following, we shall first examine the *potential* of the Asian market as a motor for a sustained economic recovery in Europe: from an overall standpoint, and then as exemplified by several specific areas. Then, we demonstrate the *feasibility* of a Eurasian development boom, including the crucial problem of how to finance the necessary volume of trade and investment, and the political preconditions.

The Growth Potential of the Asian Market

The potential for a sustained economic recovery in the European Union rests largely on the possibility of greatly expanding Europe's exports of modern investment goods to developing sector countries. Not only is the industrial locomotive of the EU—namely, Germany—an entirely export-dependent economy, but exports play an increasingly central role for the EU as a whole. Europe is predestined, for historical and cultural reasons, to function as a "fountain" of modern technology for a world economy, whose chief characteristic is the urgent need to raise the living standard and productivity of the majority of the human population living in the so-called Third World.

Let us take a closer look at the case of Germany, which will be the main reference-point for a European economic recovery. At present, Germany is the number-one exporter of capital goods in the world. Germany's total exports (including both consumer and capital goods) amounted to 648 billion euro in 2002, which corresponds to 33% of the German GDP. In that year, Germany exported goods in a value of 7,893 euros per capita of the German population. Every fourth job in German industry depends *directly* on exports, and the vast majority are *indirectly* export-dependent. Over 50% of the monetary value of Germany's exports consists of investment and producer goods, with emphasis on industrial machinery and equipment (**Table 1**). This is especially true for trade with nations such as China; here, machines and industrial equipment make up over 54% of China's imports from Germany, while other categories of investment and producer goods make up an additional 21%.

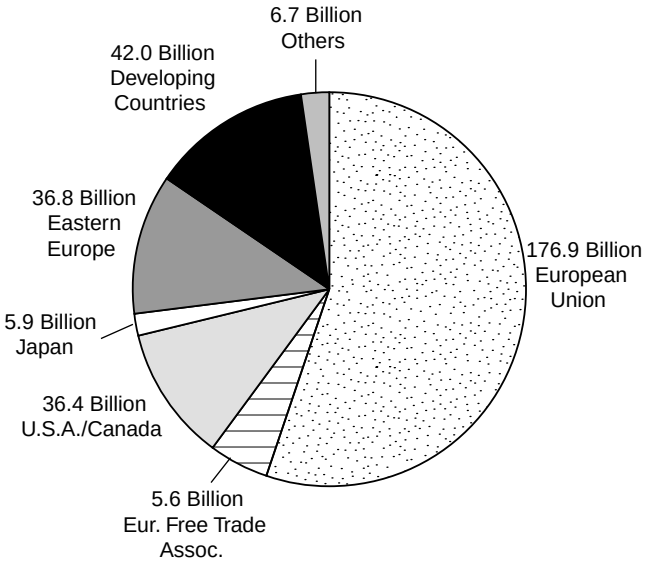
Generally speaking, the situation of Germany's export

TABLE 1
Germany's Exports by Product Groups
(Billions Deutschemarks)

Commodity	1995	1996	1997	1998
Food and Livestock	30.3	33.3	35.4	37.8
Liquor and Tobacco	5.0	5.5	5.5	5.9
Raw Materials (Except Food and Fuels	14.3	13.3	15.6	15.3
Minerals, Fuels, Lubricants	7.2	10.0	10.4	9.9
Animal/Vegetable Oils, Fats, Waxes	2.2	1.9	2.3	2.8
Chemical Products	99.5	103	119	125
Processed Goods	123	121	138	146
Machine Tools, Electronics, Autos	367	389	446	496
Various Finished Products	74	79	87.4	95.3
Commercial Processing	27.5	32.9	30.0	20.9
All Products	**750**	**789**	**887**	**955**

Source: EIRNA.

FIGURE 1
German Exports by Country Group, First Half 2002
(Total Exports 318.3 Billion Euros)



Source: EIRNA.

industry depends directly on the level of industrial and infrastructural investment in the world economy. At present, the bulk of German exports go to the so-called industrial nations: first and foremost to the EU countries (55%); Eastern Europe (11%); and the U.S.A. (10%) (**Figure 1**). But it is the developing countries, especially the Asian ones, which constitute by far the biggest *potential for expansion* over the coming decades. Simple arithmetic shows, in fact, that a sustained economic development boom in Asia as a whole, of the sort that has already begun in China, would totally transform the economic situation in Germany and Europe as a whole.

What Is Asia?

Let us briefly remind ourselves of the gigantic dimensions of the Asian market: First, we have the booming economy of *China,* with nearly *1.3 billion people,* plus China's huge, but thinly populated northern neighbor *Mongolia.* Second, *India* with over *1 billion population,* and its *South Asian* neighbors Pakistan, Bangladesh, Nepal, and Sri Lanka, constituting another *300 million people.* Third, four groups of nations, making up altogether almost 1 billion people: the *"Island Giants"* Indonesia and Philippines, with *295.4 million* population; the *East Asian* group of North and South Korea, and Japan, with *194.3 million people; Southeast Asia,* including Vietnam, Cambodia, Laos, Thailand, Malaysia, Singapore, Myanmar, with *227.9 million population;* and *South-Central Asia,* including Turkey, Iran, Iraq, Afghanistan, with nearly *180 million people.* Next, the vast and natural resources-rich, but relatively thinly populated *Central Asian* countries of Kazakstan, Turkmenistan, Uzbekistan, Tajikistan, and Kyrgyzstan, with a total of *56 million.* Naturally, we must add also the Asian part of *Russia,* the world's largest nation in area, and a vast repository of natural resources as well as scientific and technological know-how. Russia extends over 11 time zones, from Europe to the Pacific Coast of Asia; she constitutes a unique *Eurasian nation,* and natural bridge between East and West, with a unique history of interaction with all the great cultures of Europe and Asia.

Taken together, the population of the Asian continent is about 3.5 billion people, of whom over 95% belong to the developing countries. The latter countries have an enormous deficit in per-capita consumption, compared with Europe and with developed Asian nations such as Japan. The nominal GDP per capita in Asian developing nations is typically in the range of $1,400-4,000 (Bangladesh $1,380, India $1,720, China $3,600) compared to $12,600 in South Korea and over $23,000 in Japan. More significant is the discrepancy in electricity consumption: Per-capita electricity consumption in Asian developing nations is typically in the range of 100-1,000 kilowatts per hour per capita per year (Bangladesh 113 kwh, India 482 kwh, China 1,074 kwh) compared with 5,635 kwh in South Korea and 7,528 kwh in Japan.

Think of these comparisons, not only as reflecting the low

average living standard in the developing nations of Asia at present, but also as pointing to an absolutely enormous potential market for the export of investment goods—modern production technology and modern infrastructure equipment, which those nations urgently require to raise their overall productivity and living standards. There is no way today that Asia, just by itself, could generate the scale, quality, and variety of high-technology goods, which the development of its 3.5 billion population now requires. While China and India, as well as some of the smaller Asian nations, already possess significant technological capabilities of their own; and while Japan and South Korea possess a highly competitive modern industry; those capabilities still do not match the historically and culturally grounded depth and innovative potential, exemplified by the industrial *Mittelstand* (small and medium-sized firms) in Germany, Italy, and other European nations. What counts here is not so much the sheer volume of production, but rather the capability for *problem-solving*, for generating new solutions—in the form of productive technology and know-how—for the vast and expanding array of problems posed by the physical-economic development of Asia.

A Common Objection

Not everyone agrees with the thesis, that the further development of nations like China or India, will lead to a vast expansion of the markets for, for example, German exports. Skeptics often object: "By exporting modern technology to Asian countries, we are digging our own grave. The Chinese will copy our products, crank up their own production, push us out of the Chinese market, and finally push us out of the whole world market!" As evidence, they point to the low labor costs in China, on the one side, and the flood of cheap goods China is already exporting around the world, by combining its cheap labor with modern, high-volume production methods. They conclude, that China's rapid industrial development will actually *destroy* jobs in exporting European nations, rather than create them.

Such skeptics should be reminded, that similar arguments have been applied in earlier times, to once-poor nations like South Korea, or even Japan, that remain major trading partners of Germany today. In spite of their having become able to produce virtually every category of industrial goods at a world level, and also to "copy" many products, their imports from Germany actually *increased*, rather than decreased! Generally speaking, in fact, the more the industry of a nation develops—the more it becomes, in a sense, a competitor—the more the market for European investment goods grows. The precondition for this paradoxical effect, of course, is that Germany must maintain a relatively high rate of technological innovation and development in the investment goods area, above all by protecting and cultivating the unique capabilities of the industrial *Mittelstand.*

Important lessons can be learned by comparing Germany's exports to various parts of the world, not simply in total amounts, but also in terms of the volume of exported goods *per capita* of the population of a given country—plotting this against per-capita levels of consumption and production in that country, and against the country's economic-geographical proximity (**Table 2**). For example: France, Germany's number-one trade partner, imports about 1,200 euros of German goods yearly, for every man, woman, and child of the French population. The other EU countries range around 750-2,500 euros per capita per year. The U.S.A., comparable to France in per-capita income and today a strongly import-dependent country, but located across the Atlantic Ocean, imports nearly five times less per capita, or about 250 euros. China, both poorer and more distant, imports from Germany only 9.7 euros per capita of the Chinese population. Nevertheless, with a population of nearly 1.3 billion persons, China's imports from Germany amount to over 12 billion euros per year, and are rapidly increasing.

India, the second giant of Asia, has a per-capita import of only 3.2 euros. South Korea, which is about as distant from Germany as China, but with a much higher per-capita income, imports ten times as much, or 98 euros per capita. Japan, a fully developed industrial economy, has about the same per-capita import from Germany: 103 euros. Bulgaria, much

TABLE 2
Nations' Per-Capita Imports from Germany
(Annual Value in Euros)

Neighboring Countries	
France	1,200
Hungary	1,058
Italy	889
Spain	745
Bulgaria	125
Semi-Distant Countries	
Saudi Arabia	140
Turkey	91
Russia	23
Distant Countries	
U.S.A.	250
Canada	169
Malaysia	118
Japan	103
S. Korea	98
Thailand	36
India	3.2

Source: EIRNA.

Why Europe needs "to move Asia closer" by Land-Bridge construction and development: Exports vary directly with both higher per-capita income and greater closeness of the potential importing country.

poorer than South Korea and Japan but much closer to Germany, imports significantly more, namely 125 euros yearly per capita.

Evidently, the rough order of magnitude of per-capita imports of a given country, from Germany, is largely determined by two parameters: 1) the overall living standard and level of economic development of the country; 2) its relative proximity. Were China and India, for example, to develop to a level comparable to South Korea or Japan today, we could reasonably expect the volume of European exports per capita to rise to a comparable extent; i.e., by a factor of ten or more. In view of the combined population of 2.3 billion, German exports to India and China alone would then amount to far more than Germany exports to the entire EU today.

If, in addition, India and China could somehow be brought "close" to Europe, by greatly reducing the cost and time of transport, and improving the degree of economic integration, then the export market might be increased by as much as another order of magnitude.

How To Move Asia Closer to Europe

We have singled out two principal methods for expanding export markets in Asia: First, to *raise the per-capita living standards of Asian nations,* through sustained, in-depth economic development of their economies. Second, to *bring Asia closer to Europe,* both economically and in terms of intensity of cultural-social interaction ("Dialogue of Cultures"), by creating a network of high-speed, high-efficiency transportation corridors across Eurasia.

If carried out on a sufficient scale, the Eurasian Land-Bridge policy, referred to above, combines both of these "vectors" in a powerful "synergistic" effect: Building up a dense network of infrastructure corridors across Eurasia, including modern energy, transport, water, communication, and other basic infrastructure, is the most powerful means both to accelerate the economic development of the Asian nations, and at the same time to bring Europe and Asia together into a highly efficient, integrated physical-economic system, comprising 4 billion people, or two-thirds of the world population.

The effectiveness of large-scale infrastructure development, as a "locomotive" for rapid economic growth, has been proven again and again in history. We need merely cite the stunning success of Friedrich List's German railroad system; the central function of transcontinental rail corridors in the rise of the United States to a leading industrial power during the second half of the 19th Century; the analogous role of the Trans-Siberian Railway in the development of Russia; Franklin Roosevelt's use of large-scale water projects, rural electrification, and other infrastructure improvements as a motor for overcoming the "Great Depression" in the United States; and most recently, China's use of large-scale state investment into "megaprojects" for energy, transport, water, and other infrastructure to promote a sustained boom in its domestic economy. Achieving a similar effect on the scale of Eurasia as a whole, poses special challenges, that have been taken account of in LaRouche's design of the "Eurasian Land-Bridge" policy.

Firstly, we require advanced transportation and communications technologies, in order to offset the cost-effect of large distances separating the population concentrations in Europe from those in East, Southeast, and Southern Asia. At present, the great bulk of freight transport between Europe and Asia is by *ship.* But with relatively minor improvements and additions, the existing transcontinental rail lines across Eurasia can be more effective. Once the link of the Trans-Siberian Railroad with the Trans-Korean Railway is completed, for example, shipments from South Korea to Western Europe will be reduced in time from, presently, 26 days—by ship—to eight-nine days over rail, and at the same time, the transport cost reduced from $1,400/TEU (20-foot Equivalent Unit) to $600/TEU. The use of satellite tracking and other technical improvements could speed this up even more.

The use of high-speed automated transport systems, based on novel technologies such as electromagnetic (linear motor) propulsion and magnetic levitation, will one day reduce the relative economic cost of transport across all of Eurasia, to a level not much larger than the costs for transport across Western Europe today.

Secondly, in view of the difficulties posed by the vast area of Eurasia, including especially the underdeveloped "hinterlands," we must *concentrate* initially on a well-chosen array of high-density, band-like *corridors,* of a width of roughly 100 kilometers, centered on high-speed rail connections, and within which transport, energy, water, and communications systems are integrated in a highly efficient manner. Those corridor regions, with their dense infrastructure and efficient access—via the Eurasian Land-Bridge network—to the main population centers of both Europe and Asia, become extremely attractive areas for investment into industry, urban development, services, and a rapidly growing market. Such corridors achieve many of the economic advantages of cities, while at the same time being "stretched" lengthwise to cover large distances.

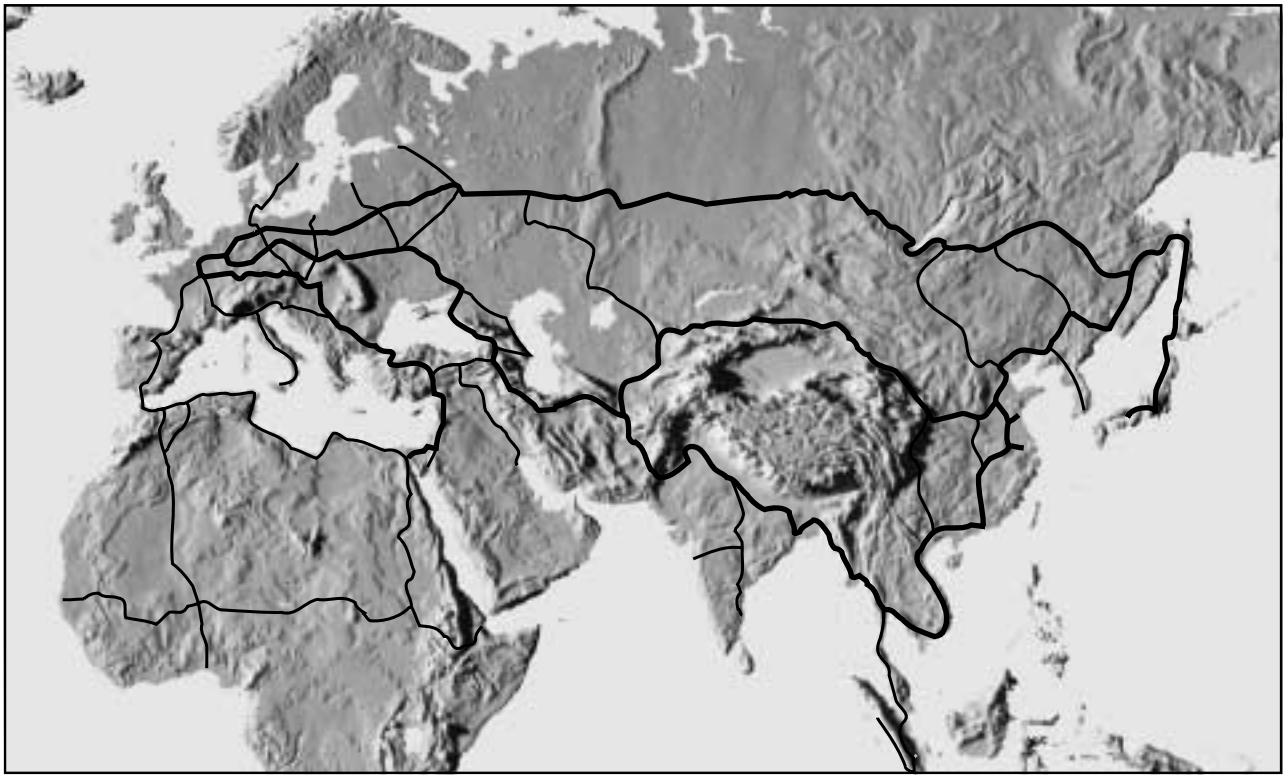
The Eurasian Land-Bridge corridors envisaged by *EIR* (see **Figure 2**) would encompass about one-quarter of the total population and 70% of the urban areas of Europe and Asia—a highly accessible market of 1 billion people. These and other aspects of the Eurasian Land-Bridge, including projects already in progress today, were mapped and discussed at length in *EIR,* Nov. 2, 2001, cited above.

Asian 'Mega-Markets' in the Coming 20 Years

Nothing, perhaps, illustrates the potential for expanding Germany's export to Asia more clearly, than the requirements

FIGURE 2

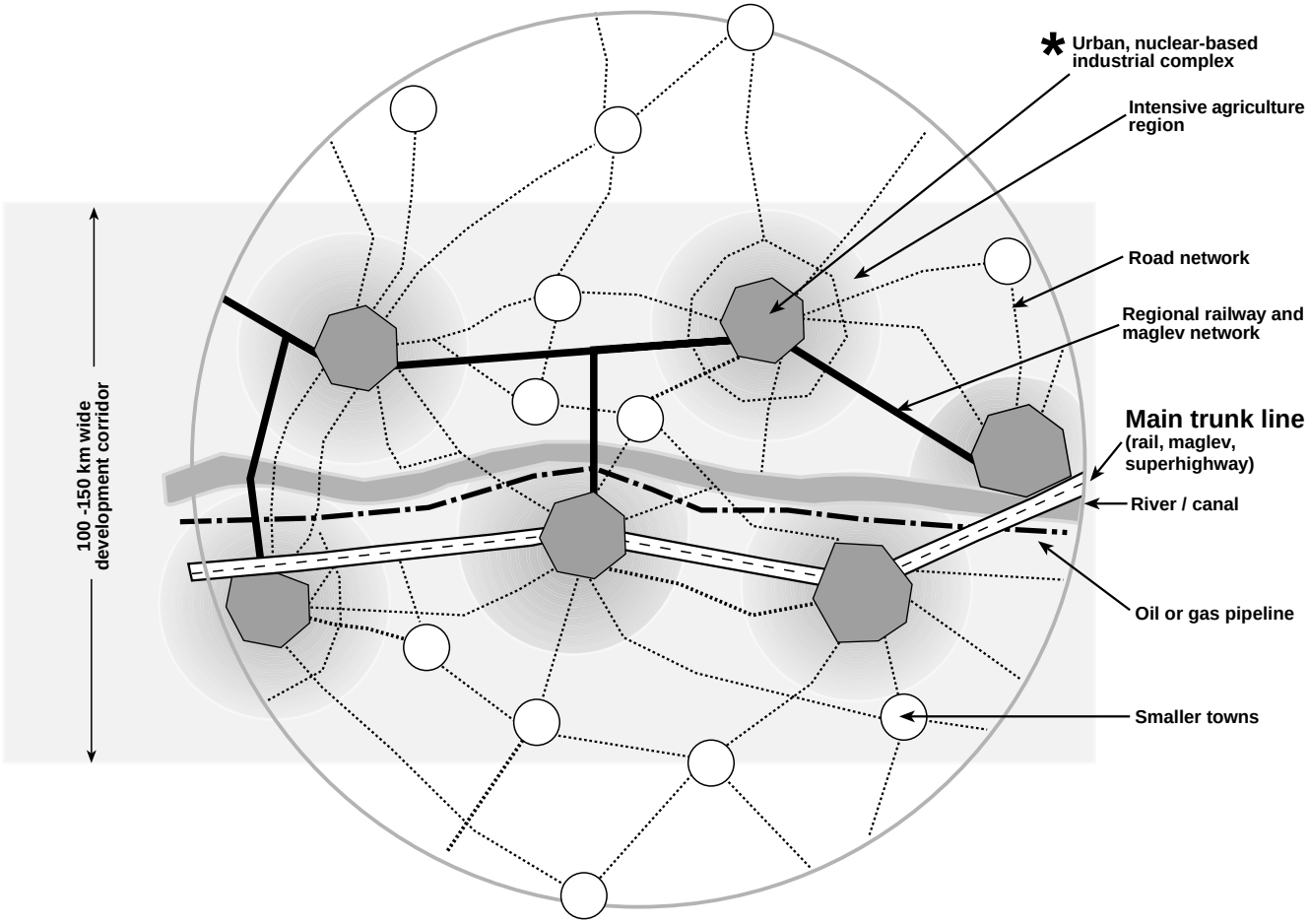
Topographical Map of Eurasia, With Some Main Development Corridors of the Future



Eurasia: Currently Existing Main Routes of the Eurasian Land-Bridge (Simplified)

FIGURE 3

Graphic Representation of a 'Development Corridor'



The two maps show the Eurasian Land-Bridges—means of "bringing Asia and its markets closer to Europe"—as already being constructed, and as envisioned in ongoing development, by Lyndon LaRouche and associates since 1992. This conception of Land-Bridges is as not merely transport arteries, but 100-kilometer-wide "development corridors," shown here schematically—corridors of urbanization, and development of energy, communications, water use, and local transportation networks.

for Asia's energy and transport sectors over the coming decades.

Let us first look at electric power—a key factor in economic development—starting with the case of China. Chinese specialists now estimate, that to keep up with the rapid growth of electricity demand in the country, China will require *an additional 25-30 gigawatts of installed power generation capacity every year* during the coming period (1 gigawatt = 1 billion watts of continuous power; roughly the capacity of one large nuclear reactor unit, for example). Compare that with the total power generation capacity of Germany today, which is about 114 GW. That means, for example, that every four years, China must add the equivalent of more than the entire electric power generation capacity of Germany!

No one should think that this is not actually going to happen. The figure mentioned is coherent with a conservative estimate by the International Energy Agency (IEA), according to which China's installed capacity will increase by 3.4 times up to the year 2030, from about 318 GW today, to 1,087 GW. But it is likely that with the growing pace of urbanization in China, electricity consumption will accelerate much beyond the IEA projections. Not only has China already increased its electricity capacity *five-fold* over the last 20 years of rapid economic development, but the accelerating process of *urbanization* will accelerate the demand for electricity even more in the coming decades. The Asian Pacific Economic Council conservatively estimates that China alone will invest over $800 billion in construction of new electric power plants over the next 20 years.

Although with slower growth rates, India and its neigh-

bors in Southern Asia have an even greater electric power deficit to be filled. India, after China, one of the fastest-growing economies in the world, and which is ambitious to catch up, now has only slightly more than half the per-capita electricity consumption of China, and one-third of the installed generation capacity. The Indian economy is already plagued with chronic insufficiency of power generation, and experts are predicting that demand for electricity will increase by *over 8% per year* in the coming period. Just to catch up with present demand, approximately 111 GW must be added to the Indian grid within the decade.

In many of the smaller countries of South and Southeast Asia, demand for electricity is growing even faster. Indeed, under "takeoff" conditions for the Asian developing economies, as have been reached by China already, we must expect overall requirements for additional power generation and distribution capacity for these countries, to be on the order of over 60 GW—equivalent to half the total installed capacity of Germany—*each year*. This translates into a huge demand for equipment and know-how from Europe.

Indispensable Role of Nuclear Power

In this context there is no way to avoid the issue of nuclear energy, which has become a totally irrational ideological taboo in many European countries. The reality, contrary to widespread disinformation, is that nuclear reactors are, in terms of overall macroeconomic effect, by far the most economical way to produce electric power. The essential reason lies in the much higher inherent *power-density* of nuclear fission, compared to other existing power sources, and the high level of knowledge, training, and qualification of labor power associated with the mastery of nuclear technology, which raises the overall productivity of the economy. China, India, and other Asian developing countries are well aware of this, and have already committed themselves to a large-scale use of nuclear power, as indispensable for their economic future. With the economic "take-off" of China, the trend toward nuclear energy has already become unstoppable. The question is *not,* whether a huge market for civilian nuclear technology will develop in Asia—it will, for certain—but rather, which reactor technologies will be used and (to put it a bit cynically) who will get the orders.

Ironically, the anti-nuclear hysteria in Germany, Italy, Sweden, the United States, and other former nuclear power-exporting nations of the West, has left Russia with a virtual monopoly on the export of nuclear power reactors to Asia. Russia presently has nuclear reactor construction projects in India, China, and Iran, as well as in Finland. At present, there are 98 nuclear power units in operation in Asian countries, most of which are in Japan and South Korea. Among the Asian developing countries, mainland China already has five power reactors in operation, six under construction, and eight planned, while Taiwan has an additional six operating power reactors, with two more under construction; India has 14 power reactors in operation, six in construction and seven planned; Pakistan has two power reactors and one planned; and Bangladesh, Thailand, Indonesia, and Vietnam are developing plans to initiate nuclear power development within this decade.

All in all, counting Japan and Korea, a total of 22 nuclear power units are now under construction in Asia, and about 39 are in the planning stage. This, however, is only the beginning. For several reasons, it would be economically suicidal for China and India, in particular, to prolong their massive dependence on fossil fuels for power generation. For example, quite apart from the massive pollution of the atmosphere and the surface environment by the transport and burning of 1 billion tons of coal yearly—the main fuel for China's power stations—just the transport alone already locks up a large part of the Chinese rail capacity, and cannot be expanded much further without enormous penalties. For these and related reasons, China is rapidly expanding its consumption of natural gas. But much of this gas must be imported over long distances, and, with the steep growth of energy consumption, this, too, runs into major limitations. So-called "alternatives" like wind or solar energy, are rightly rejected as exorbitantly costly and space-consuming.

There is no real alternative other than to move quickly toward nuclear energy as the *main basis* for further expansion of electricity generation in China. The same is true for India and most of Asia as a whole. Just in view of China's requirement for 20-30 GW additional capacity every year, this translates into the urgent need to develop *series production of nuclear reactors* for Asia—reactors that should be modular in construction, low in cost, simple, robust, and accident-proof.

Fortunately, a specific nuclear technology already exists, which fulfills all these requirements: the so-called "pebble-bed modular high temperature reactor" (variously designated PBMR, MHTGR, or simply HTR), originally developed in Germany. Named for the novel spherical fuel elements ("pebbles") that form its core, this reactor-type is constructed in such a way, that a dangerous accident is ruled out by physical laws, without the need for expensive safety systems (see "The New Nuclear Power," *21st Century Science and Technology,* Spring 2001, for example, on HTR nuclear power technology).

Ironically, in the context of Germany's politically motivated *Ausstieg* ("bail-out") from nuclear energy—an error that must urgently be corrected, if it is not to lose one of its most important export markets of the future—this technology has "emigrated" to the developing countries, first of all, to South Africa and China. South Africa is currently preparing to build a first prototype module for future mass production and export, and China is already operating a test reactor based on the German design. Japan also has an operating test HTR, based on a somewhat different design. The French Commissariat Energie Atomique (CEA) last year chose the HTR as the most promising "second-generation" nuclear technology,

in the context of a projected world-wide renaissance of nuclear energy.

A further, crucial consideration is the potential of using high temperature reactors as heat sources for industry, in place of combustion of fossil fuels, for desalination, and especially in order to produce *synthetic fuels* for automobiles and other vehicles. This likely development would mean an order of magnitude bigger market for nuclear technology, than simply the generation of electricity.

All in all, we are talking about an Asian nuclear technology market, that will grow to as much as *several hundred billion dollars* per year over the coming two decades.

Asia's Urbanization as Export Driver

As a result of its sustained growth, China has now entered a phase of rapid *urbanization*, with profound implications for the structure of its economy, as well as its pattern of imports. According to Chinese experts, the urban population of China is expected to increase from about 31% of the total population today, to 60% by the year 2020. That means an increase of the urban population of China from about 390 million today, to 912 million—more than a half billion more people—in less than 20 years! This means a colossal scale of urban construction, certainly without parallel in modern history.

But no one who has seen the transformation of Shanghai and other Chinese cities in recent years, will doubt that China today is capable of such feats. China has an ample reserve of labor and a rapidly growing productive base to fuel the urbanization process. In fact, Chinese economists have identified construction of new cities, and modernization and expansion of existing cities, as the crucial means to create employment, stimulate demand, and ensure the social stability of the country in the coming period. City-building means not only housing construction—in which the Chinese have unequaled proficiency—but above all, transport, energy, water, and communications infrastructure. Here a vast market is opening up for European high-technology exports.

One signal is the Transrapid project in Shanghai, and another is the announcement by Chinese authorities, to invest $20-25 billion over the next five years in infrastructure improvements in the city of Beijing, in preparation for the Olympic year 2008. This includes six new subway lines, 300 kilometers of new superhighways around the city, the refitting of 90% of buses and 70% of taxis to use low-emission natural-gas fuel, new optical-fiber infrastructure for digital communications, etc. In addition, some $12 billion is to be invested, by 2008, in the creation of a ring of transport logistics centers around Beijing. The first 148 projects for participation of foreign companies have been announced, with a total volume of $14 billion.

The Beijing projects, however, represent only the tip of the iceberg. Urban mass transit equipment for Chinese cities is developing into an enormous market just by itself. The State Planning Commission of China projects a total expenditure of nearly $100 billion for urban transport infrastructure in 2001-05, of which 25% will be for urban railways. At present, China's urban mass transit systems are highly under-developed; all the metro rail lines of all China's cities put together, amount to only about 150 km, compared to 331 km in the German capital of Berlin alone. But now, according to Chinese experts, "The time for China's urban transport construction has come." By 2005, some 450 kilometers of urban rail will be built; and by 2010, this should nearly double again. Construction is now in progress on subway systems for 20 of China's 34 cities with more than 1 million population. The target is metro systems to carry 80-90% of passenger traffic in Chinese cities by the year 2050.

Taking into account the urbanization process, we project total investments going into *trillions* of dollars for urban mass transit systems alone in China. Designing and building mass transport systems to serve an urban population of over 900 million people in China 20 years from now, pose considerable technological challenges. Here is a major area for European industry, including not least of all, *Mittelstand* companies.

Contrary to many silly comments in the European press, the choice of the Transrapid was by no means an extravagant luxury intended only to build China's prestige. The decision by the Chinese central government and the authorities in Shanghai, to build the world's first commercial magnetic-levitation train line, reflects a sober realization that the gigantic problems posed by urbanizing a nation with over 1.2 billion people, cannot be solved by conventional methods only, but require the most advanced technologies available—technologies of the 21st Century.

In particular, China cannot afford the incredible waste of physical resources associated with the "American model" of transport: over-dependence on personal automobiles, over-reliance on truck transport for long distances, chronic under-development of rail systems, and an extremely costly over-expansion of aircraft transport for short- and middle-distance intercity passenger traffic. The German Transrapid provides by far the most advantageous alternative to a wasteful over-expansion of air transport between China's major cities, permitting the smaller cities in between to be serviced at the same time. In the context of a national network, the Transrapid boasts the further advantages, of being much better suited to hilly areas, where conventional high-speed rail requires many tunnels, and making extremely economical use of space.

But beside the Transrapid—which is not the last word, but just the first of many generations and varieties of magnetic levitation systems—China's complex transport problems will require countless new technologies and innovations. All of this applies just as well for India and other Asian develop-

ing nations, the only essential difference being the rate of growth.

A Eurasian Conveyor-Belt

An interesting, additional example of the kind of technology that may play a major role in the entire development of Eurasia, is the so-called "rail taxi" system being developed at the University of Paderborn, Germany. This system, suited for both passenger and freight transport, and for urban as well as cross-country applications, combines the use of conventional rail track with the so-called linear motor propulsion technology used by the Transrapid. In this system, specially designed modular rail cars, called "shuttles," are propelled individually along conventional rail tracks by magnetic forces, with the help of coils mounted between the tracks. This allows full, automatic computer control of the motion of the cars, which can travel separately or be grouped, while in motion, into "convoys" to lower air resistance. A major advantage, is a passive switching system that allows individual cars to be switched off and routed to separate destinations, without interfering with the motion of adjacent cars. Each car is guided to a desired individual destination anywhere in the network, through a computerized control system. This eliminates huge losses of time in conventional rail or combined rail/road transport, due to re-sorting, reloading, and holding of cars. With a top speed of 160 kilometers per hour (95 miles per hour), the "rail taxi" could achieve *average* speeds of 130 kph from start to destination, compared with an average of 15 kph average for rail transport of goods in Europe today. It adds up to a revolution in transportation, eliminating much of the basis for the shift of freight from rail to truck transport in industrial countries in recent decades. Thereby China, which still transports most of its freight by rail, could avoid the nightmarish consequences of over-reliance on heavy truck transport, which densely populated parts of Europe are suffering today.

It should be noted, at the same time, that the "rail taxi" is a high-technology item, exemplifying the unique capabilities of German innovation and know-how.

These examples should suffice to indicate, how the challenges posed by the transportation requirements in China and other Asian nations can translate into future markets for European high-technology exports.

Coming Mega-Market for Medical Technology

As a final example from a very different field, let us briefly look at the huge potential for exports of medical equipment to Asian developing countries. Here the biggest single markets are in China and India; China imported $1.4 billion of medical equipment in 2000, and India $930 million. In both cases, the imports have been growing rapidly in recent years—at rates of 14-16% a year. If the figures are still relatively low in absolute terms, this is because the per-capita expenditure for medical care in both countries, in real terms, is 100 times less than in Japan or Italy (for example), as measured by direct conversion to dollars, and at least 10 times less, as estimated in terms of so-called purchasing power-equivalent.

Above all, the average level of equipment of hospitals and clinics is still extremely primitive. As living standards rise, however, we are seeing an over-proportional rate of increase in expenditure for healthcare and demand for modern medical equipment. There is little doubt, that the modernization of the medical sector in China alone will induce an increase of yearly amounts of imports by *50 times or more* over the next three decades. This points to an Asian developing-sector market for imports of medical equipment, of $100-200 billion per year by 2030. More important than such arithmetic values, is the nearly unlimited demand for scientific and technological innovations in this field, where literally every one of Asia's more than 3.5 billion people is a "customer."

Financial Feasibility of an Export Boom

Above, we identified two crucial features of the financial infrastructure necessary to realize the interconnected goals of achieving rapid, sustained economic growth in the Asian developing countries, and at the same time greatly expanding the scope of European exports to Asia. The first is the use of productive credit generation (so-called "Hamiltonian national banking") and large-scale state investment into infrastructure and other productive activities within the participating nations. The second is to make available large amounts of long-term, low-interest credits from the side of the European nations to the Asian developing nations, in a combination of project financing (the "development bank" mode) and export-credit for the transfer of technology and know-how.

As is exemplified by the early history (in post-World War II European reconstruction) of the Kreditanstalt für Wiederaufbau, for example, these two facets of financial policy stand in strong "synergistic" relationship with each other. The essential theory and principles involved, have been elaborated in depth by U.S. Presidential pre-candidate Lyndon LaRouche in his writings (see "LaRouche Foreign Policy: A World of Sovereign Nation-States," *EIR,* May 16). Here we limit ourselves to two *concrete examples*—one for each of the two aspects just mentioned—that serve to demonstrate the eminent feasibility of financing an Asia-centered economic recovery.

Development by State Credit Generation: China Example

Even the China-critical *New York Times* admitted in a front-page article in January 2003, that China has maintained a "robust growth of 8%," thanks to "a nearly 25% increase in

China has increased its electricity capacity five-fold over the last 20 years of rapid economic development, but the process of urbanization will accelerate the demand for electricity even more in the coming decades. The Asian Pacific Economic Council estimates that China alone will invest over $800 billion in construction of new electric power plants over the next 20 years. Although with slower growth rates, India and its neighbors in Southern Asia have an even greater electric power deficit to be filled.

state-directed investment" in the year 2002. "The Chinese government, state banks and companies and foreign investors spent $200 billion in the first 11 months of last year on basic infrastructure projects. . . . The scale of construction is extraordinary" and even "dwarfs the New Deal and the Marshall Plan." The *Times* went through the amazing catalogue of "mega-projects" going on in China today, including the ongoing $30 billion Three Gorges Dam project; the $60 billion North-South water transfer project just launched by the government; the creation of a national superhighway system; the construction of new subway systems in 10 major cities; the building of the Transrapid line in Shanghai; the construction of some 9,500 kilometers (5,800 miles) of railroads over the next 2-3 years, and so forth.

Indeed, China's use of state-directed infrastructure investment as a locomotive for rapid economic development, provides a crucial, living example of the kinds of policies needed to bring the world out of a threatened "New Great Depression" today. These are exactly the policies for productive credit generation and large-scale infrastructure investment, that Lyndon LaRouche and his collaborators have been advocating for many years.

China's success is not only a prime example of the "Super TVA" program LaRouche is proposing for the U.S.A., and of the Land-Bridge policy for an economic boom in Eurasia, but also underlines a key point Helga Zepp-LaRouche has been making in her dialogue with the German government, on the necessity of reviving the conception of the "Lautenbach Plan."

Put very simply, the Chinese government has *created* the extra money and credit needed, to finance the country's vast economic buildup! China's enormous infrastructure investment has been made possible by what Chinese economists call an "expansive monetary policy": In recent years the People's Bank of China—China's central bank—has been expanding the effective supply of money and reserves of credit (the monetary aggregate known to economists as "M2"), by about 15% per year. That means the money supply has been growing almost twice as fast as the Gross National Product.

According to the simplistic way of thinking, now common even among so-called economic experts, such a giant monetary expansion should necessarily lead to inflation and currency instability. But reality has shown exactly the *opposite:* Despite the rapid monetary expansion, overall prices in China have remained stable or declined, while the Chinese yuan (RMB) has become one of the "hardest" currencies in the world.

How can one account for this paradoxical result? The answer, again, is essentially simple: By channeling a large part of the monetary expansion into credits to the productive sector, including agriculture and industry as well as infrastructure, the Chinese government insures that the *supply* of useful goods and services, produced by the economy, has continued to expand even faster than the effective *demand.* Parallel with this quantitative expansion of production, the absorption of modern technologies and increasing qualification level of the Chinese labor force have caused overall industrial productivity to grow at over 4% per year. The result is an overall *deflationary* tendency in domestic prices, at the same time as the volume of money and credit in the economy continues to grow rapidly.

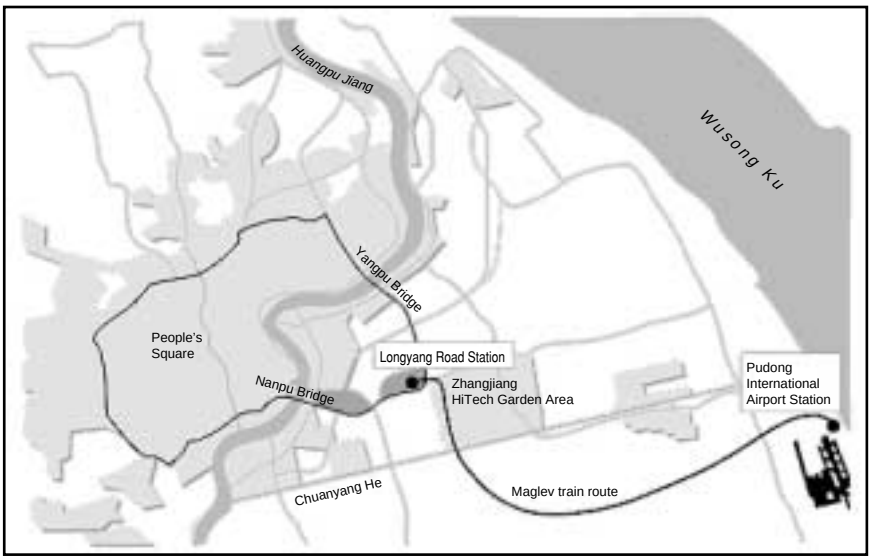
In short, the monetary and debt expansion in China is more than adequately "covered" by the physical expansion of China's economy, in the form of increased production of tangible goods, infrastructure, and necessary services, without the formation of a giant speculative bubble of the sort we have seen in the United States and Europe over the last 15 years.

The monetary expansion itself takes mainly the form of increases in the effective supply of credit, from the People's Bank of China, above all, to the so-called "Big Four" commercial banks, which are all state-owned: the Bank of China, the

Construction Bank of China, the Agricultural Bank of China, and the Trade and Industry Bank of China. In addition, a very important role is played by the China Development Bank (CDB), formerly known as the State Development Bank, which is a ministerial-level agency supplying multibillion-dollar credit directly to industries and infrastructure projects. The CDB, which is financially supported both by the Chinese Finance Ministry and the People's Bank of China, has many common features with the famous Kreditanstalt für Wiederaufbau (KfW) in Germany. Indeed, Chinese economists have carefully studied the key role of the KfW in the West German "economic miracle" of the postwar period.

Another key feature of China's credit policy is maintenance of a *low rate of interest*, currently 1.5-1.6% on suitable categories of loans. In addition to the direct credit expansion via the People's Bank of China, the Chinese government has recently been supporting its high level of direct investment into the economy, through a moderate budget deficit of about 3% of GDP. This is being financed through the issuance of about 100-150 billion RMB per year in bonds, compared with about 1 trillion RMB in yearly tax revenues. The total accumulated government debt, in the form of bonds, now amounts to only about 17% of the GDP. This government debt rests on a very solid basis, in the form of a rapidly growing tax base provided by the expansion of China's real economy.

FIGURE 4A
The Shanghai-Pudong Transrapid Maglev Project



Source: Transrapid.

The city of Shanghai's magnetic-levitation railroad system is now operating, displaying Europe's and Germany's highest-technology-transfer export to Asia so far. The first section's construction was completed in not much over 18 months; its top speed is near 300 miles per hour; steel consumption in construction is thousands of tons per mile. And much longer maglev routes are now planned in China, as the second map shows.

The Infrastructure Component

The channeling of new credit into basic infrastructure investments, on the order of $200 billion per year, is a key feature of China's anti-inflationary credit expansion policy. Infrastructure construction—including transport, energy, water systems, communications, etc.—is laying the foundation for the rapid, sustained expansion of China's economy as a whole, while at the same time stimulating employment and production in industrial sectors supplying the projects themselves, and opening up previously backward regions and resource-rich areas for development.

In a typical case, the financing of a major infrastructure project, once approved by government agencies, is pulled together from three main sources: First is *direct state investment,* from the budget of the Finance Ministry. Typically, this amounts to about one-third of the total financing of a project. Second, loans provided by the state-owned commercial banks and the so-called "policy banks," above all, the China Development Bank, which operate under direct government control. These credits are granted to agencies and (usually publicly controlled) corporations that build and operate projects. Third, funds raised by local authorities and corporations involved in the projects from domestic and foreign financial markets, for example, in the form of bonds. The right to issue bonds is tightly regulated and granted only to a limited number of corporations and other entities under strict conditions. An illustrative example is the issuance of bonds by the Three Gorges Dam Corporation, a state-controlled corporation created to build and operate the giant Three Gorges hydroelectric and river-control project. Similarly, railroad-building corporations have been issuing bonds.

The Chinese government itself has also been raising additional funds for infrastructure investment, through the issuance of bonds, sold mainly on the domestic market. This includes specific Construction Bonds.

It should be obvious, that apart from some aspects of secondary importance, there is nothing in the methods just described, which could not be used in principle by every other developing nation in Asia, or the world—as well as by industrial nations themselves.

Exports and Technology Transfer: The KfW Model

To finance exports of investment goods to Asia, in the order, potentially, of 5-10 times the level of Germany's pres-

FIGURE 4B
Planned Maglev Projects in China

Source: Transrapid.

ent exports to the whole world, it is not necessary to "reinvent the wheel." There is already available an excellent historical model: the role of the Kreditanstalt für Wiederaufbau (KfW) during the 1960s and 1970s, in providing a "credit locomotive" for the expansion of German exports to developing countries. Crucial to the success of this model, was the fact that it was based on a long-term strategy for Germany's participation in real, sustained economic development in the partner nations, rather than the short-term "market" thinking predominant today.

In the 1960s, the KfW combined the functions of a development bank and an export credit bank. Using its extensive experience with the reconstruction of the West German economy after World War II, the KfW financed or co-financed countless projects for energy, water, and transport infrastructure, and development of agricultural and industrial production in Third World countries. Some of the most famous projects included the Rourkela steel plant in India, the nuclear power station Atucha I in Argentina, the Keban Dam in Turkey, the Lome Harbor in Togo, the Cabora Bassa hydroelectric project in Mozambique, the Roseires dam in Sudan, and others. There were countless smaller projects, from road-building and irrigation systems, to manufacturing plants.

In the 1960s, about 50% of the capital assistance went to India, Pakistan, Turkey, and Egypt, with the rest going to developing nations, including South Korea (then a "developing nation") and other countries in the Far East. In addition, the KfW financed projects for mining and raw materials processing projects, which were important for securing Germany's supply of raw materials.

Parallel with the issuance of credits for development projects, the KfW provided credits to foreign recipients for import of equipment produced by German companies, working closely with the Hermes state export-import bank. Supported by KfW credits, German companies built power plants, cement, paper, or fertilizer plants in developing countries, as well as "threshold countries" such as Mexico, South Korea, the Philippines, Pakistan, or (at that time) Spain and Greece.

Toward the end of the 1960s, Brazil became an increasingly important partner of the KfW. Between 1961 and 1970, the volume of export financing by the KfW grew from 160 million to over 1 billion Deutschemarks per year. Unfortunately, from the late 1960s on, the type of development strategy, exemplified by the KfW and similar institutions in a number of countries, encountered an increasingly hostile international environment, finally leading to their virtual marginalization. The problem was created by a shift, in the United States and Great Britain, away from a postwar emphasis on productive investment, toward increasingly radical anti-industrial economic and financial policies. These led to the August 1971 collapse of the original Bretton Woods fixed-exchange-rate world monetary system, and the transition to the present, speculation-ridden "floating-exchange-rate" system, which rendered long-term international investment and trade agreements virtually impossible.

The same anti-development policies, exacerbated by the austerity policies imposed upon the developing sector by the International Monetary Fund (IMF) and international banks, increasingly, since the manipulated "oil crisis" of the mid-1970s, led to the financial ruin of virtually all the developing nations. At the same time, the United States government adopted the neo-Malthusian ideology of "population reduction instead of development," taking an openly hostile attitude toward transfer of modern technology to developing nations. In particular, the combination of financial crisis and American pressure, effectively shut down most of the long-term nuclear and other technology agreements that had been reached between Europe and developing sector nations such as Brazil, Argentina, Mexico, Iran, India, Pakistan, and many others.

As a result of the defeat of the attempted economic alliance with developing countries, the flow of exports from export-oriented European countries concentrated more and more toward the advanced sector nations themselves, espe-

Three Gorges Opens to Ships

The first passenger ship went through the permanent two-way, five-step shiplock of the Three Gorges Dam on the Yangtze River—the world's largest water-control project—on June 13. At 10:00 p.m. on June 9, the reservoir behind the dam had reached the height of 135 meters, storing 10 billion cubic meters of water since the sluice gates were closed on June 1.

The speed of water flow was recorded at 10,000 cubic meters per second. With the water depth between 4-6.5 meters in many parts of the middle reaches of the Yangtze River, full resumption of normal navigation is now possible with the reservoir level at 135 meters. It will remain at that level for five years, after which the water will be allowed to rise to its full height of 175 meters.

Aftar the June 9 attainment of the 135 meter water mark, the navigable courses of a dozen tributaries of the Yangtze have increased in length by more than 500 kilometers. Navigation on the river will be considerably expanded, with 10,000 ton ships, formerly able only to navigate on a small portion of the river between Wuhan and Yichang, now able to travel the entire distance to Chongqing.

The 6,300 kilometer (3,800 mile) Yangtze, with its 3,600 tributaries flows through 18 provinces. With a population of 400 million, the Yangtze River Valley generates more than one-third of China's gross domestic product. According to *People's Daily*, GDP in the reservoir area has grown by 2.2 times, revenue by 1.8 times, and the per-capita income of farmers by 2.1 times over the past ten years.

On June 10, two generator units at the Left Bank Power Station of the dam got their first tests. By August these two generating units will begin operating. In October, an additional two units will be put into operation, producing a total of 5.5 billion kilowatt-hours of electricity this year for central and east China, where power supply is insufficient. The Three Gorges Project has a total of 26 generating units, with a total combined capacity of 18.2 gigawatts (billion watts) of electricity.

The dam is the realization of a dream of Sun Yat-sen, who already in 1919, was proposing such a project on the Yangtze. While the project has forced the repatriation of thousands of families, new cities have been built higher up the mountain to replace those which have been submerged by the reservoir. Other families have been given subsidies to move to some of the more populous areas of the country, on the east coast and elsewhere.

Flooding along the Yangtze has been endemic, with one devastating flood every ten years for the last two millennia. The two big floods in the 1930s killed nearly 300,000 people.

In addition to the 26 generators at the Three Gorges Dam, further dams are being built on the Jinsha River, an upper tributary of the Yangtze, with four more generators that will give a combined generating capacity of 38.5 gigawatts.—*William Jones*

cially the U.S.A., which, fueled by the inflationary financial bubble, became the world's "importer of last resort." Now that the bubble has collapsed, and a new "Great Depression" is staring us in the face, an entirely new situation faces the world.

The present situation, while fraught with great danger, also poses very great opportunities for a positive shift in economic policies. First, the defective, post-1971 world financial order is now undeniably bankrupt, as reflected in the sheer unpayable accumulation of debt and speculative financial obligations, with the U.S. financial system itself in the center of the coming storm, and the necessity of fundamental reform—the "New Bretton Woods" conception of Lyndon LaRouche—is becoming more undeniable each day. With this comes the rising pressure, internationally, to somehow revive the features of the original, postwar fixed-currency-exchange system under which much of the world had once prospered, into the 1970s.

Second, a number of developing countries of Asia—in the forefront, China—have insisted on their economic and financial *sovereignty* vis-à-vis the domination of the IMF and other international financial institutions. China, in particular, has "broken the rules" by adopting a policy of internal productive credit generation to finance a sustained infrastructure-centered economic boom, providing a successful example to the whole world, of the "New Deal" methods of economic recovery. Moreover, steps are under way, in the so-called ASEAN+3, consisting of the Southeast Asian nations plus China, South Korea, and Japan, to create a new, alternative framework for regional trade and investment, possibly including a proposed Asian Monetary Fund.

Third, the recent emergence of a new "triangle" France-Germany-Russia—in collaboration with China, India, and other key Eurasian nations—which came together around the search for a political alternative to the Bush Administration's Iraq war drive, opens the door to developing the *economic dimension* of that alternative.

Here there is a real chance, that a chain of already-existing "triangles" and other collaborative combinations of Eurasian nations might coalesce, to make the policy outlined in this report, into reality.