

European Chinese Centre for Education and Research in Spatial Development Planning - ECER

Results

THINK TANK (January 27 th - February 2nd)



City of Trier, Office of Urban Development and Statistics

Draft

European-Chinese Research Program „Sustainable Urban and Regional Development

Results of the first European – Chinese Think-tank
within the project

*„European – Chinese Center of Training and Research in Regional- and
Development Planning (ECER)“*

from January 27 to February 2, 2010 in Trier
(Participant: see attached appendix)

Preliminary notes and background

Within the context of the project identification phase/feasibility study on programming and implementation of the “European-Chinese Center for Training and Research on Spatial and Development Planning (ECER)” a Think Tank was established which held its first meeting from 27.01. to 02.02.2010. The results of this Think Tank constitute the key elements for the development of a European-Chinese research program on “Sustaining Urban and Regional Development”. The results of the Think Tank are summarized in the following, enhanced by attached papers provided by the German and Chinese project partners and further participants. We are thus able to submit a comprehensive documentation, particularly in the case of ECER.

The spatial development differences in China are serious and will threaten the whole economic and social stability of the country, as long as no appropriate concepts and measures for the organization of a spatially more balanced structural policy is put into effect by the Central Government and provincial governments. The efforts of the Government of China to reduce spatial development differences are obvious, for example with the “Go west” program, but also by participating in the project identification phase/feasibility study on this project to establish a “European-Chinese Center for Training and Research on Spatial and Development Planning (ECER)” which sends out the clear signal that they want to learn from German/European experiences and, after appropriate examination, to transfer these to their own country and its regions. Selected disparities and their respective development are described in the attached documents of our Chinese partners.

It is important that these problems are being recognized in China and that the spatial disparities are to be reduced by establishing and developing sustainable city and regional development planning.

Objectives and main focal points of specialized research

The objectives for the creation of equal living conditions in the regions of China can be gathered from the following *Figure 1*.

This figure illustrates five target areas:

1. Integrative development planning to reduce urban-rural disparities
2. Land use and decentralized integrative water management
3. Sustainable traffic development planning and professional mobility management
4. Environment development planning
5. Foresighted disaster control and disaster prevention

These five target areas are to be understood as fields of activity of the European-Chinese research program. In the common interest of ECER, these respective target areas include the modules “Academic Training”, “(Vocational) Further Training“ and “(Application-oriented)

Research”. The interdependence between these modules is one of ECER’s essential characteristics. Within this context, research is also to be considered and actively promoted as supplier of contents for the areas of academic training and (vocational) further training.

Main focal points for the represented five target areas are to be defined by means of concrete research projects. While establishing this research program it is important to broach not only the issues of spatial problems, but also and in particular topics of importance for the future development of Chinese regions (as for example development trends and opportunities).

Figure 1

European-Chinese Center for Education and Research in Spatial Development Planning (ECER)



Regarding European-Chinese co-operations though, the question arises time and time again how European experiences in the fields of city and regional development and regional planning policy – in particular from Germany – can be applied to Chinese conditions at different administrative levels in China.

If the draft of the provided research program were put into practice it is supposed to support political consultations on various levels of management. Therefore within each respective range of topics the political directives (e.g. as with the five year plans or the Go-West program, among others) must be considered.

Application and practice-oriented alignment

The first Think Tank revealed that the Chinese colleagues/scientists clearly prefer application oriented solutions and that they would time and time again inquire on experiences about German and European city and regional development as well as regional planning policies in general and on the application of specific measures in particular. The evaluation of these experiences on the one hand and the response or suitability test for application in China, respectively, will affect both the planned research program and the next Think Tanks. In the discussions among the participants of the first Think Tank the following basic principles and/or instruments of the German regional planning policy were highlighted exemplarily and in particular:

- Planning competencies on the various management levels
- Implementation of the countercurrent principle
- Interlocal and regional co-operation within various sectoral areas
- Development and implementation of regional structural and promotional programs
- Public and private funding as well as fiscal equalization systems
- Appliance of prices which conform to market trends (e.g., the water price)

Definition of main topics

The participants of the Think Tank agreed to work thematically on the above-described five fields of activity over the course of the next five years. For these areas, the following main topics of interest were prepared and discussed in-depth:

1. Integrative development planning to reduce urban-rural disparities (see attachments 1, 2, 3 and 4)
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The Chinese participants of the Think Tank have designated the Yangtze River Delta as their model region. Using this area the project strives to demonstrate the possibility to implement an integrated sustainable city and regional development planning, in particular to reduce spatial disparities between prospering cities and rural areas.

An immense emigration of young qualified people from the rural areas into the cities is being observed, an emigration triggered by the conditions of the job market which leads to serious quantitative and qualitative problems in the urban and rural areas:

In the rural regions the total population decreases altogether, while the ageing increases. Thus, in the long run a passive redevelopment of these rural areas is going to take place. In contrast to this the growth of the urban areas will accelerate. The reception capacities (job market, housing market, public infrastructure) within these urban agglomerations however are more or less lacking.

Over the course of the discussions it has become clear, though, that, in view of long-term regional and area planning politics, the Central Government of China favors a policy of growth concentration for the (large) cities. Such a regional planning policy means that according to available estimations until 2050 about 70 – 80% of the Chinese population will live in urban areas and/or metropolitan regions. This foreseeable growth of urban and/or metropolitan regions leads to the serious emigration from rural regions and to the overpopulation of urban regions mentioned above.

But over the course of the discussions the Chinese colleagues/scientist also explicitly challenged existing alternative strategies. The discussions showed that the Central Government must provide a long-term strategy for the development of spatial structure as a framework conception to be concretized and applied in the various sub-regions.

One could contrast the concept of spatial concentration, which now seems to be the preferred solution, with an alternative strategy of decentralization in the sense of a decentralized concentration. It also became clear that in view of the size of the country and spatially quite unevenly available development resources (e.g. availability of water among other things) a decentralized spatial and structural policy appears to bear only limited feasibility, so that for the foreseeable future a policy of decentralized concentration seems to be a promising alternative to concentration politics.

The unfeasibility of the decentralization strategy is however not only due to the size of the country, but also due to the limited availability of the resource water. This stresses the importance of the topic of “Sustainable Land Use and Decentralized Water Management“.

On the other hand it became clear that the Chinese Government already started to apply a policy of decentralized concentration with individual programs, for example and in particular with the “Go West” program.

The European and in particular German experiences (federal regional planning policy, national planning, regional planning, land utilization planning and local zoning) and the Concept of Central Sites applied in Germany are viewed as starting points for a potential transfer to Chinese conditions by the Chinese colleagues/scientists.

Regarding the development and implementation of integrated sustainable city and regional development for the potential model region of the Yangtze River Delta the following central topics of interest were identified:

- Development of industrial-commercial locations in urban and rural regions;
- Implementation of a System of Central Sites (possibly in combination with measures tried and tested in China like, for example, the Special Economic Zones);

- Development and implementation of an integrative promotional program of cities in rural regions;
- Cross-linking of the Central Sites within different hierarchic levels by means of a balanced network of traffic links of various hierarchies;
- Implementation of a fiscal equalization system that lets “richer” areas support “poorer” ones;

For this field of activity (integrated sustainable city and regional development) a separate research application has to be compiled for the model region of the Yangtze River Delta. The bases for this are both the above-mentioned results of the Think Tank and the papers provided by our Chinese colleagues.

<p>2. Land use and decentralized integrative water management (see attachments 5, 6 and 7)</p>

The bases for this topic area are the City of Trier’s discussion paper and the documents provided by the Chinese colleagues/scientists.

In the course of the discussions among the participants of the Think Tank the Chinese partners labeled the river basin of Dongjiang in the province Guangdong a model region. This region is China’s fastest developing economic area and shows the necessity to co-ordinate current and future land use and water distribution.

The central research question of interest is: Where can facilities with high water consumption be established in the years to come?

It is crucial that land use is tightly co-ordinated with the goal of water protection. The main concern is to develop sustainable city and regional development planning and thus sustainable land utilization planning in such a way as to guarantee (quantitative and qualitative) water availability and to meet the current and future demands for water.

For this, data on the small scale will also be required, to illustrate water quantities and water qualities as well as the long-term availability of water reservoirs. For comparison, the current and future demands for water are to be illustrated and/or estimated on a small-scale. The assessment of demand has to be carried out with the search for workable solutions in view. In case of the model region and/or the Dongjiang River Delta the topic of a foresighted land use unhampered by water shortages should be addressed to showcase the approach.

Ultimately a decision support system for the foresighted and thus sustainable city and regional development planning in this area must be developed, which also and in particular contributes to the implementation of sustainable water management. The use of instruments, the shaping of measures and the implementation of corresponding decisions in this model region should be supported by scientists in such a way that a transfer to other provinces and regions in China becomes possible.

Apart from the planning aspects the legal, administrative and institutional frameworks of a potential implementation is to develop or to adapt or optimize according to the current conditions, respectively. It is interesting to note that on the central level China employs extremely modern and innovative legislation, whose implementation proves difficult on regional and local levels, though.

Approving of this research area, the German and Chinese participants of the Think Tank come to the following agreements:

1. A “European-Chinese Conference “Sustaining Land and Water Management”” about the Dongjiang River Delta is to be held in Guangdong Province where all participants from the areas concerned are to gather and to co-ordinate important subtopics. This conference should be set up in a way to let representatives of German/European model regions (e.g. from the Rhine area) share their experiences and explain their technical view of possible starting points for transfer to the model region in China.
2. Task-specific work-groups to each subtopic defined during this conference should be set up to work on these subtopics and in particular to define the specified important research questions. The results of the individual work-groups will be brought together at the Round Table “Sustaining Land and Water Management – The Future of Water in Dongjiang“. The BNU – as partners of ECER – should be in charge of the project’s scientific coordination.
3. Furthermore, for the partial questions posed in step 2 and further justified individual research questions dissertations are to be assigned to very good senior office holders from the provincial governments and/or very good master students and supervised by German/European universities for the duration of 4 – 6 terms. Here, above all it is of vital

importance that the selected Chinese graduate students receive the scientific/theoretical and methodical know-how at their respective German/Europe universities they'll need afterwards to work on their theses in co-operation with a network of designated Chinese partners on location and in practice.

This means that during the 4 – 6 terms the Chinese graduate students will be working on their respective specific topics in Germany/Europe and China on an alternating basis. In China they will co-operate with the respective representatives in the work-groups of the Round Table.

4. After 4 – 6 terms, the results of the respective dissertations are merged into a master plan “Sustaining Land and Water Management Dongjiang”.

By means of the procedure described above we will be able to achieve two of project ECER's main goals:

1. The – from the Chinese view – currently most important issues and future prospects within jointly defined topics are being discussed. The Chinese partners select graduate students suited for these topics according to jointly agreed criteria.
2. By working on these topics and submitting the dissertations, on the one hand very good Chinese specialists will attain their doctorate, on the other hand application-oriented research results will be acquired to effectively implement solutions to spatial issues identified and defined in China.

It will be of paramount importance for the overall process to transfer German/European experiences from comparable areas and to examine them critically regarding their implementation in China. Through this approach a decentralized integrated land and water management system must be developed for the main focus of research “Sustaining Land Use and Water Management“, which, as a framework concept, makes the application in other Chinese provinces with similar issues possible, too.

3. Sustainable traffic development planning and professional mobility management (see attachments 8 and 9)

The following recapitulatory statements refer to the attached paper by Weinand/Hansmann on development and implementation of transeurasian traffic corridors. It is important to note here that China's large traffic arteries are mainly oriented from north to south. Now the question arises whether, regarding potential transnational co-operations, for example with Russia and other states, as well as regarding large-scale traffic connections to Europe, west-to-east corridors could be established and connected to existing and planned traffic corridors from Europe.

Within this context the connection to the New Silk Road can exemplarily be brought up for discussion. Beyond that there are further existing and yet to be further developed traffic arteries, as for instance the Trans-Siberian railway.

This development and implementation of transeurasian traffic corridors covers several central aspects:

1. The traffic corridors should be suitable both for passenger and goods traffic.
2. On part of the carriers the traffic corridors should be established in a multimodal way, i.e. (in particular for the goods traffic) they should be planned and established as combined road/rail, road/sea and in given cases road/rail/sea transportation.
3. The traffic corridors should end and/or start at important intersections at the east coast of China.
4. Along the traffic corridors main sites of commercial-industrial development are to be defined to concentrate economic growth, and to support the growth of surrounding (rural) regions now and in future, as already demonstrated by the German Concept of Central Sites or the Concept of Special Economic Zones applied in China.

5. The development of the traffic corridors should regionally and on a small-scale lead to a network of various hierarchical locations, which are or can be connected via transport axes of different hierarchical order.
6. The aforementioned development of main sites at transeurasian traffic corridors yet to be defined by the research project, at important traffic facilities within China as well as regional transport axes should, from the earliest stages of development planning on, always contain the necessity for an early examination of water supplies available at these locations. Only such locations which can secure the water supply for the respective uses quantitatively and qualitatively on a long-term basis are to be developed further.

All considerations to the proposals of the development and establishment of transeurasian traffic corridors made here can be gathered from the attached paper by Weinand/Hansmann. Beijing Jiaotong University (BJU) commented on this paper from their respective professional view. These notes can likewise be found in the attachment. Let it suffice to say that the BJU welcomes this approach and suggests the establishment of a German-Chinese work-group. The BJU can contribute its specific competences to this research project, which are to be complemented with those of the BNU within the area of city and regional development. The topic of this research project should be jointly prepared in 2010 so that the same year an application for financial support can be submitted and in 2011 a Think Tank on this topic can be held as a prelude to establishing the project.

Beyond that a specific Phd program can and should be developed in this project, too (as in the project mentioned above).

4. Sustainable Environment Development Planning and Environmental Management

As a cross-cutting issue for China and the sustainable development of its provinces and regions the necessity of foresighted strategic environmental planning with a suitable professional management is to be stressed.

During the Think Tank, the Chinese colleagues outlined the development of comparative studies on environmental planning which are to help adjusting urban and rural regions.

The papers provided by the Chinese colleagues (see attachments) are in particular pointing to the problems of environmental pollution (waste, water etc.) which are most pressing in the small and medium cities of China.

The existing infrastructure is very different in each respective large and small city as well as in cities of rural regions. Within the area of environmental planning – in particular the area of waste and water – a comparatively large number of studies already exists. They describe methods of waste water purification and how technologies from Germany/Europe could be transferred to China.

The interesting research question within this area is how to devise options to reconcile the development between urban and rural regions in selected case studies. The Chinese partners identified in particular the urban/local waste water planning as a sectoral field of investigation and designated the development and establishment of water supply networks, taking economic criteria and technical planning into account. Of particular interest are also and in particular dynamic network planning for the definition of an optimal location distribution of waste water infrastructures in the area, always considering the cost-benefit ratios and the long-term economic sustainability.

During the Think Tank the Chinese partners justified waste disposal as another and thus, second field of investigation within the area “Sustainable Environmental Development Planning and Management” in the ECER project. Time and time again they brought up the issue of composting, economically feasible operation of incineration plants (also and in particular for intercommunal use). The production and use of respective optimized cycles (according to discoveries of cycle theory) are hereby of particular interest.

As a third sectoral area environmental landscape planning was determined. This is supposed to be a kind of land utilization planning with the specific aim to secure and sustainably use environmental potentials in the long run.

Within the area of environmental development planning the Chinese partners expect a significant transfer of German knowledge and an evaluation of the applicability to the Chinese model regions. For instance, the Ruhr district was brought up several times by the Chinese colleagues as an appropriate example from which important realizations could be transferred to China.

5. Foresighted Disaster Control and Disaster Prevention

The topic of disaster control and prevention is based on the first pilot seminar by ECER. The contributions from this seminar as well as their evaluation point to further possible ramifications of the topic and can be gathered from the attached documents (seminar documents and evaluation report).

Before this background, the Chinese partners defined a specific topic as a case study. They suggest to examine disaster control and prevention for the City of Lijiang in the province Yunnan and to improve on the existing tourist attractions and potentials there, especially as Lijiang is considered part of the world cultural heritage by UNESCO.

For this location region the Chinese partners see the necessity and possibility to develop a planning conception with the participants on site to realize the three following goals:

- Modeling of a disaster chain containing all potential natural catastrophes and highlighting associated interactions and consequences – also and in particular with regards to the tourism potential.
- For the natural catastrophes and potential events the respective probabilities of occurrence are to be calculated.
- For the demonstrated potential and conceivable disasters and their effects potential preventive measures are to be defined and their integration into a foresighted city and regional development planning – specifically regarding tourism – are to be examined. This concerns both the construction of infrastructure measures of disaster control and prevention as well as the organization of mutual coordination between institutions within cities and between regions on a planning and executive operational level.

Definition of application-oriented research projects

After defining the aforementioned topics, the participants of the Think Tank designated the main focal points of a possible research enterprise. These are the three following concrete research projects:

Research project 1:

Model project “Sustaining Land Use and Water Management – by Example of Guangdong Province (for the Dongjiang River Delta)”.

For this model region a) a specific strategy for the solution of existing current and future problems should be developed and b) the transferability to comparable and other regions in China be examined.

The German, European and Chinese participants are to be designated. These are in particular public authorities specialized in regional development planning and water management. The competencies of these authorities within the model region are to be clarified unequivocally. This is a task the Chinese project partner should take on. Beyond that, on the one hand the current situation of the industrial estates already in existence **and** planned in these areas and of the residential and settlement areas on the other hand and thus the current **and** future uses of surfaces and water have to be pinpointed.

The fields of application of economic measures is to be examined in the project. This applies in particular to measures like, for example, the water pricing policy. The fixing of the “correct price” for the use and abstraction of water is to be defined in the model region. For this project the experiences of other regions in Germany and China are to be included, e.g. the experiences from the Ruhr district.

Thus, the work proceeds from analysis steps to modeling future implementations. Measures of remote sensing (satellite photograph evaluation, land coverage data and geographical data) are to be processed. In this context the question of transferability and applicability of the INKA system in China is to be resolved, too.

The application of laws on territorial planning and the various planning levels to be integrated by applying the countercurrent principle are to be clarified. This concerns the Central

Government level and planning on the level of the provincial government as well as the sub-regions within the province. The German system with its experiences in the countercurrent principle “federal level, regional level, regional planning, local land utilization planning and development plans” are to be examined regarding the transferability to China within the concrete model project.

The question of the small-scale observation of cities and regions can and should be clarified within this project, too.

A user oriented research advisory board is to be established within the project. This also applies to the other projects. The question whether a research advisory board for ECER can be accomplished in co-operation with respective institutes from China must be answered as well as the question whether the basic structure of the BBR or the Academy for Spatial Research and Regional Planning can be used in the sense of a scientific consultation. These are all supposed to be permanent topics within the project.

For example, in their observation of regions the BBR has created levels of analysis with 400 characteristics. Concrete modelings for the data are prepared and concepts for the future development compiled.

A further topic is the combination of the individual research topics with the training of PhD students from China in Germany/Europe.

Research project 2:

Model project: Disaster control and prevention – foresighted risk management by the example of the City of Lijiang in Yunnan Province

For this project a clearly defined wrap-up seminar on disaster control and prevention is planned for the autumn of 2010. By establishing contact with the proper personnel of various specialized public authorities from Lijiang this project on further training will afterwards create the opportunity to analyze the most important issues about the structure of a foresighted risk management.

Beyond that a European-Chinese Day of the Fire-brigades could be considered, dedicated to the topics of disaster control and prevention. Partners to be included are the BNU, ERA, the European Fire-brigade Academy, the FU Berlin and the Fraunhofer Management Society.

The elements to be examined in this research project are:

- Draft of planning-decision-making strategies in the sense of an acting city and regional planning within the area of tourism and the prevention and/or the management of occurrences which could effectively disturb this use,
- Establishment of a spatial monitoring system to simulate the occurrence of natural disasters
- Establishment of the rules of co-operation between different Ministries and responsible authorities. On the Chinese side various participants who are to be defined by the BNU are to be included. This is particularly true for the Ministry of Civil Affairs.

Research project 3:

Establishment of transeurasian traffic corridors

Here we have to refer to the attached comprehensive paper by Weinand/Hansmann which has to be further substantiated. In this instance the BJU should act as the contact partner as they themselves commented positively on this paper.

Professor honoris causa Dr. in Engineering Johannes Weinand,

Trier, March 3, 2010

Discussion Paper

“Decentralized Integrated Water Management: Starting Points for Sustainable Urban and Regional Development in China”

within the framework of the identification phase of the project

“European-Chinese Center for Education and Training of Spatial and Transport Planners (ECER)”

and in preparation for the

Think-tank, from January 27 to February 2, 2010 in Trier, Aachen and Stuttgart

Introductory notes

The following discussion paper is supposed to structure leading discussions, formulate questions and identify starting points in the think-tank, which may engage in future ECER.

Regarding the subject „ Water Management“ (as part of a broader resource management), it is ascertained that there is amount of scientific papers, research projects, projects of international technical cooperations, etc, which are generally and specifically for China.

However, it is also noted that in spite of the already prepared documents the quantitative and qualitative problem of water availability in China and in the regions in China are not resolved and are obviously not sustainably resolved. This unresolved problem of the quantitative and qualitative availability of water will slow the economic growth of China vehemently and leads to predictable environmental interregional migrations between Chinese provinces and regions.

This raises the question of how to integrate the water management in a sustainable regional planning and regional policy instrumentally and institutionally and how the Chinese partner can learn from German and European experience.

Importance of Water

Water is an existential resource, a basic development and locational factor. Water pollution, water scarcity, water surplus and water high variations in the offer have an impact on the economic and social development of countries and regions. Water is important for many different uses and is often used repeatedly, always with visible competitions and conflicts, if the quantitative and qualitative is scarce.

In China, it becomes very clear in the context of the implementation of the Olympic Games that these developments concentrated in the metropolis of Beijing. With the economic and demographic growth of the city the demand of water also increased during recent decades out of proportion. In the local region, whose climate very dry is, rainfall decreased in the last 10 year by 28%. The Olympic Games caused an increased demand, such as for the irrigation of canals for water sports, the construction of the "Olympic Green" of 680 hectare and the planting and irrigation of approximately 22 million new trees. The additional consumption of water by the Olympics alone is estimated at 200 million cubic meters.

The water demand in Beijing is mainly met since the 90s via "Miyun Reservoir", a second dam, because of severe pollution the withdrawal of drinking water is not suitable.

Two-thirds of the water needs of Beijing will be met from the groundwater, deeper and deeper wells (up to 1,000 m deep) necessarily lead to a result that the groundwater level falls between 1 to 2 meters per year.

Per head of population in China today are 2700 cubic meters of water available (equivalent to $\frac{1}{4}$ of the global average). Experts estimate that this number will decrease by 2030 to only 1760 cubic meters per person.

Water is extremely unevenly distributed in China:

- The northern areas are semi-arid zones, traditionally characterized by water scarcity. A ten-year drought has contributed to the expansion of deserts. The population consumes 500 cubic meters of water per head, of which 70 to 75% are from groundwater.
- In contrast, the regions to the south of Yangtze River have over 80% of the water supply with 1/3 of the surface. The associated floods were responsible for the construction of the Three Gorges Dam.
- Although the southern regions of China have water in abundance, a shortage of drinking water is detected, a fact which is due to pollution caused by the rapid industrialization. In May 2007 the Taihu Lake was topped as the third largest inland lake in China and one of the main sources of drinking water to the cities of Shanghai and Nanjing.
- The World Bank notes that $\frac{3}{4}$ of all Chinese rivers are considered polluted. The Yangtze River also receives 41% of all waste water in China.
- 440 of 600 Chinese cities have shortages, including 100 cities' severe water shortage and 700 million people drink contaminated water every day.

Necessity of a Concept for the Whole Sector "Water"

Water management- in terms of a specific resource management- a country, region and /or a city makes its own unique one, that is to say, measurable objectives, which are assigned to appropriate actions. This concept for the water sector must be understood as a goal- and action-concept, about which the regional particularities and specifications are to be taken into account in addition to the national and overall objectives. In a countercurrent principle "top down" and "bottom up", such a concept must be clearly defined and led to significant improvements.

The concept of water must be set at the national level, the framework and general objectives, which are conducted from the bottom with specific regional projects to realization. The state level is responsible for the strategic models and the regional level for the operational implementation through concrete projects.

Such concept "water" must deal with several areas:

- **H1:** Water for People (drinking water and basic sanitation supply, sewage and waste management)
- **H2:** Water for food (land, livestock and forestry)
- **H3:** Water for ecosystems (terrestrial ecosystems, for example and in particular wetlands and forests, freshwater ecosystems, deserts)
- **H4:** water for specific uses (industry, energy, tourism)
- **H5:** Flood Management and dams (in terms of disaster prevention)

The above mentioned areas are understood to be actions (**H1 to H5**), which must be cleared defined for the national and regional objectives and guiding projects.

Question to the Chinese and German participants in the think-tank: Are there further fields of action and how are they justified?

Such a conception is to be understood as a master plan which also and in particular contains investment plans and report systems and on whose basis water laws with appropriate implementation instructions can (or may) be issued and/or revised and standards and norms be set.

The long-term goal is to provide integrated water management plans which begin with a detailed analysis of the status quo and are supposed to lead to defining goals and prioritized fields of action with corresponding projects.

Institutional challenges

“The administrative structures in the water sector are ill-defined and, in the case of many countries, contradictory in themselves. Some countries lack the necessary institutions altogether, others exhibit fragmented institutional structures and conflicting decision mechanisms. In many regions contradictory interests of enterprises located up- and downstreams concerning access to resources constitute urgent challenges with immediate need for action. In many other cases strong tendencies to abuse public resources for personal advantage can be observed. Incalculability in the interpretation and application of laws, regulations and in the assignment of licenses handicap the market as well as voluntary commitment and promote corruption” (Quoted from: The United Nations World Development

Report 2: Water – a shared responsibility, World Water Assessment Programme, New York, 2006).

An improved water management requires the establishment and development of an appropriate legal, institutional and administrative framework. Water-related ministries and subordinate authorities with distinctive authorities must be established and developed, respectively. These ministries and authorities must be supported by regulatory authorities as well as catchment area authorities. Moreover, the establishment of water committees at small-scale level should be taken into consideration.

In doing so we have to clearly separate politics, regulation and service provision to reduce extraneous influences at all (spatial) levels.

Questions to the Chinese participants in the think-tank: What are the institutional competencies in China at the level of the state, the provinces, the regions and cities and what is their legal basis?

Regional discrepancies in availability

There are serious regional discrepancies in drinking water supply. Growing outskirts of towns and rural settlements are particularly affected by shortages. All in all, the situation in China can be described as follows:

The drought in the north with its expansion of desert areas stands in contrast with an excess supply of water in the southern regions of China. The country-wide water pollution limits drinking water production even more, further intensified by the (local) overpopulation. By extrapolating the current status quo, the World Bank expects approx. 30 million environmental refugees until 2020 due to water shortages.

Individual regions of the country exhibit large water supplies, while other places suffer from acute and/or seasonal shortages.

It is also worth noting that the dwindling of water supplies is attributable to insufficient anticipatory (spatial) development planning in the field of water, inadequate reactions to arising problems and a (spatial) policy often unable to provide conceptual and sustainable answers to the challenges of high population growth, rapid industrial development and development of the irrigation agriculture.

Over the past years the central government has carried out various projects to counteract the water shortages. The current five-year-plan (2006 to 2010) exhibits quadrupled expenditures in the field of water, e.g. 140 billion Euros for building 1.000 new reprocessing plants. In the case of the location of Peking the following measures should be taken as an example:

- Construction of 17 new sewage purification plants between 2000 and 2007 capable of processing 90% of the local waste water;
- Increased use of service water and rain water;
- Establishment of 10 model zones in which residues may not be disposed of in waste water;
- Generating artificial rain by inserting dry ice into clouds;
- A 300 km long channel from the province of Hebei, connecting Peking with the city of Shijiazhuang, leads water from four storage lakes to Peking. This measure led to increasing drought and harvest losses in the province of Hebei.

The regionally varying degree of water pollution caused by industrial, agricultural and private household waste waters leads to increasingly higher costs for purification.

Due to the regionally very different demand for water generated by the aforementioned usages the competition for water will seriously increase, particularly in resource-poor regions. The areas of conflict will inevitably be:

- Drinking water supply versus agricultural irrigation
- Urban versus rural water supply

It will altogether become ever more difficult to reconcile the water supply of the urban centres with the rapidly growing industry and population and with the supply of the agriculture (even more over the course of drought periods).

State border-exceeding co-operation in the field of water requires special attention. Transnational cooperative water politics can lead to conjoined efforts and complementary solutions contributing to fundamentally better international relations.

The facts in China must actually surprise, since a first environmental law has already been passed in 1988 and was amended in March 2008, a law which has to be called quite progressive (following the model of Canadian and Northern European laws). These laws,

however, found only limited implementation. This is in particular due to a lack of personnel at the environmental protection authorities especially in the provinces as well as the lack of an effective and integrated water management.

Decentralized integrated water resource management (IWRM)

Water resource management will be one of the most important fields of action in the future. There is a need for a holistic viewpoint which considers all uses for water, puts the principles of sustainability into practice (ecological sustainability, social justice and economic efficiency) and which involves the local stakeholders.

Decisions should be made according to the principle of subsidiary on the lowest reasonable level to ensure that decisions correspond to the needs of the people living there and that their specific requirements and resources can be considered and involved, respectively.

Decentralized and integrated management for the development of adequate and political decisions in the water sector requires however the establishment and future-oriented development of knowledge.

This calls for small-scale and interregional (possibly even state border-exceeding) availability of current data. Here we shouldn't be concerned with collecting all relevant data but with a continuous acquisition of the most important data in terms of an ongoing spatial observation.

Question to the Chinese interlocutors: What data at which level is recorded in China?

The sectoral structure of administrations at the level of the state, provinces and regions and cities, however, stands usually in the way of an integrative attempt. This is even more important in the field of "water", as water catchment areas are not geographically coincide with the administrative management units and the willingness to engage in inter-regional cooperation between different regional authorities with a water catchment area is rather low. Newly created institutions – in terms of water catchment authorities – can only (if any) in the long run be involved into the existing structure of institutions. It is often detected that such authorities were prescribed highly centralized, but hardly got skill, and there were/are usually problems at the interfaces to other institutions. It must be checked state and region specifically, in a institutional way, which a IWRM form can be implemented.

Question to the Chinese partner: Is there in China geographically defined catchment areas and corresponding institutional responsibilities? If yes, what areas are these and what are their current concrete institutional responsibilities?

Questions to the German partners: Is there in Germany/Europe geographically catchment areas and corresponding institutional responsibilities? If yes, what areas are these and what are their current concrete institutional responsibilities?

What examples can be transferred as best practice from your point of view?

Question to the Chinese and German interlocutors of the think-tank: What data are recorded over small areas in China and Germany/Europe?

In terms of environmental sustainability, the quantity of water withdrawals should not exceed the amount of the available renewable water resources. Only with the maintaining of the aim can the lowering of the groundwater level and/or a drying up of rivers be prevented. If it is not regionally possible, then new water supply should be applied (such as desalination or the use of processed sewage.). The improvement of water quality is of particular importance. The prevention of pollution of surface and groundwater shall be carried out in the production processes in industry and agriculture on the one hand, and in prevention, collection, treatment, recycling and land filling with waste on the other hand.

Access to water in all sub-regions of a country guarantees a long-term social justice. Inadequate availability of water in different regions will make existing differences in development more rigid.

Water management must be often flawed because the “right” water pricing is not available, which turns out to be a measure of scarcities and preferences and ultimately as a control. It is typically showed in tariff and charge systems, rationing or tradable water rights. The provision costs (operating and capital costs of promotion, processing, distribution, cleaning, etc.) as well as the macroeconomic and social costs and environmental costs are to be edited and as bases used for decisions. Only after deducting all costs can a rational decision be made. In aspect of business management, all economic costs must be covered by revenues at the level of utility companies, because only then a permanent plant operation can be secured (including the replacement and expansion investments).

While the price of water in Beijing between 1991 and today has risen 30-fold, a corresponding adjustment in the rural and agricultural areas of China has not taken place.

Questions to the Chinese counterparts:

- **How are the water prices established in China –at different spatial levels?**
- **Is there a fee and tariff system in China?**
- **What kind of (public) companies are responsible for providing the services in the field of water?**

Experience from Germany

Germany has been able to gain diverse experience in the field of (international) water management, which is represented in each area as following:

- **Politics' dialogue on shaping international water policy**

Here, Germany supports the formation and coordination of standards and rules particularly. In this context the Petersberg Process develops: 5 Forums work on the basis of European experience recommendations for a transnational river basin management and show possibilities of international institutionalization (see Nile Basin Initiative, NBI, results of the International Freshwater Conference in 2001 and others).

- **Enhancing regional cooperation**

With the experience of so-called best practices between practitioners in the water catchment area—both intra-regional and transnational level—important results can be achieved and lasting institutional and project-based networks can be built.

- **Exchanges between scientists, policy makers and practitioners in the water sector (education, training and research)**

Typically the following projects shall be mentioned:

The 8 million Euro project „Management- and Decision Support Systems for the Distribution of Water Resources in the Region Beijing”

The Chinese-German joint project „New Concept of Rainwater Management in Urban Areas” with responsibility of ensuring that the water authority of Beijing changes its drainage status and prescribes water-saving measures, the decentralized water retention and reuse of gray water in all new construction work since 2004.

Under the agreement „Joint Scientific Thematic Research Program (JSTP)“ the Netherlands Organization for Research (NWO) and the Royal Academy of Arts and Sciences (KNAW) work together with Chinese partner organization on the theme “Integrated Water Management in Relation to Climate Change and Sea Level Rise”.

The International Summer School Kiel "focuses on the theme of water management in rural areas

- **Professional and technical support for creation of an IWRM**
- **Investment activities**

Important topics in the area of the think- tank from January 28 to February 2, 2010.

Resource situation in the regions of China

- Water availability and its development
- Water quality and its development

Water policy in China and the regions of China

- The water allocation via the state
- The legal framework
- Economic instruments: rates, fees, subsidies

Institutions of water management in China

- State level
- Level of provinces, regions and cities
- Water supplier and wastewater remover

Water supply and waste water disposal in China

- Agriculture
- Industry
- Structure of industrial water supply

- Industrial waste situation
- Municipal finances
- Water supply in cities
- Water disposal in cities

Future action fields:

- Agricultural irrigation
- Procedures for sludge treatment
- Chemical substances used to treat water and wastewater treatment
- Technical equipment of water supply and wastewater treatment
- Development of concepts of decentralized integrated water management
- Institutional framework: Authorities in water catchments
- Instruments of spatial planning policy for the establishment and development of an integrated water management

Selected projects of water management in China

Best-practice projects in Germany/Europe

Initiative Research



Prof. Dr. Johannes Weinand
Armin Hansmann

Draft Proposal for a Research Program “European-Chinese Spatial and Transport Planning” in ECER Project with the Subject “Transportation, Freight and Logistics” and Preparation for a Think Tank

Eurasian Transport Corridors

In the following, in terms of the subject of “Transportation, freight and logistics”, the starting points of application-related issues and their resulting actual implementations in China will be dealt with. The developments, which have been commenced particularly in the EU and Asia, together with the implementations, are now known to be the basis of a transnational further development with China. Existing and planned Eurasian transport corridors and logistics junctions along these axes are essential starting points for the development and integration of Chinese interests. These Eurasian transport corridors and junctions are expanding into China, hence, a transnational and integrative network of traffic axes and logistical hubs comes into being.

The attention to the necessity of interface management and cross-section-oriented approach is increasingly valid for the development and implementation of logistical (infrastructure) concepts and, in particular, the corresponding key projects from the sector „transport, freight transport and logistics“(especially logistics). The mere sectoral approach will not lead to any viable answers. The requirements for a cross-section-oriented process and future management in compliance with the spatial and location-based conditions and development perspectives are particularly of importance.

Due to geostrategical changes and geopolitical challenges Europe and China play a new role in the world. The cooperation based on partnership is strengthened and international political responsibility is taken up. Triggered by the economic crisis, Europe and Asia move up closer together. As results of global economic interdependence, quick, reliable and safe transportation systems become increasingly important. China’s central government has launched a Go-West initiative to promote the inland west and significantly less developed regions in China. Thus, the development pressure will be shifted from the coastal region to the hinterland. New rail links through Kazakhstan in the direction of Iran, Turkey, Europe emphasize these developments and railway plays an important role in China’s infrastructure policy. For the future development of Europe, Eastern Europe, Central Asia and China, therefore, the expansion and integration of the national transport network are of paramount importance to the transnational transport corridors in the direction of west.



Therefore, the following substantive drafts start out, in principle, from a multi-modal direction of transport and freight transport in terms of a future-oriented logistics, which is in the context of globalization and internationalization and will also continue to gain its importance in the future, and which contributes to economic development of growing cities in the transnational and national frame and underdeveloped regions in China.

Programme priorities and transport policy objectives

Modern transportation development planning focuses mainly on three complementary strategies for sustaining transportation development:

- Eliminate transport by decreasing travelling distance
- Relocate transport by changing means of transportation
- Make transportation more biocompatible through an energy-efficient, resource-saving and ecologically friendly transportation management

These strategies ultimately provide an enduring transportation development, among other things the decoupling of the economic growth from the demand for transportation, the goal of a shift to eco-friendly means of transportation, the control of the demand for transportation by means of the costs of transportation including an internalizing of external costs, the reduction of noise and pollutant emissions of transportation as well as measures for the diminishment of air and marine transportation's impact on the environment.

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The three carriers of land and marine transportation – roads, railroads and shipping – are a crucial drive for employment, prosperity and world-wide export. Technical progress in transportation and shipping promotes innovations and an increase of knowledge increase and has positive effects on the economic and social integration of a national economy.

But also connected to transportation are challenges concerning our environment, society and research, mainly due to the constantly growing need for transportation. Here, the following four goals are to be considered in particular:

- Improvement of the competitive ability of transport enterprises, carriers and suppliers in the area of land and marine transportation, as well as of the operators of the respective transportation infrastructure;
- Improvement of security of transportation and transportation services;
- Reduction of harmful effects on the environment caused by transport, including the toxic load of emissions and noise;
- Increase of the mobility of people and goods through a more balanced distribution on or combination of different means of transportation by establishing multimodal conveyor chains.

Development and implementation of Eurasian transportation passages

More than two thousand years ago, active trade relations between the peoples of Asia and Europe already existed. These connections were often interrupted in the course of history.



As the most recent example, the centralistic governed Soviet Union with its satellite states prevented a free exchange of trade and goods with the western states.

Only in the third millenium Europe and Asia grow together peacefully and liberally again. Important initiators for this were the establishment of the European Union (EU) as well as the increasing globalization of the markets. Even the economic crisis of 2008 could not change this essentially. The main focus is on land-based goods traffic (roads and railroads) as it carries the main load of today's and future transportation.

An important objective of transportation development planning in China is the identification of close-to-reality solutions for the management of future transportation – both in the metropolitan regions and in the rural areas – and their bundling on efficient transport corridors. All means of transportation are parts of an integrated overall concept, which are in competition with each other and aligned with contemporary evaluation criteria like environmental friendliness, energy efficiency, conservation of resources and cost-effectiveness. For this, strategies, studies and concepts which offer both short term solutions as well as long-term development perspectives, are necessary.

The international transportation passages at the important west-east transportation margins between Europe and Asia will be judged according to these criteria as well. For the development and modernization of the transportation infrastructure proved and tested planning instruments are necessary and can be incorporated into the planning and development process. In addition to this knowledge transfer China may take part from the high technological know-how of Europe on the traffic sector.

Although current prognoses suggest that Chinas growth rates in the current and following year will settle in the one-digit range, we are still talking about remarkable growth rates of about 8 to 9 per cent. In the case of India 6 to 7 per cent growth are predicted, with the growth potential remaining on a high level for quite some time to come. The population of Asia constitutes well over 60 per cent of the world population! Increasingly, a well-funded and free-spending middle class is developing.

In two decades China and India will rank among the countries with the highest purchasing power in the world beside the USA. Chinas economic and trade relations with other Asian countries and with Europe in particular have continually and consistently grown over the last years. China has actively contributed to international economic and trade agreements and is member in international committees.

With nearly 4 billion people, Asia represents not only approximately 60 per cent of the world population, but almost half of all foreign exchange reserves as well and generates approximately 32 per cent of the global net product adjusted for purchasing power by now. The contribution to the world-wide economic growth was even more than 50 per cent in 2007. According to estimations of the Asian development bank Asia's part of the global economic output will reach about 50 per cent by 2050 and thus outperform both the USA and Europe.



Eurasian transport corridors are increasingly gaining in importance

Apart from the revival of the silk road further Eurasian transport corridors are gaining in importance, for example the "New Eurasian Land Transport Initiative" (NELTI-Corridor) or the Trans-Siberian Railway. Through the increasing exchange of goods with Central China, Europe and Asia move closer together. The trade volume between Europe and the Asian-Pacific region exceeds a commodity value of 300 billion US\$ per year by now (IRU study). Development and modernization of the railways require higher investments and provide relatively few transportation capacities compared to road development. The proposed land bridge NELTI considers to this fact. It is supposed to lead from China across Kazakhstan and Russia to Europe as one continuous road connection. Thus, shipping costs will be lowered and door-to-door transportation on a high logistic level be made possible. The transportation time can be cut down to nine to eleven days by reduction of dispatching times at the borders, optimization of the transportation circulation and by application of public private partnership transportation models.

TRACECA Transportation Passage (The New Silk Road)

One central and in its essential structures trend-setting project of the European community is supposed to be the TRACECA program (TRANsport Corridor Europe-Caucasus-Asia). After the opening of the borders toward Eastern Europe, the TRACECA program was established in 1993 under the auspice of the European Union (EU) and eight founding states (the five Central Asian states and the three Caucasian states). The aims of this EU program are the revival of the silk road as well as promoting the political and economical independence of the member states. The EU furthermore pursues the goal of improving the accessibility to the European market. To date, thirteen states in Eastern Europe, the Caucasus and Central Asia have joined this EU program.

The silk road of Antiquity was an approximately 10,000 km long network of caravan ways which led from northwestern China across Central and Western Asia up to the Mediterranean. It connected the peoples and states of Eurasia and played an important role in the Antiquity and Middle Ages: for culture, development of new technologies and in particular for trade. Goods were transported on camel or horseback: precious metals, glass and luxuries. From the sixteenth century on however, the overland route became unprofitable as marine transportation made it possible to avoid customs. In addition to that, carriage by sea was both faster and safer.

The main goal of the TRACECA program is the revival of the so-called new silk road. Besides that it is imperative to create alternative and efficient transportation facilities, to promote transnational co-operation and to connect the new silk road to the Transeuropean transportation networks. By these means, the shortest landlateral transport connection between Europe and China will arise.

Trans-Siberian Railway (TRANSSIP)

Another development factor already existing and ready for expansion is the Trans-Siberian railway. The Russian railway network is the second longest in the world at 86,000 kilometers and provides the highest amount of electrified sections (over fifty per cent). Almost 80 per



cent of all goods in the country are transported by railway. From a world economy perspective the railways of Russia provide over 20 per cent of the goods transportation and 15 per cent of the passenger transportation already today.

The Transsibirskaya magistral or Trans-Siberian Railway (Transsib), which recently celebrated its 100th anniversary, plays a particularly important role in Russia's transportation sector. The Transsib is a unique network of railways with a length of approx. 8,000 km. It is the backbone of Russia's national transport system. Along its route 89 cities are located, among them Nizhny Novgorod, Kirov, Perm, Yekaterinburg, Omsk, Novosibirsk, Krasnoyarsk, Irkutsk, Chita, Khabarovsk and Vladivostok. The Trans-Siberian railway crosses sixteen large rivers (Volga, Vyatka, Kama, Tobol, Irtysh, Ob, Tom, Chulym, Yenisei, Oka, Selenge, Zeya, Bureya, Amur, Khor and Ussuri). The double-railed expansion was only performed after World War II, and the electrification wasn't finished until the end of 2002.

Today the Transsib is an electrified, high performance two track magistral, equipped with modern automatics, communication and information technologies devices. A goods train with 102 containers needed no less than 14 days from China until Duisburg. It covered a distance of more than 10,000 kilometers in the course. The route led through China, Mongolia, Russia, Belarus, Poland and Germany.

NELTI – Transport Corridor

Another project, which is particularly significant for future developments is the NELTI-transport corridor. The aim of the IRU NELTI Project is to instigate regular road freight shipments between Europe and China and to assist in achieving the transit potential of, particularly, nations in Central Asia and the Caucasus. The Project likewise aims to increase the volumes of road transport operations and services that these countries can offer, while raising political and business awareness of the feasibility of and demand for such transcontinental road transport operations.

The project's main goal is setting the stage for launching regular commercial freight haulage by road transport from China's border to end consumers in Western and Central Europe. Within the framework of Phase Two of NELTI, the development of the system of regular road transport haulage between Asian and European countries should be continued, with China involved in this system; and measures should be enforced in accordance with the provisions of Memorandums of Understanding and regional agreements aimed to further the development of Euro-Asian transport communications, remove the barriers therein, simplify the border crossing procedures, harmonize the legal provisions in the transit countries, etc.

International Logistics Centers

- Multi-modal transport hub for freight and logistics

With the increasing freight transport in the east-west traffic, the demand for efficient transport facilities and logistical services has also increased significantly. The economy is growing with its demand for logistics services. This requires a functioning logistical infrastructure. As an interface between transport modes, the creation of efficient logistical transport hubs is of significant importance. Against this background, freight transport and logistics centers are becoming increasingly important. Located at the intersection of major transport corridors,



they provide safe starting points for freight due to their logistical equipments and services. Through combination of several modes in one location, the chances of the railways grow to participate in the increasing freight traffic. As multi modal transportation hubs, they provide important economic focal points for regional and interregional exchange of goods and with this concentration of traffic they make contribution to make environmentally friendly transport chains and to increase significantly the coverage of the population. They serve the transportation industry as a platform for cargo handling, warehousing and logistics. In the rational combination of traffic and transport and in the bundling of goods over long distances, it is of particularly use.

With the creation of transport corridors and transport hubs, new ways of streamlining traffic appears. Strengthening of inter-modal being via the use of multimodal transport-particularly road-rail interface is becoming the focus. The development of logistics centers should therefore seek the proximity of combined transport terminals. The shippers and the transportation industry find in these hubs safe starting points for handling and storage of goods. With these logistics centers, competitiveness of the location of each region will be improved, creating investment and jobs.

Examples of “International Logistics Centers “ in Russia, Azerbaijan, Georgia:

- International Logistics Center Moscow
- International Logistics Center in Nizhny Novgorod
- International Logistics Center Novosibirsk
- Sangachal Baku (Azerbaijan)
- International Logistics Center Tibilissi

Further logistics centers in Uzbekistan, Kazakhstan, Armenia, Ukraine, Moldova, etc. are in the planning. With the EU Project “International Logistics Centres for Western Newly Independent States and the Caucasus”, the exchange of goods in the region and beyond between continents should be more efficient and thus strengthened¹. In the project, which is carried out by the EU and the countries of Armenia, Azerbaijan, Bulgaria, Georgia, Moldova, Romani, Turkey and Ukraine, the following tasks are the focus:

- The linking of the TRACECA corridor with the Trans-European Transport Networks (TEN / PAN networks)
- The strengthening of competitiveness in the logistics sector
- Harmonization of transport policy and transport economical framework
- Establishing a continuous, multimodal transport chains and logistics centers along the New Silk Road
- The removal of border barriers and the promotion of free trade

Now a question arises: how can China be involved in the transnational developments with its existing, planned and newly developed or upgrades multimodal transport axes and corridors?

¹ EuropeAid/126356/C/SER/Multi “International Logistical Centres for Western NIS and the Caucasus, in Armenia, Azerbaijan, Georgia, Moldova Ukraine“



The administration of the city of Chengdu for example, has set itself the goal of using the good corridor via all modes of traffic carriers to build Chengdu a central distribution point for goods in western China. Compared with other provincial capitals in China's west, including Kunming, Chengdu, Lhasa, Urumqi, Chengdu is in any way the fastest growing city, particularly in the field of traffic and goods transport. Other economic centers in China want to follow this example, taking advantage of their convenient location and goods supply function, to develop into international logistics centers.

What is interesting in this context is the use of existing special economic zones in China, which were and are the important sites of economic development and have caused high proportion of the economic growth of China. These sites of special economic zones are to be further developed to develop new special economic zones – also in terms of international logistics centers – and build, even and especially in rural areas of China and east-west orientations. The existing and newly initiating special economic zones are connected in a hierarchical tiered system (special economic zones with transnational, national, regional or urban importance) along the corresponding traffic axes and corridors.

Summary:

Project proposals for an overall economical selection and evaluation of infrastructure projects in China

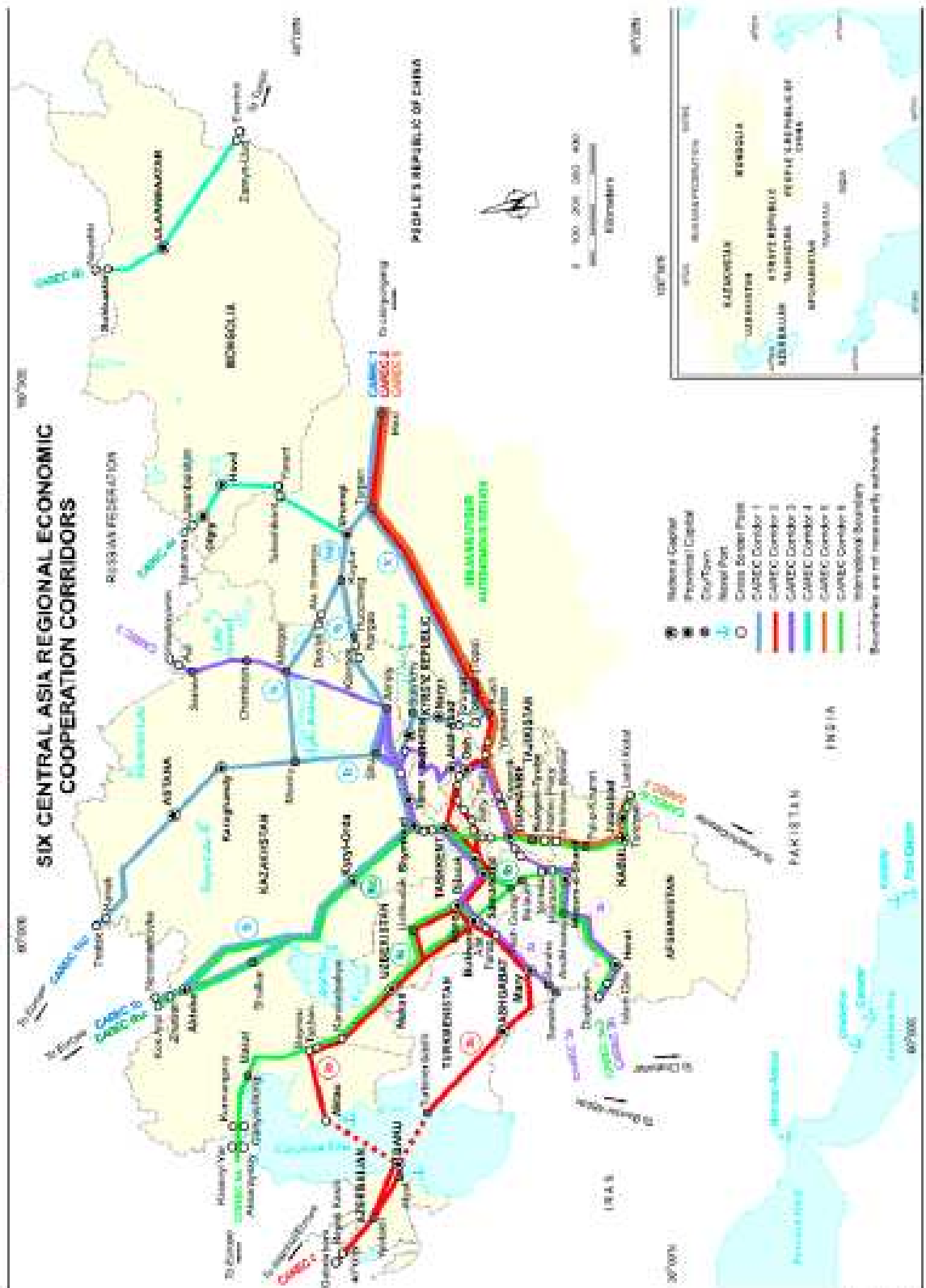
- **Research priorities and collaboration**
- **Master planning and freight logistics for China**
- **Site design for international logistics centers and multimodal transport hubs**
- **Mobility concepts and transport technology programs**
- **Planning and evaluation concepts of Chinese infrastructure program**
- **Cost-benefit analysis**
- **Cost-effectiveness analysis**
- **Space efficiency analysis**

Formulation of the Asian Highway

141,000 km, 32 countries

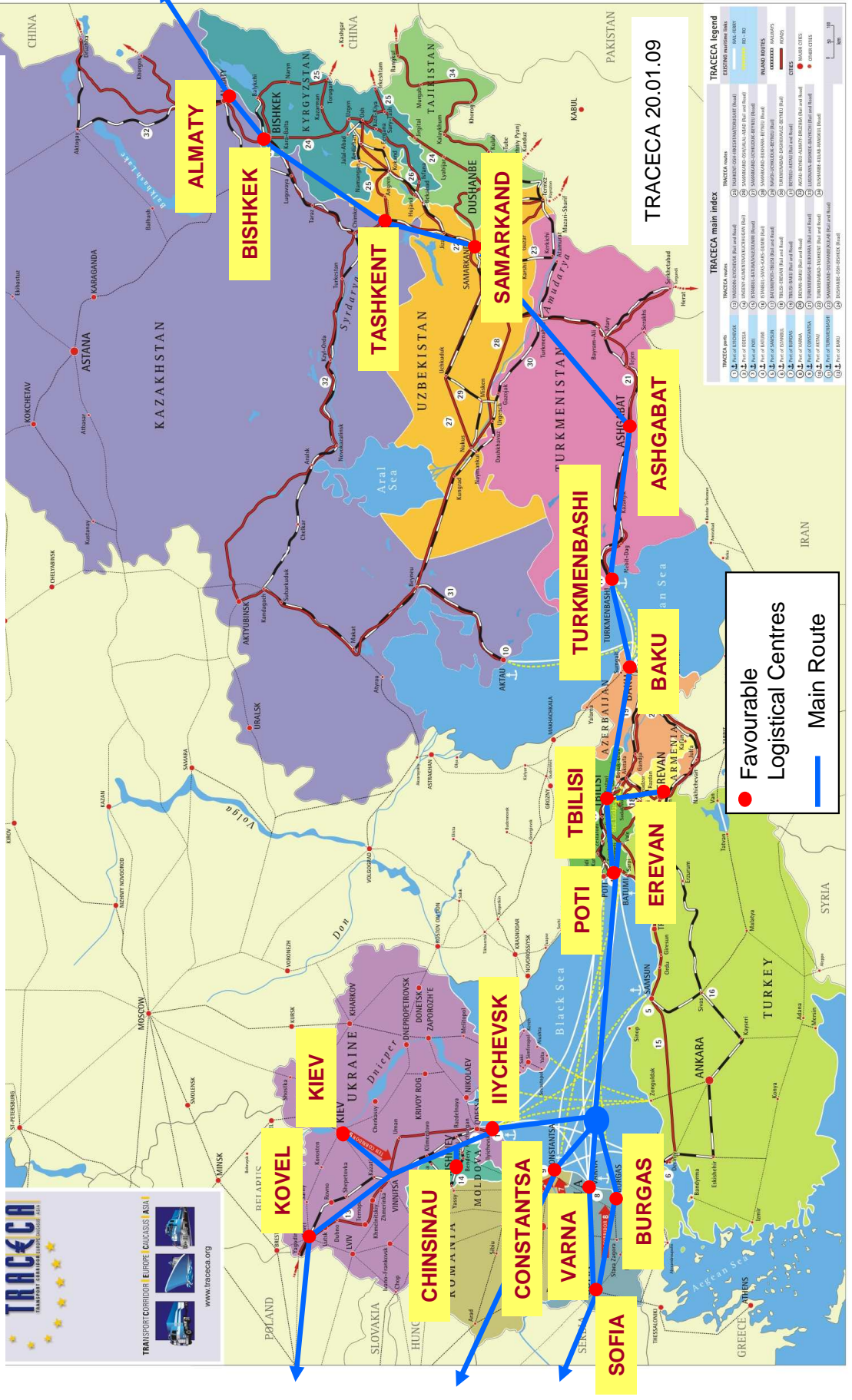


Map 1: CAREC Central Asian regional transport corridors (above)



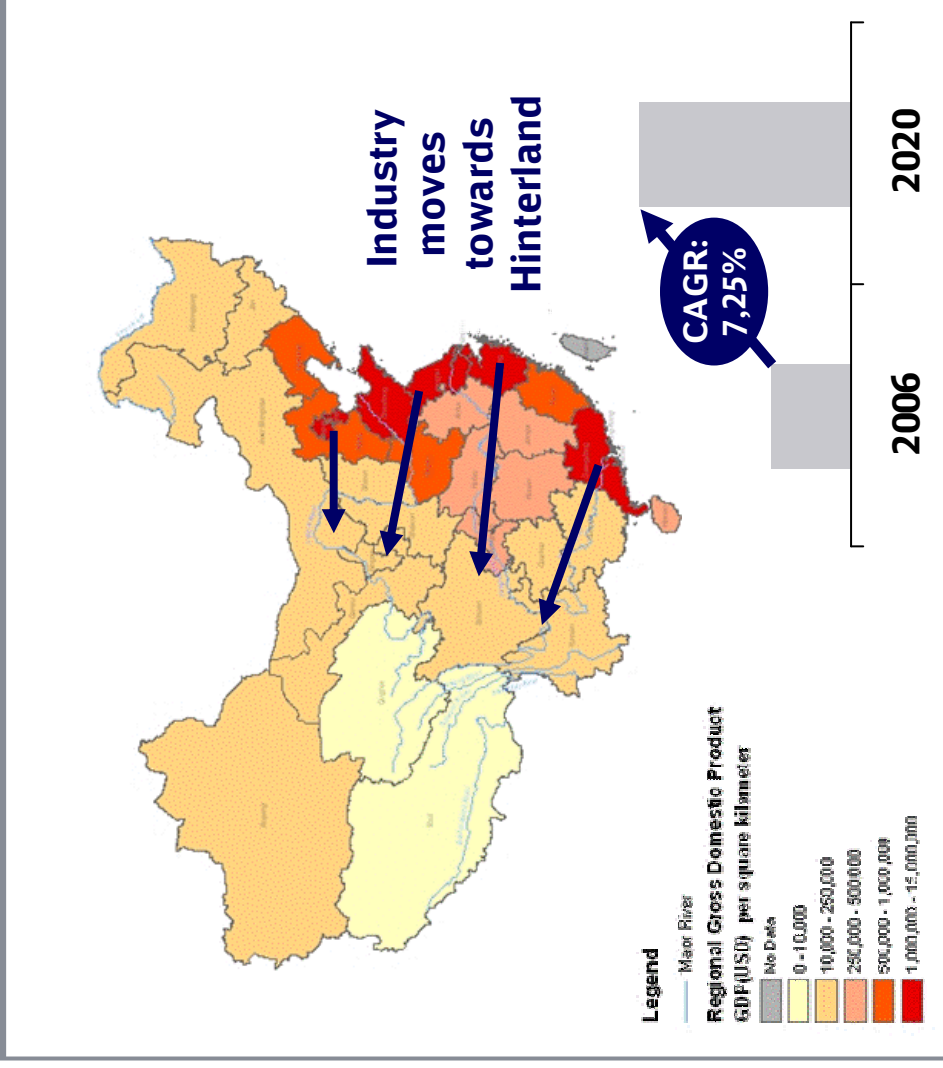
www.eurac.com

TRANsport Corridor Europe-Caucasus-Asia TRACECA



Railways in China Country perspectives

Development of Gross Domestic Product



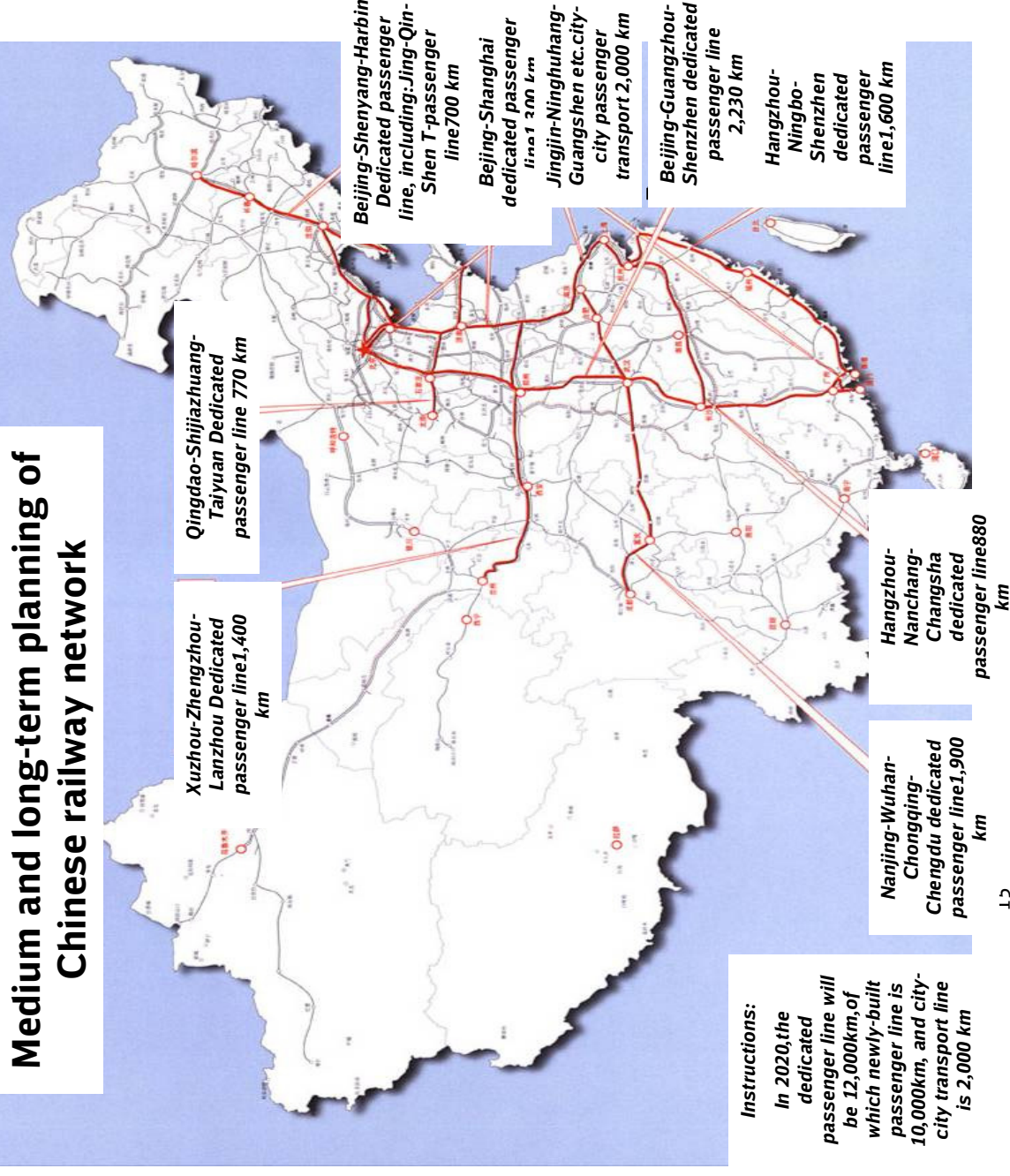
- Today the Chinese industry is focused in the **coastal regions**
- Growth in coastal regions is **limited by capacity**
 - Increasing land and labour costs
 - Ports are becoming bottlenecks
- Future growth will **move to China Hinterland**
 - Develop infrastructure
 - Requires new Transport and Logistics concepts
 - Movement to Hinterland will increase the advantages of the Euroasian Landbridge

Railways in China Solutions for the future

Medium and long-term planning of Chinese railway network (by 2020)

- Separation of passenger and freight lines on busy trunks
- New dedicated passenger lines of 12,000 KM will free capacity for cargo trains
- Both double-line rate and electrified rate reach 50%
- Main technology and equipment reach current internationally advanced level

Medium and long-term planning of Chinese railway network

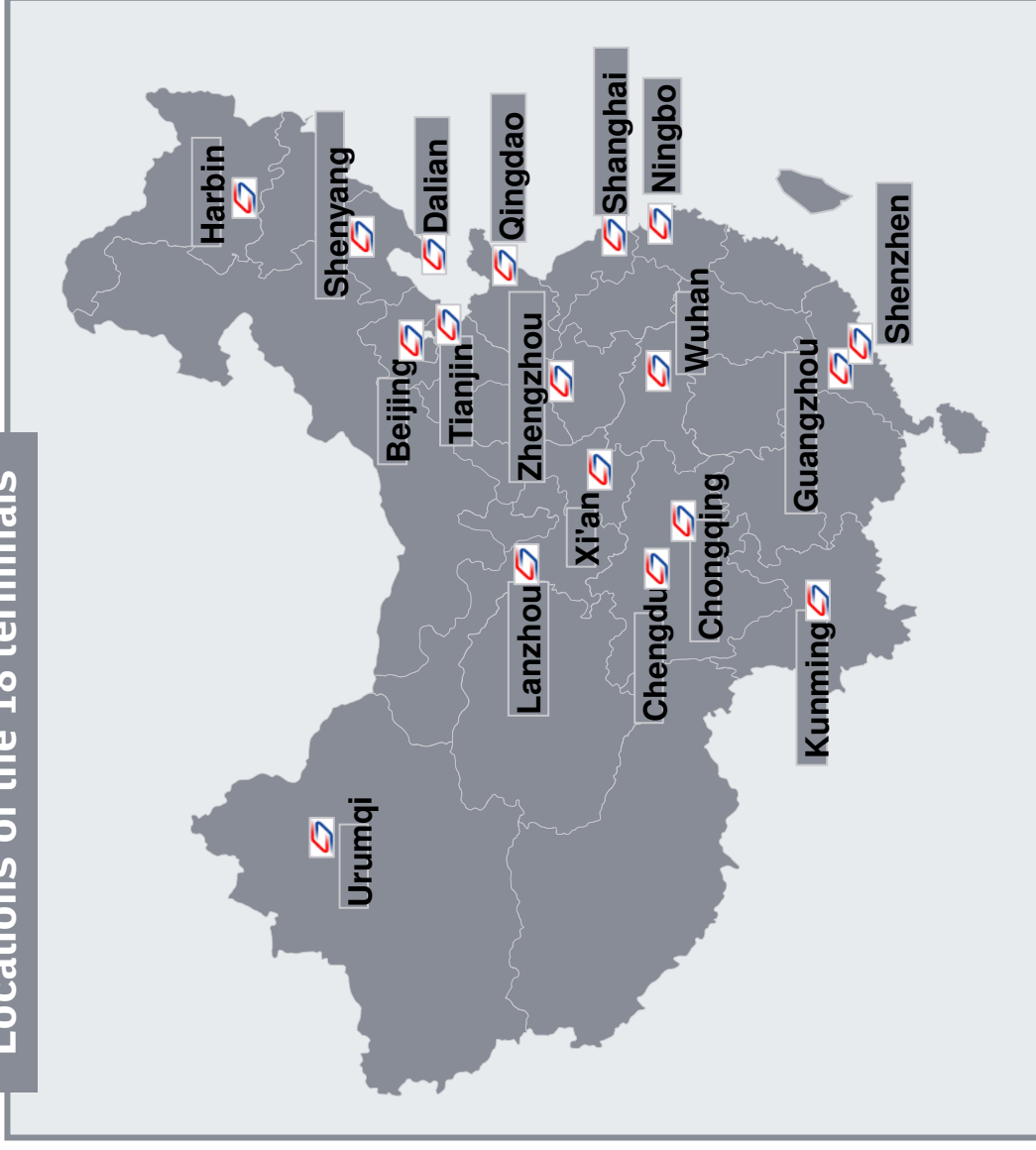


CRIntermodal - proposed network

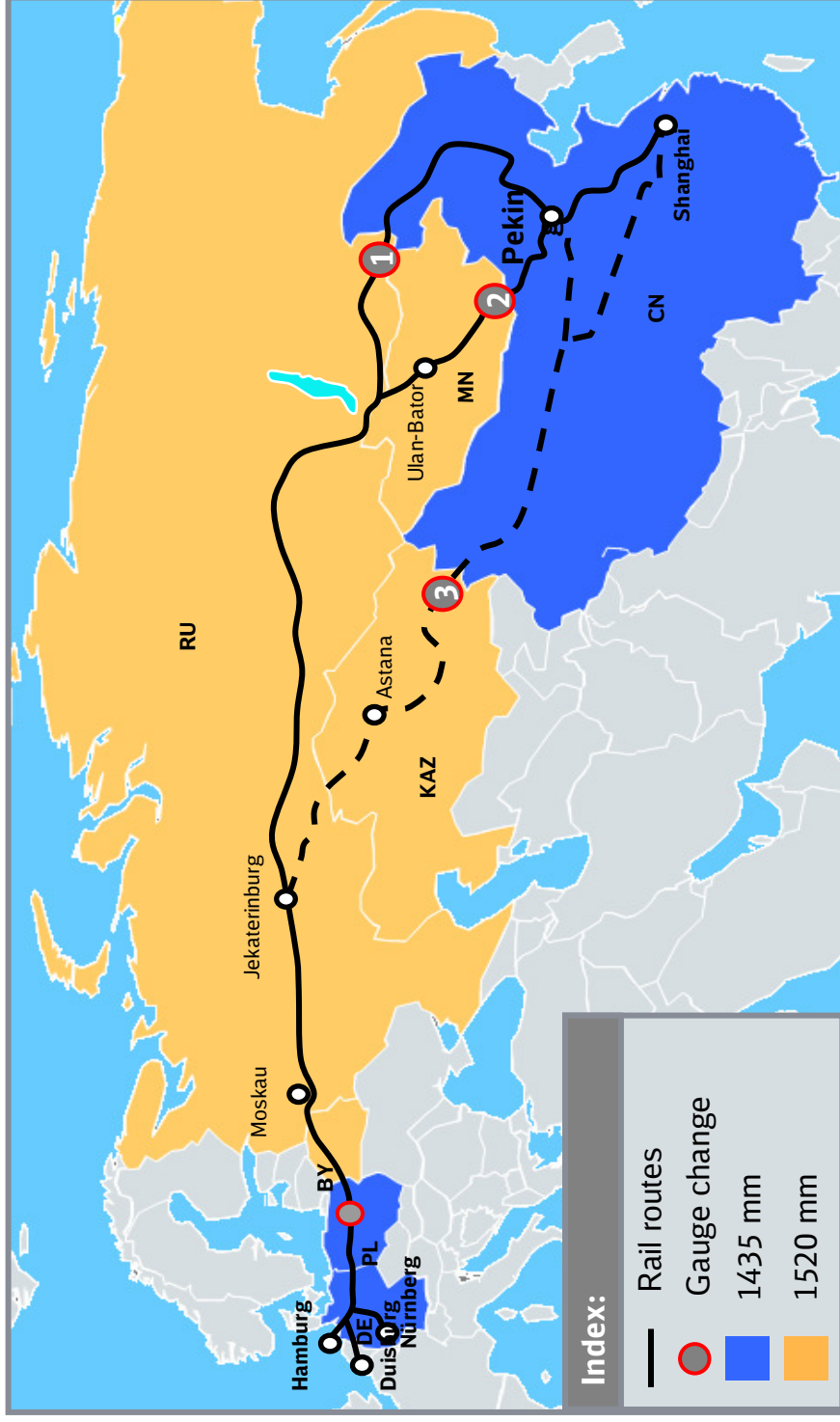
Background

- In the Five-Year-Plan 2006-2011 the Ministry of Railways (MOR) has committed to grow container traffic in China from 2 m TEU to 10 m TEU
- To comply with this commitment MOR plans to develop an intermodal rail service network by constructing 18 terminals nationwide
- To fund the proposed investment of approx. 12 bn RMB, MOR has invited six investors to participate in the Joint Venture CRIntermodal to construct and operate the 18 terminals

Locations of the 18 terminals



Trans Eurasia Express – Available routes

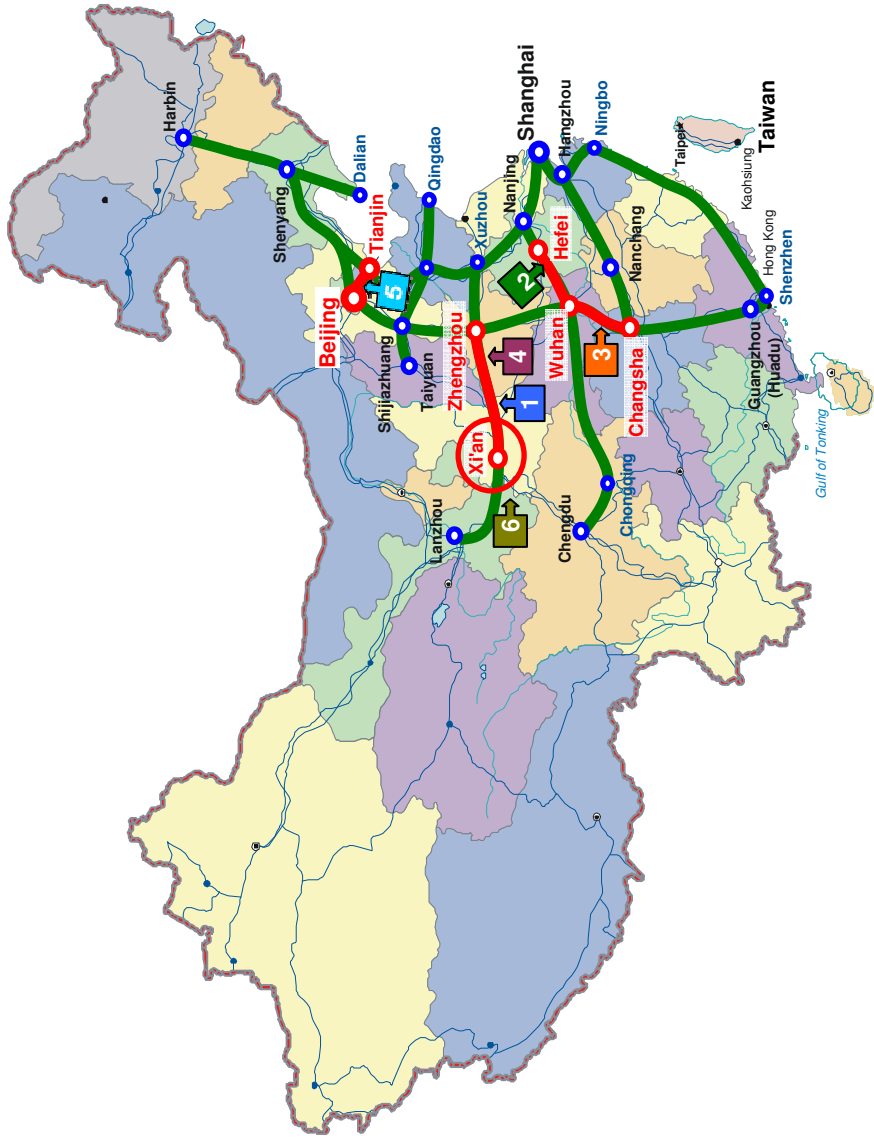


Routing:

- 1 **DE-PL-BY-RU-CN**
(Transshipping:
Zabaykalsk - Manzhouli)
- 2 **DE-PL-BY-RU-MN-CN**
(Transshipping:
Zamyn-Uude - Erlian)
- 3 **DE-PL-BY-RU-KAZ-CN**
(Transshipping:
Dostyk - Alashankou)

DB International - Projects

Envisaged High Speed Net Passenger Dedicated Lines (PDL)



Consultancy and Supervision

- 1** Zhengzhou – Xi'an PDL
Engineering Consultancy, 03/2006 - 03/2010
- 2** Hefei – Wuhan PDL
Construction Supervision, 10/2005 - 11/2009
- 3** Wuhan – Huadu PDL
Construction Supervision, 02/2006 - 07/2010
- 4** Zhengzhou – Xi'an PDL
Construction Supervision, 01/2006 - 09/2009
- 5** Beijing – Tianjin PDL
Construction Supervision Sec.1, 04/2006 - 09/2008
- 6** Xi'an Junction
Construction Supervision, 07/2006 - 10/2009

- █ PDL High-Speed Lines
- █ DB International Projects

Personnel of DB International in China: 28