

Berichtsblatt

1. ISBN oder ISSN -	2. Berichtsart Abschlussbericht	
3a. Titel des Berichts Abschlussbericht		
3b. Titel der Publikation Shenyang: From a Mega City to a Vibrant Capital of Culture and a Liveable Economic Metropolis.		
4a. Autoren des Berichts (Name, Vorname(n)) Alfen, Hans Wilhelm; Bidlingmaier, Werner; Brannolte, Ulrich; Londong, Jörg	5. Abschlussdatum des Vorhabens 31.03.2008	
	6. Veröffentlichungsdatum 2007	
4b Autoren der Publication (Name, Vorname(n)) Hassenpflug, Dieter; Stratmann, Bernhard	7. Form der Publikation Journal	
	9. Ber. Nr. durchführende Institution -	
8. Durchführende Institution (Name, Adresse) Bauhaus - Universität Weimar Geschwister Scholl Str. 8 99421 Weimar	10. Förderkennzeichen *) 01 LG 0501	
	11a. Seitenzahl Bericht 22	
	11b. Seitenzahl Publikation 2	
13. Fördernde Institution(en) (Name, Adresse) Bundesministerium für Bildung und Forschung (BMBF) 53170 Bonn	12. Literatur Siehe Anhang	
	14. Tabellen keine	
	15. Abbildungen 3	
16. Zusätzliche Angaben -		
17. Vorgelegt bei (Titel, Ort, Datum)		
18. Kurzfassung Einige Modelle und Theorien zur Entwicklung des urbanen Raums gibt es bereits. Eine weitgehend geschlossene Abbildung zur Vorhersage von Maßnahmen in der technischen Infrastruktur auf räumliche Entwicklungen liegt aktuell dennoch nicht vor. Innerhalb der Fachdisziplinen Abfallwirtschaft, Siedlungswasserwirtschaft, Verkehr, Raumnutzung und Umwelt sind weit reichende Modellgrundlagen in verschiedenen Abbildungsgenauigkeiten (z.B. makro- und mikroskopisch) erstellt worden, die aber nur teilweise fachübergreifend ausgelegt sind. Gesamtziel des Vorhabens ist die zukunftsorientierte Entwicklung technischer Infrastruktur mit der Prämisse den CO ₂ -Ausstoßes zu reduzieren und energieeffiziente Strukturen für einen urbanen Raum zu schaffen, dargestellt am Beispiel der zukünftigen Megastadt Shenyang in den Bereichen Abfall-, Siedlungswasserwirtschaft und Verkehr. Dieses Gesamtziel wird unter eine wirtschaftliche Bewertung gestellt, um anwendungsorientierte Forschungsergebnisse abzuleiten und um stadtplanerische Maßnahmen ergänzt. Die Forschungsarbeit umfasst eine interdisziplinäre Modellerstellung für die Bereiche Abfallwirtschaft, Siedlungswasserwirtschaft, Verkehr mit der Auswirkungen auf die Reduktion des CO ₂ – Ausstoßes und Schaffung energieeffiziente Strukturen für einen urbanen Raum untersucht werden. Szenarien und Handlungsempfehlungen für Shenyang waren am Ende der Forschungsarbeit geplant. Ergebnis des Projekts ist die Erarbeitung eines umfassenden Konzepts zur Erreichung der genannten Ziele in einer angedachten nächsten Projektphase, welche aber nicht genehmigt wurde. Schlussfolgerungen und Anwendungsmöglichkeiten konnten durch den Abbruch des Projekts nach der Vorbereitungsphase nicht gefunden werden.		
19. Schlagwörter Technische Infrastruktur, Energieeffizienz, Wirkungsgefüge, CO ₂ -Ausstoß, Szenarien		
20. Verlag Trialog – A Journal for Planning and Building in the Third World, Themenheft: Megacities. No. 92, 1, pp. 12 – 13.	21. Preis -	

Document control sheet

1. ISBN or ISSN -	2. Type of report Final report	
3a. Report title Final Report		
3b. Title of publication Shenyang: From a Mega City to a Vibrant Capital of Culture and a Liveable Economic Metropolis.		
4a. Author(s) of the report (family name, first name(s)) Alfen, Hans Wilhelm; Bidlingmaier, Werner; Brannolte, Ulrich; Londong, Jörg	5. End of project 31.03.2008	
	6. Publication date 2007	
4b. Author(s) of publication (family name, first name(s)) Hassenpflug, Dieter; Stratmann, Bernhard	7. Form of publication Journal	
	9. Originator's report No. .	
8. Performing organization(s) (name, address) Bauhaus - Universität Weimar Geschwister Scholl Str. 8 99421 Weimar	10. Reference No. 01 LG 0501	
	11a. No. of pages report 22	
	11b. No. of pages publication 2	
13. Sponsoring Agency (Name, Address) Bundesministerium für Bildung und Forschung (BMBF) 53170 Bonn	12. No. of references See attachment	
	14. No. of tables -	
	15. No. of figures 3	
16. Supplementary notes -		
17. Presented at (title, place, date) -		
18. Abstract A number of models and theories on urban development processes are available. In spite of this there are at present no illustrations to predict measures on the technical infrastructure of space developments that are to a large extent complete. Within the disciplines waste management, municipal water management, traffic, land management and environment extensive basic models of various size (e.g. macroscopic and microscopic) have been created the designs of which however are only partially multidisciplinary. The overall target of the project is the development of a future-oriented technical infrastructure proposing the reduction of CO ₂ production and creating energy efficient structures for urban space, shown on the example of the future mega city of Shengyang in the areas of waste and municipal water management as well as traffic. This overall target is subjected to an economic evaluation in order to deduce application oriented research results and supplement urban measures. The research work includes the designing of an interdisciplinary model for waste management, municipal water management and traffic showing the effects on CO ₂ reduction and for investigating energy efficient structures for urban spaces. Scenarios and recommended course of action for Shenyang were planned at the end of the research work. The result of this project was working out a comprehensive concept, which was to be implemented in an intended second project phase for achieving the targets mentioned which however was not sanctioned. Conclusions and possible applications could not be found as the project was discontinued after the preparatory phase.		
19. Keywords Technical infrastructure, Energy efficiency, interdisciplinary, CO ₂ production, Scenarios		
20. Publisher Trialog – A Journal for Planning and Building in the Third World, Themenheft: Megacities. No. 92, 1, pp. 12 – 13.	21. Price -	

1 Final report

1.1 Definition of the project

The main objective of the project is to present exemplary ways to a sustainable development of megacities in the form of scientifically founded practice oriented concepts. Not only should the social, economic and ecological risks of megaurbanisation be overcome but at the same time the megaurban area should be transformed to a place of cultural and economic resplendence, that can hold one's own ground in a competitive world (Image), and having an inner cohesiveness regarding civil society (identity) also develop a sense of responsibility for its citizens („civil disposition“) Only with the interaction of function and form can the megaurban transformation process aimed at gain a sustainable quality. This connectivity in the term economic and cultural metropolis as an objective is reflected in the title of the project.

With its spatial-infrastructure qualification approach, the project explicitly ties up to the already existing model status of Shenyang, acquired through external expertise (World Bank, SYIAE, Tongji University etc.) and internal strategies for a sustainable urbanisation in China and is further developing these approaches.

The aim to initiate a sustainable development of Shenyang by theoretically deduced, interdisciplinary and participative approach is possible through (ref. 1.1.3.1):

- making a concept and implementing the Xin Kai He Culture Gallery project step by step as the beginning of inverse structuring of mega urban area with a network in the whole city of Shenyang.

This superior target for rerouting the future megacity SY to a sustainable development path is connected to important sub-targets (“connecting targets“):

- acquiring intercultural competence. It is a significant cultural capital of international research, that is becoming increasingly significant especially in these times of forced globalisation. The Bauhaus-Universität Weimer which has an international reputation in the construction field (buildings, art, designs etc.) is aiming at expanding its already substantial research competence in the area of engineering, planning theory and urbanistic.
- Developing an overall waste management concept in context to saving resources, using regenerative energy and environmental education, adapted to mega urban structures.
- Development and testing suitable methods for planning and implementing a central rainwater management on the basis of decentralised structures.
- Increasing the capacity to prognosis and scenarios of complex mega urban structures in the traffic sector in context to an ever-changing environment.
- Securing the economy and financeability of all suggested measures as well as conducting utility appraisals

A further target regards the role played by Germany in the upcoming mega markets of China. The economic commitment of our country in Shenyang – as also in the whole of northern China – is

currently comparatively undeveloped. According to information from the 'International Office' of the city of SY, Germany had not been able to hold a better position as 12th position in an international ranking.— in spite of BMW and BASF in SY. The involvement of the Weimar research group is supposed to contribute to Germany evening out all the points in the 'Benchmarking' of international competitors in the region. Especially middle-class enterprises should be told which doors to open and which perspectives should be shown. The city of SY has proved in many instances that it has a great interest in strengthening its collaboration with Germany.

1.2 Conditions under which the project was done

The project had to be carried out under very difficult marginal conditions. A change in the managing section at Ningbo - a city where the project was first intended - in the early stages was a problem. The Mayor of Ningbo who had been very supportive of the project and with whom we had been negotiating through talks and meetings was transferred to Peking. His successor considers the interdisciplinary approach to the project "undesirable". He would give his approval only to individual sectors and therefore refused to support the project. Focussing on one topic however was not the target, the project group nor the financing authorities had in mind and so the project executing organisation requested a change of location.

The change of location to Shenyang was approved by the BMBF and the project started there a year later than planned. After the revised proposal had been submitted, the project was approved and continued but discontinued after the break-off milestone on 15.05.2006. This milestone comprised mainly of a list of questions covering 17 points. Up till the middle of the month the project executing organisation was mainly focussed on answering these 17 questions.

The list of questions was submitted punctually on 15.05.2006. There were however a few questions still open from the point of view of the project executing organisation. These open questions resulted in the introduction of another break-off milestone on 21.07.2006. This milestone basically comprised of the questions set and answered in the first milestone. This list of questions was answered by the 21.07.2006 and it was permitted to continue the project.

From here on work on the project went on full-swing. Since the Chinese partners were not allowed to work before continuance of the project was ensured there were a lot of deficits to be made up on the Chinese side. An extensive participation of the Chinese partners in the project with all the open break-off milestones would have been risky as existing partnerships and relationships to china could have suffered lasting damages if the project had been terminated too soon.

Altogether the project would have then had 14 months time for the remaining targets set for the first phase. In spite of the obstacles mentioned the target was achieved and an excellent concept for the implementation phase was drafted.

1.3 Planning and procedure

There were a number of deviations to the schedule compared to the planned procedure. This was caused by the change of location on one hand and the delay caused by the time taken to answer the 17 questions

on the other. After the final approval was given to continue the project in Shenyang, these deficits could be made up by quick and consequent work. By the end of 2007 the project was again within schedule.

1.4 State-of-the-art of science and technology

1.4.1 Specifications of known constructions, procedures and property rights that were utilized for the project

None

1.4.2 Specifications of literature as well as information and documentation services used

The list of literature consulted has been attached. Information and documentation services used were:

- Scopus
- Elsevier
- Catalogue of the university library of the Bauhaus-Universität Weimar
- OPAC catalogue
- DBIS data bank
- Electronic journals EZB

1.5 Cooperation with other departments

While the project was being changed there had been a short cooperation with the project team of Prof. Schoenharting who were facing similar problems at Ningbo. This cooperation was terminated after transferring to Shenyang.

1.6 Results derived

The result of this project was working out a comprehensive concept, which was to be implemented in an intended second project phase for achieving the targets mentioned which however was not sanctioned.

1.6.1 Line of modelling

It is difficult to predict the complex process of rapid urban growth as these are dependant on various influencing factors. At the same time the decisions made now on infrastructures will have a lasting effect on patterns of behaviour.

It is however possible to use the developments already determined, for the quantitative estimate of future scenarios, to examine them and discuss them with the city of Shenyang. The scenario technique is a